



**AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING
COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE
BEXAR COUNTY CRIMINAL INVESTIGATION LABORATORY
SAN ANTONIO, TEXAS**

U.S. Department of Justice
Office of the Inspector General
Audit Division

Audit Report GR-60-11-004
November 2010

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EXECUTIVE SUMMARY

The Department of Justice Office of the Inspector General (OIG), Audit Division, has completed an audit of compliance with standards governing Combined DNA Index System (CODIS) activities at the Bexar County Criminal Investigation Laboratory (Laboratory).

Background

The Federal Bureau of Investigation's (FBI) CODIS program combines forensic science and computer technology to provide an investigative tool to federal, state, and local crime laboratories in the United States, as well as those from select international law enforcement agencies. The CODIS program allows these crime laboratories to compare and match DNA profiles electronically to assist law enforcement in solving crimes and identifying missing or unidentified persons.¹ The FBI's CODIS Unit manages CODIS, as well as develops, supports, and provides the program to crime laboratories to foster the exchange and comparison of forensic DNA evidence.

The FBI implemented CODIS as a distributed database with hierarchical levels that enable federal, state, and local crime laboratories to compare DNA profiles electronically. The hierarchy consists of three distinct levels that flow upward from the local level to the state level and then, if allowable, the national level. The National DNA Index System (NDIS), the highest level in the hierarchy, is managed by the FBI as the nation's DNA database containing DNA profiles uploaded by law enforcement agencies across the United States. NDIS enables the laboratories participating in the CODIS program to electronically compare DNA profiles on a national level. The State DNA Index System (SDIS) is used at the state level to serve as a state's DNA database containing DNA profiles from local laboratories and

¹ DNA, or deoxyribonucleic acid, is genetic material found in almost all living cells that contains encoded information necessary for building and maintaining life. Approximately 99.9 percent of human DNA is the same for all people. The differences found in the remaining 0.1 percent allow scientists to develop a unique set of DNA identification characteristics (a DNA profile) for an individual by analyzing a specimen containing DNA.

state offenders. The Local DNA Index System (LDIS) is used by local laboratories.

OIG Audit Objectives

Our audit generally covered the period from July 2008 through June 2010. The objectives of our audit were to determine if: (1) the Laboratory was in compliance with the NDIS participation requirements; (2) the Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) the Laboratory's forensic DNA profiles in CODIS databases were complete, accurate, and allowable for inclusion in NDIS.

Our review determined the following:

- The Laboratory was in compliance with the NDIS participation requirements tested. Specifically, we found that CODIS access is properly safeguarded, Laboratory personnel requirements are being fulfilled, and policies and procedures related to NDIS are available and followed by Laboratory staff.
- The Laboratory's most recent internal and external audits and policies and procedures related to sample security, sample processing, and sample retention found the Laboratory to be in compliance with the QAS.
- Eleven of the 100 forensic DNA profiles we reviewed were not allowable for inclusion in NDIS and should not have been uploaded. Nine profiles belonged to the victims, one profile was not attributable to a putative perpetrator, and one profile was the suspect's own profile taken from his clothing at the time of arrest. The Laboratory deleted these 11 profiles from NDIS while we were on site. The remaining 89 profiles we reviewed were complete, accurate, and allowable for inclusion in NDIS.

We made one recommendation to address the Laboratory's compliance with standards governing CODIS activities, which are discussed in detail in the Findings and Recommendations section of the report. Our audit objectives, scope, and methodology are detailed in Appendix I of the report, and the audit criteria are detailed in Appendix II.

We discussed the results of our audit with Laboratory officials and have included their comments in the report as applicable. In addition, we requested a written response to a draft of our audit report from the FBI and the Laboratory. These responses are detailed in Appendices III and IV.

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INTRODUCTION

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Background

The Federal Bureau of Investigation's (FBI) CODIS provides an investigative tool to federal, state, and local crime laboratories in the United States using forensic science and computer technology. The CODIS program allows these laboratories to compare and match DNA profiles electronically, thereby assisting law enforcement in solving crimes and identifying missing or unidentified persons.² The FBI's CODIS Unit manages CODIS and is responsible for its use in fostering the exchange and comparison of forensic DNA evidence.

OIG Audit Objectives

Our audit generally covered the period from July 2008 through June 2010. The objectives of our audit were to determine if: (1) the Laboratory was in compliance with the National DNA Index System (NDIS) participation requirements; (2) the Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) the Laboratory's forensic DNA profiles in CODIS databases were complete, accurate, and allowable for inclusion in NDIS. Appendix I contains a detailed description of our audit objectives, scope, and methodology, while the criteria used to conduct our audit are presented in Appendix II.

² DNA, or deoxyribonucleic acid, is genetic material found in almost all living cells that contains encoded information necessary for building and maintaining life. Approximately 99.9 percent of human DNA is the same for all people. The differences found in the remaining 0.1 percent allow scientists to develop a unique set of DNA identification characteristics (a DNA profile) for an individual by analyzing a specimen containing DNA.

Legal Foundation for CODIS

The FBI began the CODIS program as a pilot project in 1990. The DNA Identification Act of 1994 (Act) authorized the FBI to establish a national index of DNA profiles for law enforcement purposes. The Act, along with subsequent amendments, has been codified in a federal statute (Statute) providing the legal authority to establish and maintain NDIS.³

Allowable DNA Profiles

The Statute authorizes NDIS to contain the DNA identification records of persons convicted of crimes, persons who have been charged in an indictment or information with a crime, and other persons whose DNA samples are collected under applicable legal authorities. Samples voluntarily submitted solely for elimination purposes are not authorized for inclusion in NDIS. The Statute also authorizes NDIS to include analysis of DNA samples recovered from crime scenes or from unidentified human remains, as well as those voluntarily contributed from relatives of missing persons.

Allowable Disclosure of DNA Profiles

The Statute requires that NDIS only include DNA information that is based on analyses performed by or on behalf of a criminal justice agency — or the U.S. Department of Defense — in accordance with QAS issued by the FBI. The DNA information in the index is authorized to be disclosed only: (1) to criminal justice agencies for law enforcement identification purposes; (2) in judicial proceedings, if otherwise admissible pursuant to applicable statutes or rules; (3) for criminal defense purposes, to a defendant who shall have access to samples and analyses performed in connection with the case in which the defendant is charged; or (4) if personally identifiable information (PII) is removed for a population statistics database, for identification research and protocol development purposes, or for quality control purposes.

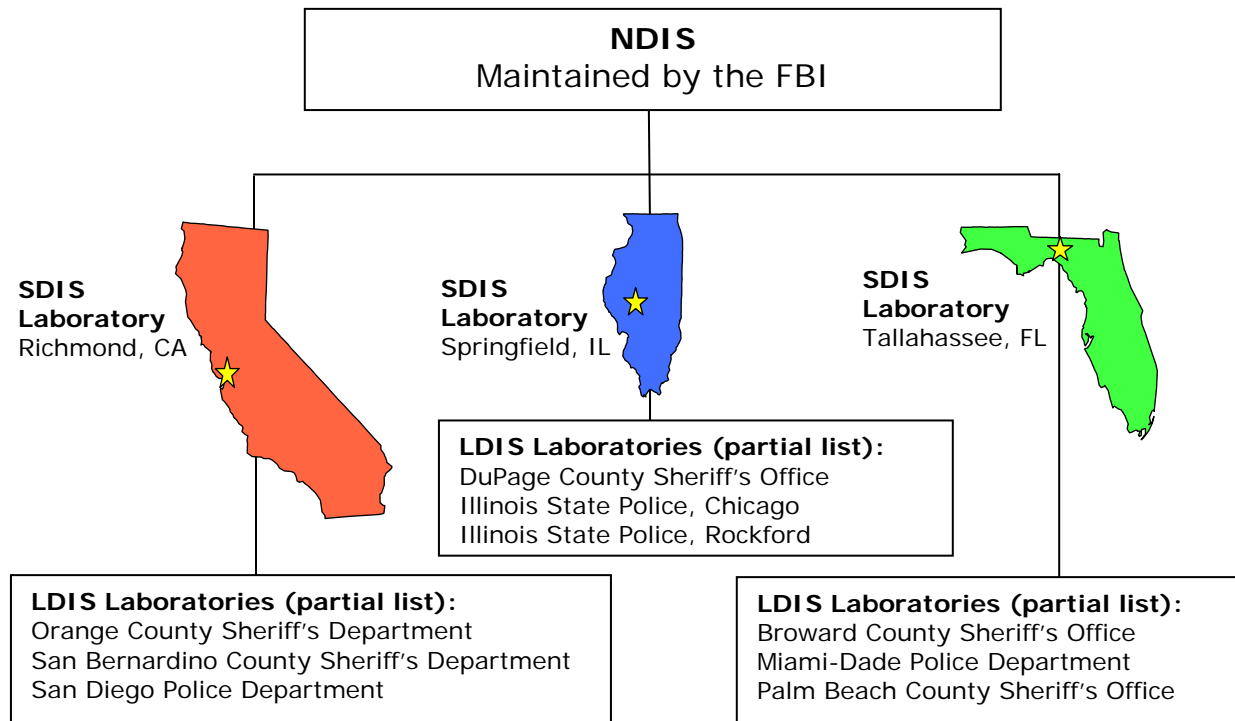
CODIS Structure

The FBI implemented CODIS as a distributed database with hierarchical levels that enables federal, state, and local crime laboratories to compare DNA profiles electronically. CODIS consists of a hierarchy of three distinct levels: (1) NDIS is managed by the FBI as the nation's DNA database containing DNA profiles uploaded by participating states, (2) the

³ 42 U.S.C.A. § 14132 (2006).

State DNA Index System (SDIS) is used at the state level to serve as a state's DNA database containing DNA profiles from local laboratories within the state and state offenders, and (3) the Local DNA Index System (LDIS) is used by local laboratories. DNA profiles originate at the local level and then flow upward to the state and, if allowable, national level. For example, the local laboratory in the Palm Beach County, Florida, Sheriff's Office sends its profiles to the state laboratory in Tallahassee, which then uploads the profiles to NDIS. Each state participating in CODIS has one designated SDIS laboratory. The SDIS laboratory maintains its own database and is responsible for overseeing NDIS issues for all CODIS-participating laboratories within the state. The graphic below presents an example of how the system hierarchy works.

Example of System Hierarchy within CODIS



National DNA Index System

NDIS is the highest level in the CODIS hierarchy and enables the laboratories participating in the CODIS program to electronically compare DNA profiles on a national level. NDIS does not contain names or other PII about the profiles. Therefore, matches are resolved through a system of laboratory-to-laboratory contacts. Within NDIS are eight searchable indices discussed below.

- Convicted Offender Index contains profiles generated from persons convicted of qualifying offenses.⁴
- Arrestee Index is comprised of profiles developed from persons who have been arrested, indicted, or charged in an information with a crime.
- Legal Index consists of profiles that are produced from DNA samples collected from persons under other applicable legal authorities.⁵
- Forensic Index profiles originate from, and are associated with, evidence found at crime scenes.
- Missing Person Index contains known DNA profiles of missing persons and deduced missing persons.
- Unidentified Human (Remains) Index holds profiles from unidentified living individuals and the remains of unidentified deceased individuals.⁶
- Relatives of Missing Person Index is comprised of DNA profiles generated from the biological relatives of individuals reported missing.
- Detainee Index consists of DNA records from non-United States (U.S.) persons detained under the authority of the U.S. and required by law to provide a DNA sample.

Although CODIS is comprised of multiple indices or databases, the two main functions of the system are to: (1) generate investigative leads that may help in solving crimes, and (2) identify missing and unidentified persons.

The Forensic Index generates investigative leads in CODIS that may help solve crimes. Investigative leads may be generated through matches

⁴ The phrase “qualifying offenses” is used here to refer to local, state, or federal crimes that require a person to provide a DNA sample in accordance with applicable laws.

⁵ An example of a Legal Index profile is one from a person found not guilty by reason of insanity who is required by the relevant state law to provide a DNA sample.

⁶ An example of an Unidentified Human (Remains) Index profile from a living person is a profile from a child or other individual, who cannot or refuses to identify themselves.

between the Forensic Index and other indices in the system, including the Convicted Offender, Arrestee, and Legal Indices. These matches may provide investigators with the identity of suspected perpetrators. CODIS also links crime scenes through matches between Forensic Index profiles, potentially identifying serial offenders.

In addition to generating investigative leads, CODIS furthers the objectives of the FBI's National Missing Person DNA Database program through its ability to identify missing and unidentified individuals. Those persons may be identified through matches between indices in CODIS, such as through matches between the profiles in the Missing Persons Index and the Unidentified Human (Remains) Index. Identifications may also be generated through matches between the Missing Persons Index and the Relatives of Missing Persons Index. The profiles within the Missing Persons and Unidentified Human (Remains) Indices may also be vetted against the Forensic, Convicted Offender, Arrestee, and Legal Indices to provide investigators with leads in solving missing and unidentified persons cases.

State and Local DNA Index System

The FBI provides CODIS software free of charge to any state or local law enforcement laboratory performing DNA analysis. Laboratories are able to use the CODIS software to upload profiles to NDIS. However, before a laboratory is allowed to participate at the national level and upload DNA profiles to NDIS, a Memorandum of Understanding (MOU) must be signed between the FBI and the applicable state's SDIS laboratory. The MOU defines the responsibilities of each party, includes a sublicense for the use of CODIS software, and delineates the standards laboratories must meet in order to utilize NDIS. Although officials from LDIS laboratories do not sign an MOU, LDIS laboratories that upload DNA profiles to an SDIS laboratory are required to adhere to the MOU signed by the SDIS laboratory.

States are authorized to upload DNA profiles to NDIS based on local, state, and federal laws, as well as NDIS regulations. However, states or localities may maintain NDIS-restricted profiles in SDIS or LDIS. For instance, a local law may allow for the collection and maintenance of a victim profile at LDIS but NDIS regulations do not authorize the upload of that profile to the national level.

The utility of CODIS relies upon the completeness, accuracy, and quantity of profiles that laboratories upload to the system. Incomplete CODIS profiles are those for which the required number of core loci were not tested or do not contain all of the DNA information that resulted from a DNA analysis and may not be searched at NDIS. The probability of a false match

among DNA profiles is reduced as the completeness of a profile increases. Inaccurate profiles, which contain incorrect DNA information or an incorrect specimen number, may generate false positive leads, false negative comparisons, or lead to the misidentification of a sample. CODIS becomes more useful as the quantity of DNA profiles in the system increases because the potential for additional leads rises. However, laws and regulations exclude certain types of profiles from being uploaded to CODIS to prevent violations to an individual's privacy and foster the public's confidence in CODIS. Therefore, it is the responsibility of the Laboratory to ensure that it is adhering to the NDIS participation requirements and the profiles uploaded to CODIS are complete, accurate, and allowable for inclusion in NDIS.

Laboratory Information

The Laboratory is an independent, fee-for-service Local DNA Index System (LDIS) laboratory that is currently part of the Community Resources Department of Bexar County. This unique arrangement places the Laboratory outside the direct influence of its customer base, law enforcement agencies. The Laboratory provides forensic laboratory support for criminal investigation activities for agencies in approximately 50 counties in South Central and West Texas, several states, and internationally for the Royal Cayman Islands Police Service. The largest single agency served by the Laboratory is the San Antonio Police Department. The Laboratory began using DNA in the processing of criminal case evidence in 1988 and began uploading forensic profiles to the National DNA Index System (NDIS) in 1998. The Laboratory has been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) since 1998.

FINDINGS AND RECOMMENDATIONS

I. Compliance with NDIS Participation Requirements

The results of our testing of compliance with NDIS Standards did not identify any instances of noncompliance with the NDIS participation requirements we reviewed.

The NDIS participation requirements, which consist of the MOU and the NDIS Procedure Manual, establish the responsibilities and obligations of laboratories that participate in the CODIS program at the national level. The MOU describes the CODIS-related responsibilities of both the Laboratory and the FBI. The NDIS Procedure Manual is comprised of the NDIS operational procedures and provides detailed instructions for laboratories to follow when performing certain procedures pertinent to NDIS. The NDIS participation requirements we reviewed are listed in Appendix II of this report.

Results of the OIG Audit

We found that the Laboratory complied with the NDIS participation requirements we reviewed. Specifically, we found that CODIS access is properly safeguarded, Laboratory personnel requirements are being fulfilled, and policies and procedures related to NDIS are available and followed by Laboratory staff. These results are described in more detail below.

- NDIS requires that CODIS be physically and electronically safeguarded from unauthorized use and only accessible to limited approved personnel. The Laboratory's one CODIS workstation is in a separate room in secured Laboratory space and only CODIS users are allowed to use this workstation. All users have their own CODIS user account and password, and the computer screen locks after 10 minutes of inactivity. The CODIS Administrator makes backups weekly and physically transfers them to a secure off-site location.
- NDIS operational procedures require that CODIS users be aware of the NDIS procedures, know where to find them, and have access to them. We confirmed with two of the Laboratory's CODIS users that they were aware of the procedures. We verified that Laboratory staff knew where to find and access the procedures in the Laboratory by having the two CODIS users show us where to find them.

- CODIS users are required to complete annually DNA Records Acceptance training. We verified with the FBI that all current CODIS users had completed the web-based training.
- The FBI requires that the Laboratory submit fingerprint cards, background information, CODIS user information, and other appropriate documentation regarding CODIS users. We verified that the Laboratory submitted all required information for each CODIS user to the FBI.
- NDIS requires that participating Laboratories maintain personnel files for CODIS users, including proficiency testing, training, and other reports, for 10 years. According to Laboratory officials, personnel records, including professional development records, DNA and non-DNA training, and educational transcripts, are kept indefinitely. This practice exceeds the NDIS requirements that records be kept for 10 years.
- NDIS procedures require a match confirmation process when matches are identified in the CODIS system. We judgmentally selected a sample of five NDIS matches and found the Laboratory to be timely in match confirmation requests, match confirmations, confirmation dispositions, and the notification to investigators of forensic matches.

Conclusion

For the areas we tested, we determined that the Laboratory was in compliance with NDIS participation requirements. We did not identify any deficiencies in safeguarding CODIS, annual training forms, personnel records, or NDIS matches. We made no recommendations concerning our review of NDIS participation requirements.

II. Compliance with the Quality Assurance Standards

We reviewed the Laboratory's compliance with the FBI's Quality Assurance Standards (QAS) by examining the most recent internal and external reviews, and the Laboratory's policies and procedures for sample processing, sample security, and sample retention. We found the Laboratory was in compliance with these standards.

During our audit, we considered the Forensic Quality Assurance Standards issued by the FBI.⁷ These standards describe the quality assurance requirements that the Laboratory must follow to ensure the quality and integrity of the data it produces. We also assessed the two most recent QAS reviews that the laboratory underwent.⁸ The QAS we reviewed are listed in Appendix II.

Results of the OIG Audit

We found that the Laboratory complied with the Forensic QAS tested. Specifically, we found that the Laboratory is reviewed annually, has adequate building and evidence security, and has appropriate quality assurance policies. These results are described in more detail below.

- The QAS requires laboratories to undergo an annual review, including an external review every 2 years. We determined that the Laboratory complied with this requirement by undergoing an annual review and by alternating between an internal and an external review each year.
- We obtained the most recent internal and external reviews for the Laboratory. We determined that for both reviews, the required FBI audit document was used, all instances of noncompliance were reported, all reviewers had completed the FBI's reviewer training course, and adequate corrective action for review findings was developed by the Laboratory. Although one review contained findings, there were no repeat deficiencies.

⁷ Forensic Quality Assurance Standards refers to the Quality Assurance Standards for Forensic DNA Testing Laboratories, effective July 1, 2009.

⁸ The QAS require that laboratories undergo annual audits. Every other year, the QAS requires that the audit be performed by an external agency that performs DNA identification analysis and is independent of the laboratory being reviewed. These audits are not required by the QAS to be performed in accordance with the *Government Auditing Standards* (GAS) and are not performed by the Department of Justice Office of the Inspector General. Therefore, we will refer to the QAS audits as reviews (either an internal laboratory review or an external laboratory review, as applicable) to avoid confusion with our audits that are conducted in accordance with GAS.

- In order for us to rely on the external review report, external reviewers must confirm they were independent at the time of the review. We requested and received a completed reviewer independence statement from each reviewer who participated in the external review.
- We verified that the entrances to the Laboratory are properly secured and controlled with touch keypads, security cameras, and a receptionist for the public entrance to prevent access by unauthorized personnel. Areas within the Laboratory are also secured by touch keypads, and only authorized personnel for that area have codes. All visitors are escorted within the building. Overall security at the Laboratory appears to be adequate and in compliance with the QAS requirements that we tested.
- The integrity of physical evidence is maintained by the Laboratory in accordance with the QAS standards that we tested. Specifically, the evidence receiving room assigns a tracking number for the evidence and begins a chain of custody record. The Laboratory adds its own unique case number ending with the item number. The evidence number is entered into the Laboratory's computerized tracking system. Through observation, we determined that evidence is properly stored from the point of receipt through processing. To ensure the accuracy of data loaded into the database, the Laboratory technically reviews all case files and completes a checklist for each sample prior to uploading to CODIS.
- The QAS requires laboratories to perform evidence examination, DNA Extraction, and PCR setup at separate times or in separate places. For known and unknown samples, the Laboratory performs the examination, extraction, PCR setup, and amplification in separate rooms and times within the Laboratory.
- The Laboratory stores forensic samples in secure areas. Specific to forensic samples, prior to processing an analyst takes cuttings. These cuttings are kept indefinitely and the original evidence is returned to the submitting agency.

Conclusion

The Laboratory was in compliance with the FBI's QAS we tested, including internal and external reviews, laboratory security, security of evidence samples, separation of known and unknown samples, and retaining

samples after analysis. We made no recommendations concerning our review of Quality Assurance Standards.

III. Suitability of Forensic DNA Profiles in CODIS Databases

Our review of a sample of 100 forensic DNA profiles uploaded to NDIS revealed 11 unallowable profiles. One profile was a known profile from a suspect's clothing, one profile was not attributable to a putative perpetrator, and nine profiles were known profiles of victims. A Laboratory official informed us that, prior to December 2002 when these profiles were analyzed; the Laboratory personnel did not have a clear understanding of what was allowable in NDIS. The Laboratory agreed with our evaluation and deleted these profiles from CODIS while we were on site.

We reviewed a sample of the Laboratory's forensic DNA profiles to determine whether each profile was complete, accurate, and allowable for inclusion in NDIS.⁹ To test the completeness and accuracy of each profile, we established standards that require a profile include all the loci for which the analyst obtained results and that the values at each locus match those identified during analysis.¹⁰ Our standards are described in more detail in Appendix II of this report.

The NDIS operational procedures establish the DNA data acceptance standards by which laboratories must abide. These procedures prohibit a laboratory from uploading forensic profiles to NDIS that clearly match the DNA profile of the victim or another known person, unless the known person is a suspected perpetrator. The NDIS procedures we reviewed are listed in Appendix II of this report.

Results of the OIG Audit

We selected a random sample of 100 profiles out of the 1,816 forensic profiles the Laboratory reported it had uploaded to NDIS as of July 27, 2010.¹¹ Of the 100 forensic profiles sampled, we found 11 were unallowable for upload to NDIS. The remaining profiles sampled were complete, accurate, and allowable for inclusion in NDIS. The specific exceptions are explained in more detail below.

⁹ When a laboratory's universe of DNA profiles in NDIS exceeds 1,500, our sample is taken from SDIS rather than directly from NDIS. See Appendix I for further description of the sample selection.

¹⁰ A "locus" is a specific location on a chromosome. The plural form of locus is loci.

¹¹ See Appendix I for further details about the audit scope.

Unallowable Profiles

Our review resulted in the identification of 11 unallowable profiles.

In December 2006, the FBI issued a flowchart with eight general principles to assist DNA analysts in determining if a profile is eligible for upload to NDIS. The unallowable profiles were attributed to the following three general principles.

FBI General Principle number 4 states that a profile must be attributable to a putative perpetrator. General Principle number 5 disallows the inclusion of the profile if it is attributable to the victim. General Principle number 8 states that a suspect's profile can reasonably be expected to be on an item that belongs to the suspect and is not allowable.

The following table describes the 11 unallowable profiles that the Laboratory deleted and the reasons they were unallowable in NDIS.

Eleven Unallowable Profiles Deleted from NDIS

<i>Sample Number</i>	<i>FBI General Principle Number 4 (Putative Perpetrator)</i>	<i>FBI General Principle Number 5 (Victim)</i>	<i>FBI General Principle Number 8 (Suspect)</i>
CA-25			X
CA-45		X	
CA-46	X		
CA-56		X	
CA-58		X	
CA-62		X	
CA-65		X	
CA-68		X	
CA-76		X	
CA-83		X	
CA-93		X	

Source: OIG Analysis

Laboratory personnel provided documentation that the unallowable profiles had been deleted from NDIS. Laboratory management told us that Laboratory personnel uploaded any profile developed from evidence from a crime scene submitted by a law enforcement agency until December 2002 when all CODIS users were required to sign an Annual Review of DNA

Records Acceptable at NDIS form. At that time, it was made clear to Laboratory management that certain profiles were unallowable. Laboratory management said that Laboratory personnel now consult the FBI's flowchart, and each profile is reviewed for allowability.

Once we presented our results to Laboratory officials, Laboratory personnel discovered that all but one of the unallowable victims' profiles had been entered into NDIS between the middle of 2001 and the end of 2002. Laboratory management did not have an explanation for this pattern, but stated that the Laboratory would re-examine all the profiles during that timeframe and delete any profiles that were unallowable.

Conclusion

For the 100 forensic profiles we tested, we found 11 that were unallowable according to FBI General Principles. Laboratory officials agreed with our conclusions and removed these profiles from NDIS. Because nine of the profiles were known samples of victims and eight of the samples were analyzed between 2001 and 2002, we make one recommendation regarding the profiles that the Laboratory maintains at NDIS.

Recommendations

We recommend that the FBI:

1. Require the Laboratory to review all profiles from January 1, 2001, through December 31, 2002, and remove any unallowable profiles from NDIS.

APPENDIX I

OBJECTIVES, SCOPE, AND METHODOLOGY

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Our audit generally covered the period from July 2008 through June 2010. The objectives of the audit were to determine if the: (1) Laboratory was in compliance with the NDIS participation requirements; (2) Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) Laboratory's forensic DNA profiles in CODIS databases were complete, accurate, and allowable for inclusion in NDIS. To accomplish the objectives of the audit, we:

- Examined internal and external Laboratory review reports and supporting documentation for corrective action taken, if any, to determine: (a) if the Laboratory complied with the QAS, (b) whether repeat findings were identified, and (c) whether recommendations were adequately resolved.¹²

In accordance with the QAS, the internal and external laboratory review procedures are to address, at a minimum, a laboratory's quality assurance program, organization and management, personnel qualifications, facilities, evidence control, validation of methods and procedures, analytical procedures, calibration and maintenance of instruments and equipment, proficiency testing of analysts, corrective action for discrepancies and errors, review of case files, reports, safety, and previous audits. The QAS require that internal and external reviews be performed by personnel who have successfully completed the FBI's training course for conducting such reviews.

¹² The QAS require that laboratories undergo annual audits. Every other year, the QAS requires that the audit be performed by an external agency that performs DNA identification analysis and is independent of the laboratory being reviewed. These audits are not required by the QAS to be performed in accordance with the *Government Auditing Standards* (GAS) and are not performed by the Department of Justice Office of the Inspector General. Therefore, we will refer to the QAS audits as reviews (either an internal laboratory review or an external laboratory review, as applicable) to avoid confusion with our audits that are conducted in accordance with GAS.

As permitted by GAS 7.42 (2007 revision), we generally relied on the results of the Laboratory's external laboratory reviews to determine if the Laboratory complied with the QAS.¹³ In order to rely on the work of non-auditors, GAS requires that we perform procedures to obtain sufficient evidence that the work can be relied upon. Therefore, we: (1) obtained evidence concerning the qualifications and independence of the individuals who conducted the review and (2) determined that the scope, quality, and timing of the audit work performed was adequate for reliance in the context of the current audit objectives by reviewing the evaluation procedure guide and resultant findings to understand the methods and significant assumptions used by the individuals conducting the reviews. Based on this work, we determined that we could rely on the results of the Laboratory's external laboratory review.

- Interviewed Laboratory officials to identify management controls, Laboratory operational policies and procedures, Laboratory certifications or accreditations, and analytical information related to DNA profiles.
- Toured the Laboratory to observe facility security measures as well as the procedures and controls related to the receipt, processing, analyzing, and storage of forensic evidence DNA samples.
- Reviewed the Laboratory's written policies and procedures related to conducting internal reviews, resolving review findings, expunging DNA profiles from NDIS, and resolving matches among DNA profiles in NDIS.
- Reviewed supporting documentation for 5 of 28 NDIS matches to determine whether they were resolved in a timely manner. The Laboratory provided the universe of NDIS matches as of August 4, 2010. The sample was judgmentally selected to include both case-to-case and case-to-offender matches. This non-statistical sample does not allow projection of the test results to all matches.
- Reviewed the case files for selected forensic DNA profiles to determine if the profiles were developed in accordance with the Forensic QAS and were complete, accurate, and allowable for inclusion in NDIS.

¹³ We also considered the results of the Laboratory's internal laboratory review, but could not rely on it because it was not performed by personnel independent of the Laboratory. Further, as noted in Appendix II, we performed audit testing to verify Laboratory compliance with specific Quality Assurance Standards that have a substantial effect on the integrity of the DNA profiles uploaded to NDIS.

We were unable to obtain the forensic profile information directly from NDIS because of the large number of profiles involved, and because FBI management controls at the NDIS level prohibit the dissemination of information in an electronic format. Therefore, working in conjunction with the contractor used by the FBI to maintain NDIS and the CODIS software, the Laboratory provided us with an electronic file identifying the 1,816 STR forensic profiles the Laboratory reported it had uploaded to NDIS as of July 27, 2010. We attempted to verify that the total number of the Laboratory's profiles in LDIS that were designated as processed by NDIS agreed with the total number of the Laboratory's forensic profiles in NDIS as of the same date. When we contacted the FBI to verify the number of profiles, the FBI was able to confirm that on September 13, 2010, there were 1,802 profiles in NDIS. Since the total number of profiles was 14 profiles apart, we conducted additional analysis to reconcile the 1,816 profiles reported by the Laboratory and the 1,802 profiles reported by the FBI. We determined that 1 profile was deleted on August 26, 2010, 12 profiles were deleted on September 1, 2010, and 1 profile was unmarked in NDIS in 2006 because it violated one of the FBI's eight general principles for allowability in NDIS.¹⁴

Based on this reconciliation, we considered this universe of LDIS profiles to be representative of the Laboratory's profiles contained in NDIS. We limited our review to a sample of 100 profiles. This sample size was determined judgmentally because preliminary audit work determined that risk was not unacceptably high.

Using the judgmentally-determined sample size, we randomly selected a representative sample of labels associated with specific profiles in our universe to reduce the effect of any patterns in the list of profiles provided to us. However, since the sample size was judgmentally determined, the results obtained from testing this limited sample of profiles may not be projected to the universe of profiles from which the sample was selected.

The objectives of our audit concerned the Laboratory's compliance with required standards and the related internal controls. Accordingly, we did not attach a separate statement on compliance with laws and regulations or a statement on internal controls to this report. See Appendix II for detailed information on our audit criteria.

¹⁴ Unmarked means the profile is not searched in NDIS or SDIS but remains searchable in LDIS.

AUDIT CRITERIA

In conducting our audit, we considered the NDIS participation requirements and the Quality Assurance Standards (QAS). However, we did not test for compliance with elements that were not applicable to the Laboratory. In addition, we established standards to test the completeness and accuracy of DNA profiles as well as the timely notification of DNA profile matches to law enforcement.

NDIS Participation Requirements

The NDIS participation requirements, which consist of the Memorandum of Understanding (MOU) and the NDIS operational procedures, establish the responsibilities and obligations of laboratories that participate in NDIS. The MOU requires that NDIS participants comply with federal legislation and the QAS, as well as NDIS-specific requirements accompanying the MOU in the form of appendices. We focused our audit on specific sections of the following NDIS operational procedures.

- DNA Data Acceptance Standards
- DNA Data Accepted at NDIS
- Quality Assurance Standards (QAS) Audits
- NDIS DNA Autosearches
- Confirm an Interstate Candidate Match
- General Responsibilities
- Initiate and Maintain a Laboratory's Participation in NDIS
- Security Requirements
- CODIS Users
- CODIS Administrator Responsibilities
- Access to, and Disclosure of, DNA Records and Samples
- Upload of DNA Records
- Expunge a DNA Record

Quality Assurance Standards

The FBI issued two sets of Quality Assurance Standards (QAS): (1) QAS for Forensic DNA Testing Laboratories, effective July 1, 2009 (Forensic QAS) and (2) QAS for DNA Databasing Laboratories, effective July 1, 2009 (Offender QAS). The Forensic QAS and the Offender QAS describe the quality assurance requirements that the Laboratory should follow to ensure the quality and integrity of the data it produces.

For our audit, we generally relied on the reported results of the Laboratory's most recent annual external review to determine if the Laboratory was in compliance with the QAS. Additionally, we performed audit work to verify that the Laboratory was in compliance with the QAS listed below because they have a substantial effect on the integrity of the DNA profiles uploaded to NDIS.

- Facilities (Forensic QAS and Offender QAS 6.1): The laboratory shall have a facility that is designed to ensure the integrity of the analyses and the evidence.
- Evidence Control (Forensic QAS 7.1): The laboratory shall have and follow a documented evidence control system to ensure the integrity of physical evidence. Where possible, the laboratory shall retain or return a portion of the evidence sample or extract.
- Sample Control (Offender QAS 7.1): The laboratory shall have and follow a documented evidence base control system to ensure the integrity of database and physical evidence.
- Analytical Procedures (Forensic QAS and Offender QAS 9.5): The laboratory shall monitor the analytical procedures using [appropriate] controls and standards.
- Review (Forensic QAS 12.1): The laboratory shall conduct administrative and technical reviews of all case files and reports to ensure conclusions and supporting data are reasonable and within the constraints of scientific knowledge.

(Offender QAS Standard 12.1): The laboratory shall have and follow written procedures for reviewing DNA records and DNA database information, including the resolution of database matches.

- [Reviews] (Forensic QAS and Offender QAS 15.1 and 15.2): The laboratory shall be audited annually in accordance with [the QAS]. The annual audits shall occur every calendar year and shall be at least 6 months and no more than 18 months apart.

At least once every 2 years, an external audit shall be conducted by an audit team comprised of qualified auditors from a second agency(ies) and having at least one team member who is or has been previously qualified in the laboratory's current DNA technologies and platform.

- Outsourcing (Forensic QAS and Offender QAS Standard 17.1): A vendor laboratory performing forensic and database DNA analysis shall

comply with these Standards and the accreditation requirements of federal law.

Forensic QAS 17.4: An NDIS participating laboratory shall have and follow a procedure to verify the integrity of the DNA data received through the performance of the technical review of DNA data from a vendor laboratory.

Offender QAS Standard 17.4: An NDIS participating laboratory shall have, follow, and document appropriate quality assurance procedures to verify the integrity of the data received from the vendor laboratory including, but not limited to, the following: Random reanalysis of database, Known or casework reference samples; Inclusion of QC samples; Performance of an on-site visit by an NDIS participating laboratory or multi-laboratory system outsourcing DNA sample(s) to a vendor laboratory or accepting ownership of DNA data from a vendor laboratory.

Office of the Inspector General Standards

We established standards to test the completeness and accuracy of DNA profiles as well as the timely notification of law enforcement when DNA profile matches occur in NDIS. Our standards are listed below.

- **Completeness of DNA Profiles:** A profile must include each value returned at each locus for which the analyst obtained results. Our rationale for this standard is that the probability of a false match among DNA profiles is reduced as the number of loci included in a profile increases. A false match would require the unnecessary use of laboratory resources to refute the match.
- **Accuracy of DNA Profiles:** The values at each locus of a profile must match those identified during analysis. Our rationale for this standard is that inaccurate profiles may: (1) preclude DNA profiles from being matched and, therefore, the potential to link convicted offenders to a crime or to link previously unrelated crimes to each other may be lost; or (2) result in a false match that would require the unnecessary use of laboratory resources to refute the match.
- **Timely Notification of Law Enforcement When DNA Profile Matches Occur in NDIS:** Laboratories should notify law enforcement personnel of NDIS matches within 2 weeks of the match confirmation date, unless there are extenuating circumstances. Our rationale for this standard is that untimely notification of law enforcement personnel may result in the suspected perpetrator committing additional, and

possibly more egregious, crimes if the individual is not deceased or already incarcerated for the commission of other crimes.

APPENDIX III



BEXAR COUNTY CRIMINAL INVESTIGATION LABORATORY

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October 28, 2010

Mr. David Sheeren
Regional Audit Manager
U.S. Department of Justice
Office of the Inspector General
Denver Regional Audit Office
Denver, Colorado 80203

Mr. Sheeren,

The Bexar County Crime Laboratory accepts the findings of this audit. It is our intention to follow the recommendation in the finding section "Suitability of Forensic Profiles CODIS Databases" and review all profiles from January 1, 2001, through December 31, 2002, and remove any unallowable profiles from NDIS.

For the purpose of clarification, we recommend the following changes for your consideration.

- The Bexar County Crime Laboratory does not receive, process, analyze and/or store convicted offender samples (page 23 of 29, third paragraph...page 16 of the actual audit).
- Though the Bexar County Crime laboratory is not an "Offender" data basing laboratory, "Offender" Quality Assurance Standards are included in the Audit Criteria (Appendix II). This may be confusing to the general public.
- The report states, "Our audit generally covered the period from July 2008 until June 2010," (page 6). It would seem more appropriate to state 1998 to 2010 since the Laboratory was asked to provide all documentation / case files going back to the beginning of CODIS entry.
- The report states, "laboratory that is currently part of the Community Investment Department of Bexar County," (page 6). This should be "Community Resources Department."

Thank you for the opportunity to respond to the audit findings. If you have any further question, I may be contacted at 210-335-4100.

Sincerely,

Timothy C. Fallon
Crime Laboratory Director
Bexar County Criminal Investigation Laboratory

APPENDIX IV



U.S. Department of Justice

Federal Bureau of Investigation

Washington, D. C. 20535-0001

November 2, 2010

Mr. David M. Sheeren
Regional Audit Manager
Denver Regional Audit Office
Office of the Inspector General
1120 Lincoln, Suite 1500
Denver, CO 80203

Dear Mr. Sheeren:

Your memorandum to Director Mueller forwarding the draft report of the audit conducted at the Bexar County Criminal Investigation Laboratory San Antonio (Laboratory) has been referred to me for response.

Your draft report contained one recommendation relating to the Laboratory's compliance with the FBI's Memorandum of Understanding and *Quality Assurance Standards/or DNA Testing Laboratories*. The CODIS Unit has reviewed the draft audit report and offers the following comment.

With respect to recommendation one relating to the review of forensic profiles to ensure the allowability of those profiles uploaded to NDIS from January 1, 2001 through December 31, 2002, the Laboratory anticipates that its review will be completed by August 30, 2011. The CODIS Unit will monitor the Laboratory's progress in completing this task.

Thank you for sharing the draft audit report with us. If you have any questions, please feel free to contact Jennifer C. Luttman, Chief of the CODIS Unit, at (703) 632-8315.

Sincerely,

Alice R. Isenberg, Ph.D
Section Chief
Biometrics Analysis Section
FBI Laboratory

APPENDIX V

OFFICE OF THE INSPECTOR GENERAL, AUDIT DIVISION, ANALYSIS AND SUMMARY OF ACTIONS NECESSARY TO CLOSE REPORT

1. **RESOLVED.** We recommended that the FBI require the Laboratory to review all profiles from January 1, 2001 through December 31, 2002 and remove from NDIS any unallowable profiles. This recommendation can be closed when we receive documentation that all unallowable profiles as a result of this review have been removed from NDIS.