



**COMPLIANCE WITH STANDARDS GOVERNING
COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE
FLORIDA DEPARTMENT OF LAW ENFORCEMENT
ORLANDO REGIONAL CRIME LABORATORY
ORLANDO, FLORIDA**

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

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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 Florida Department of Law Enforcement, Orlando Regional Crime 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 November 2008 through October 2010. The objectives of our audit were to determine if: (1) the Florida Department of Law Enforcement, Orlando Regional Crime 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 complied with the NDIS participation requirements we reviewed.
- The Laboratory complied with the Quality Assurance Standards we reviewed.
- We reviewed 100 of the 6,980 forensic profiles the Laboratory had uploaded to NDIS as of October 15, 2010. Of the 100 forensic profiles sampled, 4 were unallowable for upload to NDIS. The unallowable profiles either belonged to a victim or could not be connected to the crime. The CODIS Administrator removed all four profiles from NDIS either before our on-site work began or during our on-site work. Because all four unallowable profiles were processed by the Laboratory more than 5 years ago, it appears the Laboratory is now following procedures to prevent entry of unallowable profiles into CODIS. The remaining 96 profiles we reviewed were complete, accurate, and allowable for inclusion in NDIS.

The results of our audit are discussed in detail in the Findings 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.

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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.¹ 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 covered the period from November 2008 through October 2010. The objectives of our audit were to determine if: (1) the Florida Department of Law Enforcement, Orlando Regional Crime 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; and Appendix II contains the criteria used to conduct our audit.

Legal Foundation for CODIS

The FBI's CODIS program began 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

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.

subsequent amendments, has been codified in a federal statute (Statute) providing the legal authority to establish and maintain NDIS.²

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.

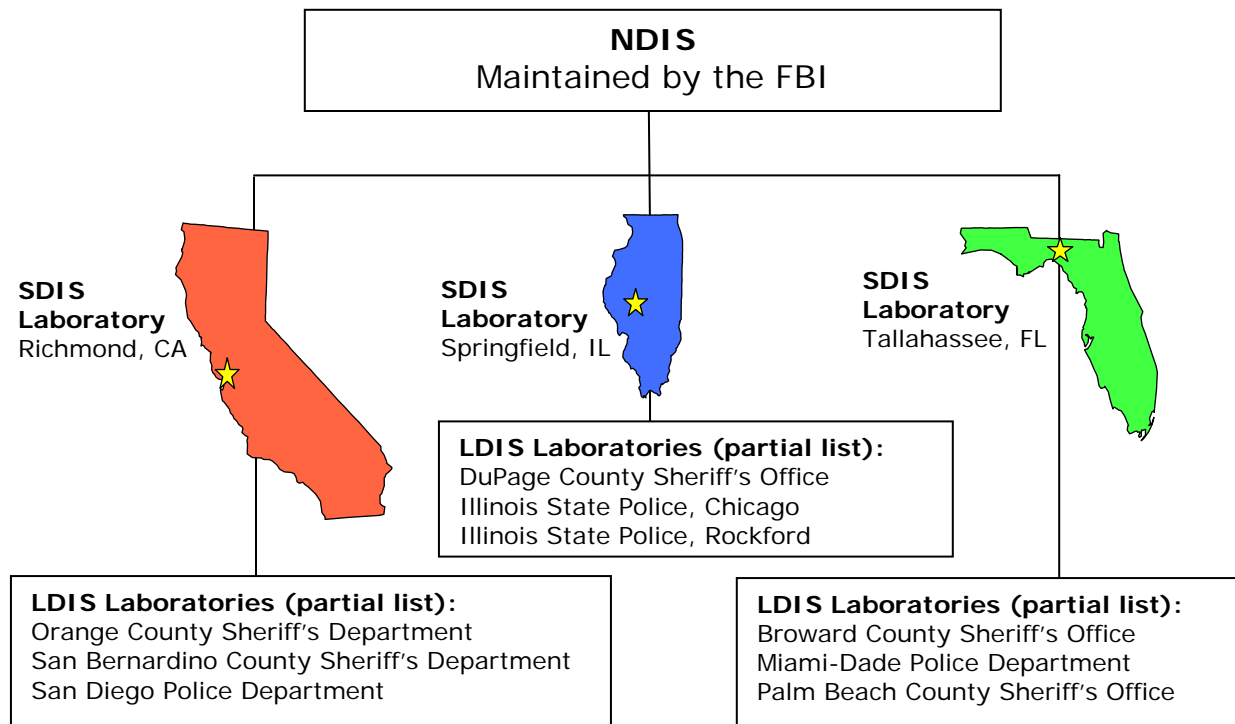
CODIS Structure

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

² 42 U.S.C.A. § 14132 (2006).

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.³

³ 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.

- 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.⁴
- Detainee Index contains profiles from non-U.S. persons detained under the authority of the U.S. and required by law to provide a DNA sample for analysis and entry into NDIS.
- 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.⁵
- Relatives of Missing Person Index is comprised of DNA profiles generated from the biological relatives of individuals reported missing.

Given these multiple databases, the main functions of CODIS 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 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.

⁴ 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.

⁵ 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.

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. For instance, those persons may be identified through matches between the profiles in the Missing Persons Index and the Unidentified Human (Remains) Index. In addition, the profiles within the Missing Persons and Unidentified Human (Remains) Indices may also be vetted against the Forensic, Convicted Offender, Arrestee, Detainee, 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.

CODIS becomes more useful as the quantity of DNA profiles in the system increases because the potential for additional leads rises. However, 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.⁶ 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. Further, laws and regulations

⁶ A "locus" is a specific location on a chromosome. The plural form of locus is loci.

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 Florida Department of Law Enforcement, Orlando Regional Crime Laboratory participates in the CODIS program as a Local DNA Index System (LDIS) laboratory. The Laboratory began using DNA to process criminal cases in 1991 and started uploading profiles to SDIS in 1997. The Laboratory performs analysis on forensic samples only. Beginning in September 2006, the Florida Department of Law Enforcement contracted with two private laboratories for the analysis of forensic samples. In 2009, the Orlando Regional Crime Laboratory forwarded 392 evidence submissions to one contractor for analysis, and in 2010, the Laboratory forwarded 275 evidence submissions to the other contractor for analysis. The Laboratory was first accredited by the American Society of Crime Laboratories Directors/Laboratory Accreditation Board in 1990 and was reaccredited in September 2010 for a period of 5 years.

FINDINGS AND RECOMMENDATIONS

I. Compliance with NDIS Participation Requirements

The Laboratory complied 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 the Laboratory maintained adequate security over its facilities and CODIS servers, submitted the required background information on all CODIS users to the FBI, kept records showing all CODIS users were properly trained, and followed NDIS match procedures. The results of our audit are described in more detail below.

- We interviewed the CODIS Administrator and conducted a walk-through tour of the building and the Laboratory. We identified no material concerns regarding the Laboratory's procedures for securing the CODIS server or the Laboratory's facilities.
- We interviewed the CODIS Administrator and reviewed documents to determine that the Laboratory provided appropriate personnel with copies of the NDIS procedures manual. We interviewed two CODIS users and determined that they both understood NDIS procedures and could access the procedures on the FBI's Criminal Justice Information System Wide Area Network.
- We verified with the FBI that all Laboratory CODIS users have completed the 2010 DNA Records Acceptable at NDIS training.
- For each CODIS user, the Laboratory is required to send certain background and security information to the FBI. We verified that the Laboratory submitted the required information to the FBI.

- We determined the Laboratory complied with NDIS requirements regarding the maintenance of personnel records.
- NDIS match procedures state that offender laboratories or casework laboratories should respond to initiating casework laboratories' requests to confirm matches within 30 business days of receipt of the request. Office of the Inspector General standards state that law enforcement should be notified of NDIS match confirmations within 2 weeks of the confirmation date. We initially reviewed a sample of 10 NDIS matches and determined that the Laboratory was timely confirming matches. However, four of the match confirmations were not reported to investigators timely. Exhibit 1 shows the time from match confirmation to notification of investigators for the 10 confirmed matches we tested.

Exhibit 1: Time to Notify Investigators of Confirmed Matches

Sample Match Number	Date Match Was Confirmed	Date Investigators Were Notified of the Confirmation	Business Days Between Confirmation and Notification of Investigators
1	06/02/2010	06/17/2010	11
2	05/03/2010	05/07/2010	5
3	01/21/2010	03/05/2010	31
4	07/07/2009	07/20/2009	9
5	07/11/2008	09/23/2008	52
6	03/31/2008	04/11/2008	9
7	07/13/2007	01/16/2008	133
8	04/18/2007	N/A	N/A ⁷
9	04/29/2005	06/15/2005	33
10	10/02/2003	10/03/2003	2

Source: Florida Department of Law Enforcement, Orlando Regional Crime Laboratory files

For sample matches 3, 5, 7, and 9 the Laboratory notified investigators in 31, 52, 133, and 33 business days, respectively, after the matches had been confirmed. Untimely notification of confirmed matches may hinder investigators from solving crimes timely. We asked Laboratory officials to explain these delays. Laboratory officials

⁷ The perpetrator pled guilty to the crime prior to the match, making the match process unnecessary.

told us that a backlog of casework and the need for Laboratory staff to testify in court kept staff busy or limited their time in the laboratory. The Crime Laboratory Analyst Supervisor told us that in April 2008 the Special Agent in Charge of the Orlando Regional Operations Center instructed the Chief of Forensic Services to ensure that investigators are notified of confirmed matches within 48 hours. The CODIS Administrator told us he notified Laboratory staff that this 48-hour notification is to be the protocol. Beginning in February 2010, the Laboratory generated a monthly match tracking list used by managers and staff to ensure that investigators are notified timely of CODIS matches.

To verify improvement in the timeliness of match confirmations, we randomly selected and assessed three additional NDIS matches from May 2010 to August 2010. For these matches, the Laboratory notified investigators timely. We concluded that the laboratory has changed its practices to address the timeliness of match confirmations.

Conclusion

We made no recommendations concerning our review of NDIS participation requirements.

II. Compliance with the Quality Assurance Standards

The Laboratory complied with the Forensic QAS we reviewed.

During our audit, we considered the Forensic QAS issued by the FBI.⁸ 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.⁹ 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. These results are described in more detail below.

- We determined the Laboratory underwent a QAS review during each of the last 2 calendar years as required by the QAS for laboratory reviews. The Laboratory underwent a QAS review by internal reviewers in September 2009 and by external reviewers in May 2010.
- We reviewed the most recent QAS review reports provided by the Crime Laboratory Analyst Supervisor and determined that the FBI's QAS Review Document was used to conduct the most recent external and internal reviews. The FBI confirmed that at least one of the QAS reviewers for both reviews had successfully completed the FBI QAS Review training course. Although there were no findings in the last external review report, there were two findings in the last internal review report. According to the internal review report, the Laboratory did not have a documented program for participation in external reviews and did not have a procedure regarding document retention for continuing education. We reviewed the corrective actions taken by the Florida Department of Law Enforcement and determined that it established written policies to address issues raised by the QAS

⁸ Forensic Quality Assurance Standards refer to the Quality Assurance Standards for Forensic DNA Testing Laboratories, effective July 1, 2009.

⁹ 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.

reviewers. The Laboratory provided the most recent QAS Review Reports to the FBI within the required 30 days.

- We asked the QAS reviewers who conducted the most recent external QAS review to certify that they had no impairments to their independence. The QAS reviewers provided us with this certification.
- We toured the Laboratory building and interviewed the CODIS Administrator to determine that the facility appeared to have adequate physical access controls in place.
- We toured the Laboratory building and reviewed policies to determine that the Laboratory appeared to have adequate procedures in place to ensure the integrity of physical evidence.
- We interviewed the CODIS Administrator and reviewed policies and practices to determine that the Laboratory's policies and practices regarding the separation of known and unknown samples during the analysis process appeared to be adequate.
- We interviewed the CODIS Administrator and toured the Laboratory to determine that the Laboratory appeared to be in compliance with forensic standards governing the retention of samples and extracts after analysis.
- We interviewed the Laboratory's Crime Laboratory Analyst Supervisor and reviewed documentation to determine that the Laboratory outsourced DNA samples for analysis. We verified the contractors had undergone a QAS review before the contracts began and that the Laboratory had reviewed the quality of the contractors' work in accordance with the FBI's QAS.
- We interviewed the Laboratory's Crime Laboratory Analyst Supervisor and reviewed documentation to determine that the Laboratory reviews 100 percent of the outsourced work performed by the contractor, which includes an analyst review of raw data in Genotyper and Genescan printouts.
- We interviewed the Laboratory's Crime Laboratory Analyst Supervisor and reviewed documentation to determine that the Laboratory had conducted a site visit of each outsourced Laboratory within the last 2 years.

Conclusion

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

III. Suitability of Forensic DNA Profiles in CODIS Databases

Of the 100 forensic profiles sampled, we found 4 were unallowable for upload to NDIS. The unallowable profiles either belonged to a victim or could not be connected to the crime. The CODIS Administrator removed all four profiles from NDIS either before or during our work on-site. The remaining 96 profiles we reviewed were complete, accurate, and allowable for inclusion in NDIS.

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.¹⁰ 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.¹¹ Our standards are described in more detail in Appendix II of this report.

The FBI's NDIS operational procedures establish the DNA data acceptance standards by which laboratories must abide. The FBI also developed a flowchart as guidance for the laboratories for determining what is allowable in the forensic index at NDIS. Laboratories are prohibited from uploading forensic profiles to NDIS that clearly match the DNA profile of the victim or another known person who is not a suspect. A profile at NDIS that matches a suspect may be allowable if the contributor is unknown at the time of collection, however, NDIS guidelines prohibit profiles that match a suspect if that profile could reasonably have been expected to be on an item at the crime scene or part of the crime scene independent of the crime. For instance, a profile from an item seized from the suspect's person, such as a shirt, or that was in the possession of the suspect when collected is generally not a forensic unknown and would not be allowable for upload to NDIS. 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 6,980 forensic profiles the Laboratory had uploaded to NDIS as of October 15, 2010. Of the 100 forensic profiles sampled, we found 4 were unallowable for upload to

¹⁰ 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.

¹¹ A "locus" is a specific location on a chromosome. The plural form of locus is loci.

NDIS.¹² The remaining profiles sampled were complete, accurate, and allowable for inclusion in NDIS. The specific exceptions are explained in more detail below.

OIG Sample Number CA-49

After we notified the Laboratory of our audit but before our on-site work began, the CODIS Administrator identified Sample Number CA-49 as unallowable and removed it from CODIS. The profile was obtained from blood on a broken beer mug found at the scene of an assault. The profile was considered to be crime scene evidence and uploaded into the CODIS as a forensic unknown. During his preparation for this audit, the CODIS Administrator concluded that the blood probably belonged to the victim because it was the victim who bled profusely from the assault, not the perpetrator. In addition, although the laboratory requested a victim standard, it was never submitted. Therefore, the CODIS Administrator determined that the profile was unallowable for uploading into CODIS and stated that the analyst made an error. This case was processed by the Laboratory in September 2002.

OIG Sample Number CA-51

Sample Number CA-51 was a known sample taken from a t-shirt belonging to a suspect in a stabbing. Further, the police report did not establish that the t-shirt was obtained from the crime scene. Because the sample taken from the t-shirt was a known sample and there is no information about where the police obtained the t-shirt, the profile was unallowable for upload into CODIS. The case was processed in July 2003. The CODIS Administrator removed the profile from CODIS while we were on site.

OIG Sample Number CA-65

After we notified the Laboratory of our audit but before our on-site work began, the CODIS Administrator identified Sample Number CA-65 as unallowable and removed it from CODIS. The profile was obtained from a broken fighting stick, which was believed to be the weapon used during an assault. The profile was considered to be from crime scene evidence and uploaded into the CODIS as a forensic unknown. However, no standard was

¹² Two of the four profiles were determined to be unallowable for reasons other than the sample belonging to the victim. In each of these two instances, the sample was analyzed and uploaded to NDIS prior to the FBI's issuance of its 2006 guidance pertaining to the allowability of profiles.

obtained from the victim. During preparation for this audit, the CODIS Administrator identified the victim's profile in CODIS and matched it to this profile. Because the profile belonged to the victim, it is unallowable for upload to CODIS. This case was processed by the Laboratory in October 2001.

OIG Sample Number CA-99

Sample Number CA-99 was taken from a cigarette butt found in front of a business that was burglarized. In addition, the police report did not state that the cigarette butt obtained for evidentiary purposes was attributable to the putative perpetrator. The police report stated there were several cigarette butts on the ground in the parking lot spaces in front of the store. The CODIS Administrator removed this profile from CODIS during the audit. This case was processed by the Laboratory in May 2005.

According to a Laboratory official, in 2008 the Laboratory began requiring police officers to submit more-detailed explanations regarding the source and circumstances surrounding the collection of items submitted to the Laboratory for analysis. This practice enabled analysts to make more informed decisions regarding the allowability of CODIS entries.

Conclusion

All four of the unallowable profiles in our sample were processed by the Laboratory prior to June 2005. The remaining samples were complete, accurate, and allowable for inclusion in NDIS. Therefore, it appears that the Laboratory has revised its procedures to ensure allowable profiles are entered into CODIS. We made no recommendations concerning our review of Forensic DNA profiles.

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 November 2008 through October 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 QAS 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.¹⁴

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

¹⁴ The QAS require that laboratories undergo annual audits, which every other year, must be performed by an external agency that performs DNA identification analysis and is independent of the laboratory being reviewed. The QAS does not require these audits 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 refer to the QAS audits as either internal or external laboratory reviews, as applicable, to avoid confusion with our audits that are conducted in accordance with GAS.

be performed by personnel who have successfully completed the FBI's training course for conducting such reviews.

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.¹⁵ 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 and convicted offender 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 10 of 237 NDIS matches to determine whether they were resolved in a timely manner. The Laboratory provided the universe of 237 NDIS matches as of October 13, 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.

¹⁵ 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.

- Reviewed supporting documentation to determine whether the Laboratory provided adequate vendor oversight.

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.

The NDIS Custodian, via the contractor used by the FBI to maintain NDIS and the CODIS software, provided an electronic file identifying the 6,980 Short Tandem Repeat forensic profiles the Laboratory had uploaded to NDIS as of October 15, 2010. 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.

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
- The FBI Flowchart: A Guide to Determining What is Allowable in the Forensic Index at NDIS¹⁶

¹⁶ The FBI Flowchart is guidance issued to NDIS-participating laboratories separate from the MOU and NDIS operational procedures. The flowchart is contained in the 2010 CODIS Administrator's Handbook and has been provided to laboratories in referendums such as CODIS conferences.

Quality Assurance Standards

The FBI issued two sets of Quality Assurance Standards (QAS): QAS for Forensic DNA Testing Laboratories, effective July 1, 2009 (Forensic QAS); and 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 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.
- Analytical Procedures (Forensic 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.
- Reviews (Forensic 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 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.

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.

FEDERAL BUREAU OF INVESTIGATION RESPONSE

U.S. Department of Justice

Federal Bureau of Investigation

Washington D.C. 20535-0001

March 15, 2011

Ferris B. Polk
Regional Audit Manager
Atlanta Regional Audit Office
Office of the Inspector General
75 Spring Street
Atlanta, GA 30303

Dear Mr. Polk:

Your memorandum to Director Mueller forwarding the draft audit report for the Florida Department of Law Enforcement, Orlando Regional Crime Laboratory, Orlando, Florida (Laboratory), has been referred to me for response.

Your draft report contained no recommendations relating to the Laboratory's compliance with the FBI's Memorandum of Understanding and *Quality Assurance Standards for DNA Testing Laboratories*. The CODIS Unit reviewed the draft report and since it appears that the Laboratory is in compliance with NDIS participation requirements, the CODIS Unit has no comments to provide to the draft report.

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,

/s/

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

**OFFICE OF THE INSPECTOR GENERAL
ANALYSIS AND SUMMARY OF ACTIONS NECESSARY
TO CLOSE REPORT**

The Office of the Inspector General provided a draft of this audit report to the Federal Bureau of Investigation (FBI) and to the Chief of Forensic Services, Florida Department of Law Enforcement, Orlando Regional Crime Laboratory. The FBI's comments are incorporated as Appendix III of this final report. This report contains no recommendations and is issued closed.