AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE MICHIGAN STATE POLICE NORTHVILLE FORENSIC LABORATORY NORTHVILLE, MICHIGAN

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

Audit Report GR-50-13-008
May 2013

AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE MICHIGAN STATE POLICE NORTHVILLE FORENSIC LABORATORY NORTHVILLE, MICHIGAN

EXECUTIVE SUMMARY

The U.S. 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 Michigan State Police (MSP) Northville Forensic 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 enables 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, contains DNA profiles uploaded by law enforcement agencies across the United States and is managed by the FBI. 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

---

[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.

database and contains DNA profiles from local laboratories and state offenders. The Local DNA Index System (LDIS) is used by local laboratories.

OIG Audit Objectives

Our audit generally covered the period from October 2010 through October 2012. 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 complied with the NDIS participation requirements we reviewed. Specifically, we found that the Laboratory maintained adequate security over its facility and CODIS server, submitted the required background information on CODIS users to the FBI, kept records showing CODIS users were properly trained, and were timely in resolving the NDIS matches we reviewed.

- The Laboratory complied with the Forensic QAS reviewed. Specifically, the Laboratory: (1) underwent QAS reviews within designated timeframes; (2) had procedures in place to ensure that access to the Laboratory was controlled and limited to authorized personnel; (3) followed protocols with regard to amplified samples being maintained in separate rooms from the evidence examination, DNA extraction, and PCR setup areas; and (4) adequately reviewed its contracted laboratories in accordance with the QAS requirements.

- We reviewed 100 of the 3,251 forensic profiles the Laboratory had uploaded to NDIS from January 1, 2006, through September 17, 2012. Of the 100 forensic profiles sampled, 1 was unallowable for inclusion in NDIS. As a result of our audit, the profile was deleted from NDIS. The remaining 99 profiles we reviewed were complete, accurate, and allowable for inclusion in NDIS.

The results of our audit 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.

TABLE OF CONTENTS

INTRODUCTION

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 Michigan State Police (MSP) Northville Forensic Laboratory (Laboratory).

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 generally covered the period from October 2010 through October 2012. 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; Appendix II contains the criteria used to conduct the 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

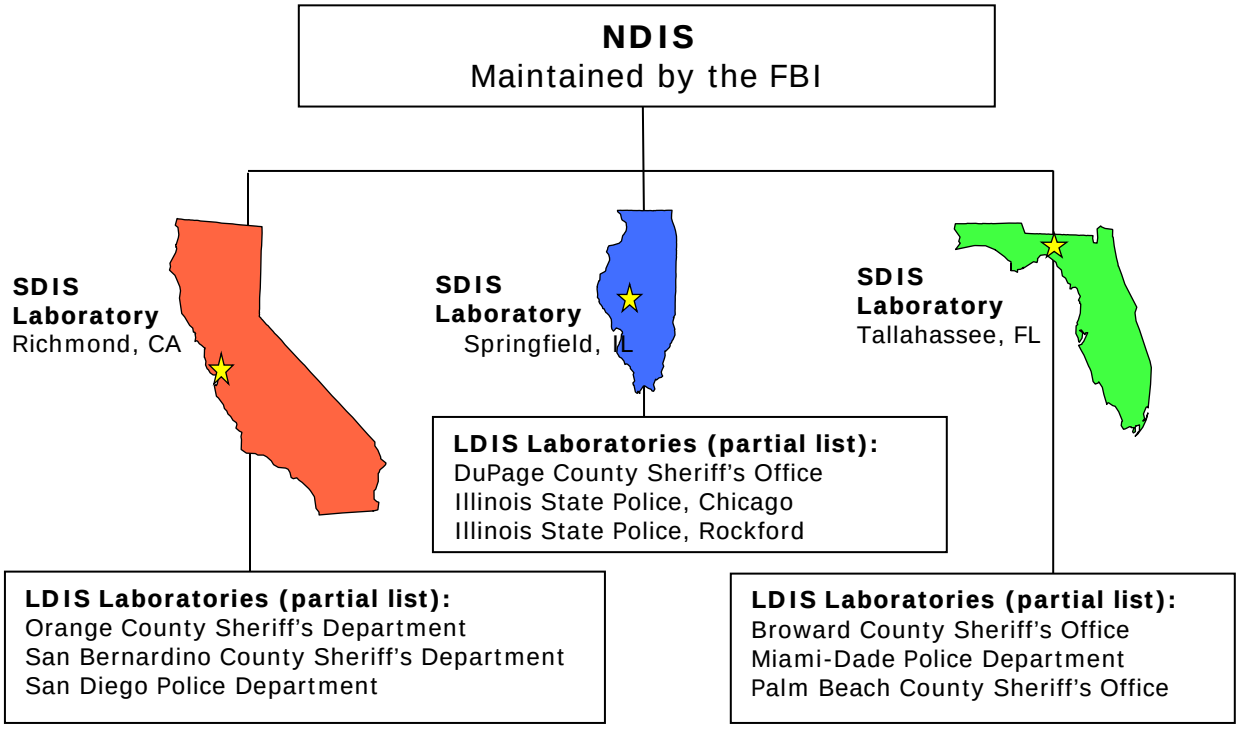
The Statute requires that NDIS only include DNA information that is based on analyses performed by or on behalf of a criminal justice agency – or the U.S. Department of Defense – in accordance with QAS issued by the FBI. The DNA information in the index is authorized to be disclosed only: (1) to criminal 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.

[2] 42 U.S.C.A. § 14132 (2006).

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, 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 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 illustrates how the system hierarchy works.

Example of System Hierarchy within CODIS



National DNA Index System

NDIS, the highest level in the CODIS hierarchy, enables 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. NDIS contains the following eight searchable indices:

- Convicted Offender Index contains profiles generated from persons convicted of qualifying offenses.[3]

- 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 United States 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]

---

[3] The phrase "qualifying offenses" refers to local, state, or federal crimes that require a person to provide a DNA sample in accordance with applicable laws.

[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.

- 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.

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 Person Index and the Unidentified Human (Remains) Index. (In addition, the profiles within the Missing Person and Unidentified Human (Remains) Indices may be vetted against the Forensic, Convicted Offender, Arrestee, Detainee, and Legal Indices to provide investigators with leads in solving missing and unidentified person cases.

State and Local DNA Index Systems

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 quality 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 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 audited Laboratory participates in the CODIS program as a Local DNA Index System Laboratory. The Laboratory began using DNA to process criminal cases in 1997 and began using CODIS in 2002. The Laboratory performs analysis on forensic samples, and our audit focused on the analysis of forensic profiles. The Laboratory had contracts for the analysis of forensic samples with Bode Technology, Incorporated (Bode); Orchid Cellmark, Incorporated (Orchid Cellmark); Sorenson Forensics, LLC (Sorenson); and Strand Analytical Laboratories (Strand). The contracts to analyze forensic samples with Bode, Sorenson, and Strand run from February 1, 2012, through January 31, 2015. The Laboratory did not renew its contract with Orchid Cellmark and ended outsourcing forensic samples to Orchid Cellmark in September 2011. As of October 2012, the Laboratory had outsourced 817 profiles to Bode and Orchid Cellmark between 2010 and 2012.[7]

The Laboratory has been accredited by the American Society of Crime Laboratory Directors (ASCLD) since 1984, and we verified that the

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

[7] The Laboratory did not outsource profiles to Sorenson or Strand for DNA analysis during the review period of the OIG audit.

Laboratory received its latest accreditation on July 26, 2012. The Laboratory's next renewal is due July 25, 2017.

FINDINGS AND RECOMMENDATIONS

I. Compliance with NDIS Participation Requirements

The Laboratory complied with the NDIS participation requirements that 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 facility and CODIS server, submitted the required background information on CODIS users to the FBI, kept records showing CODIS users were properly trained, and was timely in resolving the NDIS matches we reviewed. These results are described in more detail below.

- We interviewed the CODIS Administrator and conducted a thorough walk-through tour of the building and the Laboratory. We identified no significant concerns regarding the Laboratory's procedures for securing the CODIS server or the Laboratory's facilities. The CODIS server was located in a secured section of the building, and access to the server and terminals was restricted to CODIS users.

- We interviewed the CODIS Administrator and determined that the Laboratory had instituted controls to ensure appropriate staff had access to the NDIS procedures manual and ensured personnel understood and abided by the manual. The NDIS procedures manual was available electronically on the MSP Dashboard.[8] Also,

[8] The MSP dashboard is an internal website of the MSP's Bureau of Science, Technology, and Training that contains the Forensic Science Division's policies, procedures, audits, accreditations, training, and personnel information.

we interviewed two CODIS users and verified that they could access the NDIS procedures manual via the MSP's online system.

- We verified with the FBI that all Laboratory CODIS users completed the 2012 annual NDIS training.

- The Laboratory is required to submit certain background data and security information to the FBI for each CODIS user. We confirmed that the Laboratory submitted the required information to the FBI.

- We reviewed a judgmental sample of 10 NDIS matches from February 9, 2010, through September 4, 2012, and determined that each match was confirmed by the Laboratory in a timely manner, and the investigators were notified within 2 weeks of the match.

Conclusion

We found the Laboratory to be in compliance with all areas of NDIS participation requirements that we reviewed. We made no recommendations concerning our review of the NDIS participation requirements.

II. Compliance with Quality Assurance Standards

The Laboratory complied with the Forensic Quality Assurance Standards we reviewed.

During our audit, we considered the Forensic Quality Assurance Standards (QAS) issued by the FBI.[9] 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.[10] The QAS we reviewed are listed in Appendix II.

Results of the OIG Audit

We found that the Laboratory complied with the Forensic QAS reviewed. Specifically, we found that the Laboratory was in compliance with the audit requirements, the Laboratory was a secured facility, the Laboratory separated the various DNA processing steps, and the Laboratory adequately reviewed its contractors. The results of our audit are described in more detail below.

- The Laboratory underwent a QAS review in each of the last 2 calendar years as required by the QAS for laboratory reviews. In June 2010 and December 2011, the Laboratory underwent QAS reviews by external reviewers.

- We reviewed the most recent QAS reports obtained from the MSP intranet website and confirmed that the FBI's QAS Review Document was used to conduct the external reviews. In both reviews, there were findings and responses with corrective actions. The FBI cleared the Laboratory after each review. We contacted

[9] Forensic Quality Assurance Standards refer to the Quality Assurance Standards for Forensic DNA Testing Laboratories, effective September 1, 2011.

[10] The QAS require that laboratories undergo annual audits. Every other year, the QAS require 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.

the FBI and verified that all of the external team members had successfully completed the FBI QAS Review training course.

- The QAS require that the Laboratory submit external QAS review reports to the NDIS Custodian in the FBI within 30 days of the Laboratory receiving them. The external audit reports from June 2010 and December 2011 were both sent to the NDIS Custodian in the FBI within 30 days of the date the Laboratory received its copy of the report.

- Our review of the December 2011 external review report confirmed there were no repeat findings.

- Auditors who participated in the external reviews certified that they were free from conflicts of interest.

- We toured the Laboratory building and interviewed the CODIS Administrator, and we determined that the facility appeared to have adequate physical access controls in place and was adequately secured.

- We interviewed the CODIS Administrator and reviewed written policies and concluded that the Laboratory appeared to have adequate procedures in place to ensure the integrity of physical evidence received and tested at the laboratory.

- We interviewed the CODIS Administrator and reviewed policies and practices regarding the separation of samples during the analysis process. We determined that the policies and procedures appeared to be adequate. During our laboratory tour, we verified that within the DNA Laboratory, amplified DNA is generated, processed, and stored in individual rooms so that the analysis of samples moved from one room into another. As a result, the Laboratory kept evidence examination, DNA extraction, and Polymerase Chain Reaction (PCR) setup areas separate from one another.

- We interviewed the CODIS Administrator and discovered that the Laboratory does not maintain any evidentiary samples after analysis. According to the CODIS Administrator, any samples remaining after analysis are returned to the submitting agency. In addition, the CODIS Administrator explained that DNA extract samples were returned in dry format that could be reconstituted with a liquid buffer.

- We interviewed the CODIS Administrator and discovered that the Laboratory had contracts to outsource the analysis of forensic DNA samples with four private contractors (Bode, Orchid Cellmark, Sorenson, and Strand) during our review period.[11] We reviewed the contracts for the requirements of testing and reporting and determined that the requirements were appropriately documented and approved in accordance with the QAS for Forensic Laboratory testing. We also reviewed the last two QAS reviews and site visits for Bode and Cellmark. The site reviews determined that the laboratories were suitable for outsourcing DNA cases and were in compliance with the QAS audit requirements.

Conclusion

We found that the Laboratory complied with the Forensic QAS reviewed. Specifically, we found that the Laboratory: (1) underwent QAS reviews within designated timeframes; (2) had procedures in place to ensure that access to the Laboratory was controlled and limited to authorized personnel; (3) followed protocols with regard to amplified samples being maintained in separate rooms from the evidence examination, DNA extraction, and PCR set-up areas; and (4) adequately reviewed its contractors. We made no recommendations concerning our review of Quality Assurance Standards.

[11] The Laboratory did not renew the Orchid Cellmark contract, which ended September 15, 2011. In addition, the Laboratory did not utilize Sorenson or Strand for DNA analysis during the review period of the OIG audit.

III. Suitability of Forensic DNA Profiles in CODIS Databases

Of the 100 forensic profiles we reviewed, 99 profiles were complete, accurate, and allowable for inclusion in NDIS. We identified one profile that was not allowable for inclusion in NDIS because it could not be determined if the profile belonged to the victim or could be connected to the crime scene. Laboratory officials requested and received additional information from the requesting law enforcement agency and determined that the profile was not eligible for upload to NDIS. As a result, the Laboratory deleted the profile from 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. 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. 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 that 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 sample of 100 profiles out of the 3,251 forensic profiles the Laboratory had uploaded to NDIS from January 1, 2006, through September 17, 2012. Of the 100 forensic profiles sampled, we found that 99 profiles were complete, accurate, and allowable for upload to NDIS, while 1 profile was unallowable for upload to NDIS. The CODIS Administrator

agreed with our finding and deleted the profile from NDIS. The specific exception is explained in more detail below.

OIG sample profile number 20 was blood found on a knife blade that was taken into evidence after a robbery. The file documentation indicated that the Laboratory contacted the requesting law enforcement agency for additional information regarding the justification of an NDIS upload at the time the sample was submitted. Information in various case file documents evidencing communication between the Laboratory and the requesting agency indicated that the police did not seem certain a robbery had occurred, and officials believed the creditability of the victim was in question. According to information in the case file, the victim refused to provide an elimination standard, and the victim had made false reports in the past. We discussed this profile with Laboratory officials throughout our review. The Laboratory officials stated they had requested and received additional information from the requesting agency stating that it believed the robbery in question was a false report. Therefore, the Laboratory determined that the profile was not eligible for upload to NDIS, and it was deleted from NDIS.

Conclusion

Out of the 100 profiles we reviewed, 99 were complete, accurate, and allowable for inclusion in NDIS, while 1 profile was unallowable for inclusion in NDIS. The one profile was determined to be unallowable and was therefore deleted. 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 October 2010 through October 2012. The objectives of the audit were to determine if the: (1) Laboratory was in compliance with the National DNA Index System (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 whether: (a) the Laboratory complied with the QAS, (b) repeat findings were identified, and (c) recommendations were adequately resolved.

  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.

  We obtained evidence concerning: (1) the qualifications of the internal and external reviewers, and (2) the independence of the external reviewers.

- Interviewed Laboratory officials to identify management control, 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 200 NDIS matches to determine whether they were resolved in a timely manner. The Laboratory provided the universe of 200 NDIS matches on October 8, 2012. 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 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.

- We obtained an electronic file identifying the specimen identification numbers of 3,251 searchable forensic profiles the Laboratory had uploaded to NDIS as of September 17, 2012. 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 employed a stratified sample design to randomly select a representative sample of profiles in our universe. 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 QAS, and the FBI Flowchart: A Guide to Determining What is Allowable in the Forensic Index at NDIS.[13] 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 requirements.

- NDIS Laboratories Procedure
- Quality Assurance Standards Audit Procedure
- NDIS Confirmation and Hit Dispositioning Procedure
- NDIS DNA Records Procedure
- DNA Data Acceptance Standards
- NDIS Searches Procedure
- NDIS Security Requirements Procedure

Quality Assurance Standards

The FBI issued two sets of QAS: QAS for Forensic DNA Testing Laboratories, effective September 1, 2011 (Forensic QAS); and QAS for DNA Databasing Laboratories, effective September 1, 2011 (Offender QAS). The

[13] 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 forums such as CODIS conferences.

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 sample inventory control system to ensure the integrity of the database and known samples.

- 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; and 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.

AUDITEE RESPONSE

The Michigan State Police Northville Forensic Laboratory stated that it reviewed the draft audit report and did not wish to provide a written response to the report.

FEDERAL BUREAU OF INVESTIGATION RESPONSE

U.S. Department of Justice
Federal Bureau of Investigation

Washington, D.C. 20535-0001
May 3, 2013

Carol S. Taraszka, Regional Audit Manager
Chicago Regional Audit Office
Office of the Inspector General
500 West Madison Street, Suite 1121
Chicago, IL 60661-2590

Dear Ms. Taraszka:

Your memorandum to Director Mueller forwarding the draft audit report for the Michigan State Police Northville Forensic Laboratory, Northville, Michigan (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 significant comments to provide about 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. Wendel, Chief of the CODIS Unit, at (703) 632-8315.

Sincerely,

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