AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE TUCSON POLICE DEPARTMENT CRIME LABORATORY TUCSON, ARIZONA

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

Audit Report GR-60-11-012
June 2011

AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE TUCSON POLICE DEPARTMENT CRIME LABORATORY TUCSON, ARIZONA

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

[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.

OIG Audit Objectives

Our audit generally covered the period from January 2009 to January 2011. The objectives of our audit were to determine if: (1) the Tucson Police Department 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.

- We reviewed the Laboratory's compliance with NDIS participation requirements and determined that the Laboratory retains personnel records for a period of 5 years instead of 10 years as mandated in the NDIS participation requirements. The Laboratory was in compliance with the remaining NDIS participation requirements we reviewed.

- We reviewed the Laboratory's policies and procedures related to sample security, sample processing, and sample retention. In addition, we examined the Laboratory's most recent internal and external audits. We found the Laboratory to be in compliance with the QAS areas we tested.

- We reviewed 100 of 1,319 forensic profiles the Laboratory had uploaded to NDIS as of January 5, 2011. Of the 100 forensic profiles sampled, we found that 93 of the sampled forensic profiles were complete, accurate, and allowable for inclusion in NDIS. We identified five forensic case profiles out of our sample that were not allowable for NDIS upload. The Laboratory identified two additional forensic profiles from our sample that it deemed inappropriate for upload to NDIS. The CODIS Administrator removed these seven profiles from NDIS before we completed fieldwork.

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.

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INTRODUCTION

The Department of Justice Office of the Inspector General, Audit Division, has completed an audit of compliance with standards governing Combined DNA Index System (CODIS) activities at the Tucson Police Department Crime 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.[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

We conducted our audit from January 2009 through January 2011. The objectives of our audit were to determine if: (1) the Tucson Police Department 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 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 subsequent amendments, has been codified in a federal statute (Statute) providing the legal authority to establish and maintain NDIS.[3]

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[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.

[3] 42 U.S.C.A. § 14132 (2006).

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.

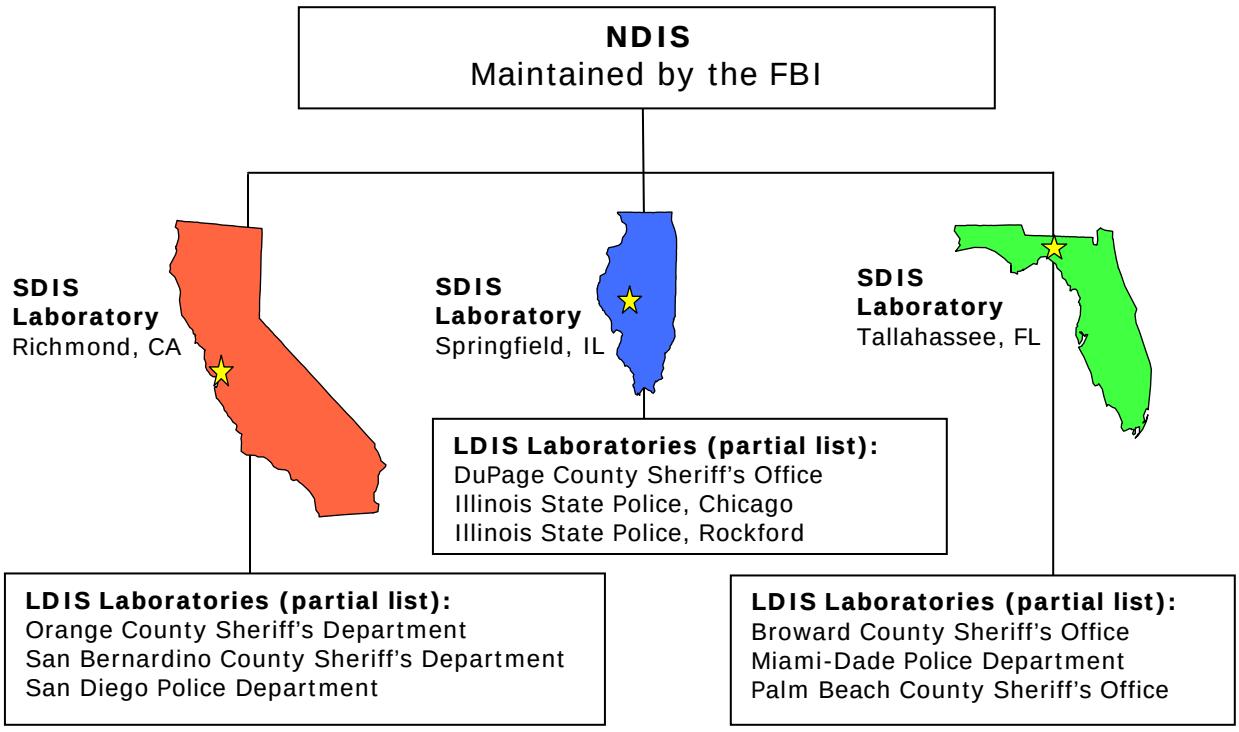
Allowable Disclosure of DNA Profiles

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, 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.[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]

- 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.[6]

- Relatives of Missing Person Index is comprised of DNA profiles generated from the biological relatives of individuals reported missing.

[4] 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.

[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.

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 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.[7] 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 Tucson Police Department Crime Laboratory is a Local DNA Index System Laboratory (LDIS). The Laboratory began using DNA in the processing of criminal case evidence in 1994. The Laboratory currently analyzes forensic samples and has also outsourced the analysis of forensic samples since 2007. The Laboratory began uploading profiles to SDIS in 2000. The Tucson Police Department Crime Laboratory has been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation (ASCLD-LAB) since 1993. The Laboratory is due for accreditation renewal in 2013.

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

FINDINGS AND RECOMMENDATIONS

I. Compliance with NDIS Participation Requirements

The OIG reviewed the Laboratory's compliance with NDIS participation requirements and we determined that the Laboratory's policy for personnel records retention is 5 years instead of the required 10 years. We found the Laboratory to be in compliance with all other NDIS procedures reviewed including adequate Laboratory security, personnel are aware of NDIS Procedures, CODIS users have completed the annual training and submitted all necessary paperwork, and the Laboratory has handled NDIS matches in accordance with requirements.

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 did not retain personnel records for a period of 10 years as required by the NDIS participation requirements. The results of our audit are described in more detail below.

Personnel Records

NDIS participation requirements mandate that a participating Laboratory maintain personnel records, including proficiency testing records for a minimum of 10 years. We analyzed the Laboratory's policy regarding the length of time for which the Laboratory maintains personnel records and determined that the Laboratory retains the personnel records for a period of 5 years. Laboratory officials were unaware of the policy that stipulated the retention of personnel records for a period of 10 years.

We found that the Laboratory complied with the other NDIS participation requirements we reviewed, as described below.

- NDIS requires that CODIS be physically and electronically safeguarded from unauthorized use and only be accessible to limited approved

personnel. Based on our tour of the Laboratory and discussions with the Laboratory personnel, we determined that access to CODIS is only given to approved CODIS users. Each CODIS user is given a unique user ID and password and the CODIS terminal is set to lock after 10 minutes of inactivity. In addition, we determined that the security controls for the entrance and exit points of the laboratory are controlled using an electronic ID card which restricts employee's access to their assigned areas of the building. The laboratory makes weekly backups and stores them in a locked off-site container on a monthly basis.

- NDIS operational procedures require that appropriate personnel are provided with the NDIS procedures manual and that all CODIS users are familiar with the procedures, know where they are located, and can readily access them when needed. We determined that appropriate personnel were provided with the manual and that appropriate controls were in place to ensure that staff were familiar with the manual. We consulted with two of the Laboratory's CODIS users and determined that both users knew about the procedures and both users were readily able to locate them upon our request.

- CODIS users are required, on an annual basis, to successfully complete training administered by the FBI. We verified with the FBI that all current CODIS users have completed the training within the last year.

- Laboratories who participate in CODIS are required by the FBI to submit appropriate documentation regarding each of its CODIS users. We verified that the Laboratory submitted all required information for each CODIS user.

- When a match is identified in CODIS, the NDIS procedures require that a match confirmation process is followed. We judgmentally selected a sample of eight NDIS matches and determined that the Laboratory was timely in match confirmation requests, match confirmations, confirmation dispositions, and the notification of forensic matches to investigators. The Laboratory's match criteria was followed in all eight match confirmations. We did not note any discrepancies concerning NDIS Matches.

Conclusion

We found that the Laboratory was not compliant with the NDIS personnel records retention policy which requires participating laboratories to retain personnel records for a period of 10 years.

Recommendations

We recommend that the FBI:

1. Require the Laboratory to revise its personnel records retention policy to reflect the 10 year requirement of the NDIS participation requirements.

II. Compliance with Quality Assurance Standards

We reviewed the Laboratory's policies and procedures related to DNA sample processing, sample security, and sample retention. In addition, we examined the Laboratory's most recent internal and external audits. For the items tested in our audit, we found the Laboratory to be in compliance with the Quality Assurance Standards.

During our audit, we considered the Forensic Quality Assurance Standards (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. Specifically, through observation and discussion with laboratory management for those items tested, we determined that the laboratory has adequate building and Laboratory security, undergoes stringent annual audits, and has acceptable Quality Assurance Policies. These results are described in more detail below.

- The QAS requires laboratories to undergo an annual review, including an external audit every 2 years. QAS Standard 15.1 also states that the time limit between audits shall not exceed 18 months and be no less than 6 months. We determined that the Laboratory complied with this requirement by undergoing an internal or an external audit during each year of our review period.

- We obtained the most recent external and internal QAS review reports for the Laboratory. We determined that for both reviews, all instances

[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.

of non-compliance were reported, the FBI audit document was used, all auditors had completed the FBI's reviewer training course, and the Laboratory submitted their most recent external audit report to the NDIS custodian within 30 days.

- To help ensure that the reviewers who performed the Laboratory's most recent external review were independent when they performed the review, we requested and received a completed auditor independence statement from each reviewer who participated in the Laboratory's last external review. Each external reviewer attested that they were independent at the time of the external review.

- We determined that access to the laboratory is controlled and secured in order to prevent access by unauthorized personnel. The Laboratory has secure entrances that feature security guards, metal detectors, and requires ID cards for the public entrance to prevent access by unauthorized personnel. Areas within the Laboratory are also adequately controlled with scan cards that give each employee limited access to relevant areas of the building. Overall security at the Laboratory appears to be in compliance with the QAS.

- The integrity of physical evidence and forensic samples is maintained by the Laboratory in accordance with the QAS. Specifically, when evidence is first collected, it is given a unique indentifying number and entered into the department's evidence tracking system. The chain of custody for evidence is tracked in the laboratory's information system. Evidence and forensic samples are properly stored from the point of receipt through processing.

- To ensure the accuracy of data loaded into the database, each case undergoes a laboratory technical review and a secondary review prior to being uploaded SDIS. We did not note any deficiencies with regard to these processes.

- The QAS requires that amplified DNA must be generated and processed at a separate time or location than the evidence examination, DNA extraction, and PCR setup areas. We determined that for known and unknown samples, the Laboratory performs the PCR setup, extraction, and examination in separate rooms or times within the Laboratory. The amplification of known and unknown samples are sometimes done simultaneously but in a separately dedicated location. These methods are compliant with the QAS.

- The Laboratory retains the cuttings of the original evidence samples after analysis and maintains the samples for at least 3 months. All

evidence is kept in a secure off-site evidence building after analysis. Access to the evidence area is given to evidence handling staff and the employees who are relevant to the corresponding case. The DNA samples are stored in refrigerators and freezers in order to preserve their integrity.

- The Laboratory contracted out the analysis of forensic samples to two vendors. We determined that both vendors underwent and provided evidence of the required QAS reviews, site visits, and the vendor Laboratory's maintained the proper accreditation. The vendor laboratories have complied with all contract requirements. We did not note any deficiencies in regards to these processes.

- The QAS requires that the Laboratory review and evaluate the results of 100 percent of all profiles that are contracted out for analysis. We determined that the Laboratory reviews and evaluates the results for 100 percent of outsourced profiles.

- After reviewing documentation concerning the Laboratory's site visits of vendor Laboratory's, we determined that there were no issues of non-compliance noted. We did not take any exception to the site visits as they are compliant with the QAS.

Conclusion

Based on the review of internal and external audits, as well as Laboratory and forensic sample security, our audit did not reveal deficiencies with regard to the Laboratory's compliance with the QAS we reviewed. We made no recommendations concerning our review of Quality Assurance Standards.

III. Suitability of Forensic DNA Profiles in CODIS Databases

We reviewed 100 of 1,319 forensic profiles the Laboratory had uploaded to NDIS as of January 5, 2011. Of the 100 forensic profiles sampled, we found that 93 of the sampled forensic profiles were complete, accurate, and allowable for inclusion in NDIS. We identified five forensic case profiles out of our sample that were not allowable for NDIS upload. The Laboratory identified two additional forensic profiles from our sample it deemed inappropriate for upload to NDIS. The CODIS Administrator removed all seven of these profiles from NDIS before we completed fieldwork.

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 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

[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.

We selected a sample of 100 profiles out of the 1,319 forensic profiles the Laboratory had uploaded to NDIS as of January 5, 2011. Of the 100 forensic profiles sampled, we found that 5 were unallowable for upload to NDIS. The Laboratory identified two additional forensic profiles from our sample that it deemed inappropriate 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.

OIG Sample No. CA-01

The DNA Profile was derived from the swabbing of an empty beer can found in a parking lot where a murder took place. According to the case files, the crime scene was very large and the victim was moved. Based on the information given, we could not sufficiently connect the beer can to the crime and the profile is therefore unallowable in accordance with the FBI flowchart.

OIG Sample No. CA-12

This specimen was taken from the swabbing of a beer can found near an apartment complex where a murder took place. Based on the facts which were presented in the case file, it was not clear whether the beer can was linked to the crime. In accordance with the FBI flowchart, this sample is not valid for inclusion into NDIS.

OIG Sample No. CA-19

The DNA specimen came from the swabbing of a beer can found in an area where a homicide took place. There was not enough information present that could sufficiently link the beer can to the crime scene; therefore, it is not valid for inclusion into NDIS.

OIG Sample No. CA-53

This specimen came from a DNA swabbing of a Cowboy Hat that was found at the crime scene. According to the case file, detectives later determined that this hat was from an unrelated “secondary crime scene” that occurred at the same location. The Laboratory deleted the profile from NDIS prior to start of the audit.

OIG Sample No. CA-57

This specimen was derived from the sperm fraction of a rape kit. The victim had a recent consensual sex partner for whom the crime Laboratory

did not obtain an elimination standard. The Laboratory deleted this specimen from NDIS before the auditors arrived on site.

OIG Sample No. CA-79

This specimen was taken from a cigarette butt located near an area where a murder took place. There was not enough information present in the case file to sufficiently link the cigarette butt to the crime scene. Therefore, this sample is not allowable for inclusion into NDIS.

OIG Sample No. CA-93

This specimen came from a "Malt Liquor" can found in the area where a murder took place. Based on the case file and supporting information, the Laboratory did not have sufficient information to link the can to the crime; therefore it is not allowable for inclusion to NDIS.

After consulting with the Laboratory, we determined that the Laboratory agreed with our findings related to the unallowable profiles.

Conclusion

We identified a total of five profiles that were unallowable for inclusion in NDIS. In addition, the Laboratory identified two profiles in our sample which it deemed inappropriate for NDIS. Since the Laboratory deleted all seven of the unallowable profiles while we were on site, we made no recommendations concerning our review of the Forensic DNA profiles.

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 January 2009 through January 2011. 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 whether: (a) the Laboratory complied with the QAS, (b) repeat findings were identified, and (c) 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, 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 they 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.

As permitted by GAS 7.42 (2007 revision), we generally relied on the results of the Laboratory's external laboratory review 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 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 8 of 83 NDIS matches to determine whether they were resolved in a timely manner. The Laboratory provided the universe of NDIS matches as of January 11, 2011. 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.

[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.

- 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.

  Working in conjunction with the contractor used by the FBI to maintain NDIS and the CODIS software, we obtained an electronic file identifying the 1,319 (STR) forensic profiles the Laboratory had uploaded to NDIS as of January 5, 2011. 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.

APPENDIX II

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 requirements.

- DNA Data Acceptance Standards
- DNA Data Accepted at NDIS
- Quality Assurance Standards (QAS) Reviews
- 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 NDIS[14]

[14] 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 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 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; 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.

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June 23, 2011

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

Dear Mr. Sheeren,

This letter is in response to the Draft Audit Report received June 3, 2011 from the US Department of Justice, Office of the Inspector General, Audit Division.

A Tucson Police Department Crime Lab policy requiring retention of personnel records for 5 years instead of the NDIS required 10 years was a finding of the OIG audit held this past January.

We have changed our procedures to retain personnel records for 10 years. Please see the attached copy of our manual documenting this procedure.

Susan M. Shankles
Crime Laboratory Superintendent

Enclosure

Cc: Paula Pagano, FBI
Nora Rankin, Local CODIS Administrator

U.S. Department of Justice

Federal Bureau of Investigation

Washington, D. C. 20535-0001

June 22, 2011

David M. Sheeren
Regional Audit Manager
Denver Regional Audit Office
Office of the Inspector General
21120 Lincoln Street, Suite 1500
Denver, CO 80203

Dear Mr. Sheeren:

Your memorandum to Director Mueller forwarding the draft audit report for the Tucson Police Department Crime Laboratory, Tucson, Arizona (Laboratory), has been referred to me for response.

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

With respect to Recommendation one relating to the Laboratory's retention of personnel records, the CODIS Unit has reviewed the Laboratory's corrective action and its formal written procedures. The procedures as written appear to be sufficient in enabling the Laboratory to comply with the applicable NDIS Procedure regarding the retention of records. A copy of the procedure is enclosed for your review (DNA Quality Assurance Manual Sections 4.8 - 4.11 and 14.16). The CODIS Unit supports closure of this recommendation.

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

Sincerely,

Alice R. Isenberg

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

The OIG provided a draft of this audit report to both the Tucson Police Department Crime Laboratory and the FBI. The Tucson Police Department Crime Laboratory's response is incorporated in Appendix III of this final report. The FBI's response is incorporated in Appendix IV of this report. The following provides the OIG analysis of the responses and summary of actions taken to close the report.

Summary of Actions Taken to Close the Report:

1. Closed. We recommended that the FBI require the Laboratory to revise its personnel records retention policy to reflect the 10 year requirement of the NDIS participation requirements. Included with the Laboratory's response, we received sufficient evidence that the Laboratory has changed its personnel records retention policy to reflect the necessary 10 year requirement. The recommendation is now closed based on the documentation in which the Laboratory has provided to the OIG and the FBI displaying the change in policy.