



**COMPLIANCE WITH STANDARDS GOVERNING
COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE
HOUSTON POLICE DEPARTMENT CRIME LABORATORY
HOUSTON, TEXAS**

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

Audit Report Number GR-60-10-009
September 2010

COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE HOUSTON POLICE DEPARTMENT CRIME LABORATORY HOUSTON, TEXAS

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

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

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

OIG Audit Objectives

We conducted our audit from April 2008 to April 2010. The objectives of our audit were to determine if: (1) the Houston 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:

- With regard to the Laboratory's compliance with NDIS participation requirements, we found that the Laboratory did not have a policy to maintain personnel records for the 10 years required by the FBI's NDIS operational procedures manual.² In response to this finding, the Laboratory revised its DNA Standard Operating Procedure manual to reflect the 10-year retention requirement. The Laboratory's actions address our concern regarding this issue. The Laboratory was in compliance with the other NDIS participation requirements we reviewed.
- We reviewed the Laboratory's compliance with the FBI's Quality Assurance Standards. As part of our review, we provided the FBI with the list of the Houston Police Department's analysts who conducted the most recent internal audit and auditors from outside laboratories who conducted the most recent external audit to determine if they had completed the required FBI DNA auditor training course prior to the audit. The FBI personnel informed us that the two auditors who performed the Houston Laboratory's internal audit in October 2008 had not taken this required course. As a result, we recommend that the FBI ensure that the Laboratory implements procedures to verify that an FBI-trained DNA auditor is on the audit team for all audits required by the Quality Assurance Standards. We found that the Laboratory was in compliance with the remaining Quality Assurance Standards we reviewed.

² The Houston Police Department refers to the files that contain analysts' proficiency testing results as quality files. However, for the purposes of this audit, personnel records are defined as records for all approved CODIS users, including reports concerning proficiency testing and any other report required by the FBI.

- We reviewed 100 DNA profiles in the Laboratory's forensic CODIS database and determined that all but 3 were complete, accurate, and allowable for inclusion in NDIS. We found two profiles that were inaccurate and one that was unallowable for upload to NDIS. The Laboratory deleted the unallowable profile and corrected the two inaccurate profiles in NDIS. Therefore, we make no recommendations regarding this issue. The remaining 97 profiles reviewed were complete, accurate, and allowable for inclusion in NDIS.

To address the Laboratory's compliance with standards governing CODIS activities, we recommended that the FBI ensure that the Laboratory implements procedures to verify that an FBI-trained DNA auditor is on the audit team for all QAS-required audits.

Our audit objectives, scope, and methodology are detailed in Appendix I of the report, and the audit criteria are detailed in Appendix II.

TABLE OF CONTENTS

INTRODUCTION	1
Legal Foundation for CODIS.....	1
CODIS Structure	2
Laboratory Information	6
FINDINGS AND RECOMMENDATIONS	7
I. Compliance with NDIS Participation Requirements.....	7
II. Compliance with the Quality Assurance Standards.....	10
III. Suitability of Forensic DNA Profiles in CODIS Databases.....	13
APPENDIX I: OBJECTIVES, SCOPE, AND METHODOLOGY	15
APPENDIX II: AUDIT CRITERIA	18
NDIS Participation Requirements.....	18
Quality Assurance Standards	18
Office of the Inspector General Standards	20
APPENDIX III: FEDERAL BUREAU OF INVESTIGATION RESPONSE TO THE DRAFT REPORT	22
APPENDIX IV: HOUSTON POLICE DEPARTMENT RESPONSE TO THE DRAFT REPORT	23
APPENDIX V: OFFICE OF THE INSPECTOR GENERAL, AUDIT DIVISION, ANALYSIS AND SUMMARY OF ACTIONS NECESSARY TO CLOSE THE REPORT	25

COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE HOUSTON POLICE DEPARTMENT CRIME LABORATORY HOUSTON, TEXAS

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 Houston Police Department Crime Laboratory (Laboratory).

The Federal Bureau of Investigation's (FBI) CODIS program 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 laboratories to compare and match DNA profiles electronically, thereby assisting law enforcement in solving crimes and identifying missing or unidentified persons.³ The FBI's CODIS Unit manages CODIS and is responsible for its use in fostering the exchange and comparison of forensic DNA evidence.

The objectives of our 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. Appendix I contains a detailed description of our audit objectives, scope, and methodology, while the criteria used to conduct our audit are presented in Appendix II.

Legal Foundation for CODIS

The FBI began the CODIS program as a pilot project in 1990. The DNA Identification Act of 1994 (Act) authorized the FBI to establish a national index of DNA profiles for law enforcement purposes. The Act, along

³ 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.

with subsequent amendments, has been codified in a federal statute (Statute) providing the legal authority to establish and maintain NDIS.⁴

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

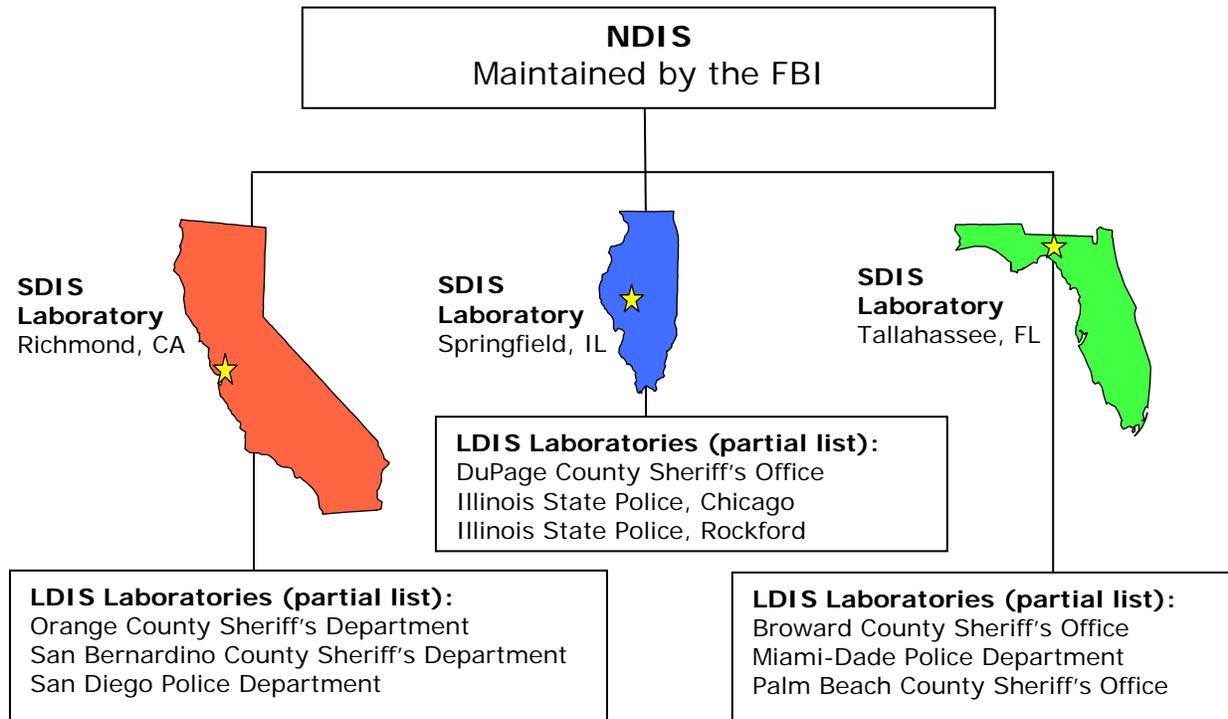
CODIS Structure

The FBI implemented CODIS as a distributed database with hierarchical levels that enables federal, state, and local crime laboratories to compare DNA profiles electronically. CODIS consists of a hierarchy of three distinct levels: (1) NDIS is managed by the FBI as the nation's DNA database containing DNA profiles uploaded by participating states, (2) the State DNA Index System (SDIS) is used at the state level to serve as a state's DNA database containing DNA profiles from local laboratories within the state and state offenders, and (3) the Local DNA Index System (LDIS) is used by local laboratories. DNA profiles originate at the local level and then flow upward to the state and, if allowable, national level. For example, the local laboratory in the Palm Beach County, Florida, Sheriff's Office sends its

⁴ 42 U.S.C.A. § 14132 (2006).

profiles to the state laboratory in Tallahassee, which then uploads the profiles to NDIS. Each state participating in CODIS has one designated SDIS laboratory. The SDIS laboratory maintains its own database and is responsible for overseeing NDIS issues for all CODIS-participating laboratories within the state. The graphic below presents an example of how the system hierarchy works.

Example of System Hierarchy within CODIS



National DNA Index System

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

- Convicted Offender Index contains profiles generated from persons convicted of qualifying offenses.⁵

⁵ The phrase "qualifying offenses" is used here to refer to local, state, or federal crimes that require a person to provide a DNA sample in accordance with applicable laws.

- Arrestee Index is comprised of profiles developed from persons who have been arrested, indicted, or charged in an information with a crime.
- Legal Index consists of profiles that are produced from DNA samples collected from persons under other applicable legal authorities.⁶
- 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.⁷
- Relatives of Missing Person Index is comprised of DNA profiles generated from the biological relatives of individuals reported missing.

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

The Forensic Index generates investigative leads in CODIS that may help solve crimes. Investigative leads may be generated through matches between the Forensic Index and other indices in the system, including the Convicted Offender, Arrestee, and Legal Indices. These matches may provide investigators with the identity of suspected perpetrators. CODIS also links crime scenes through matches between Forensic Index profiles, potentially identifying serial offenders.

In addition to generating investigative leads, CODIS furthers the objectives of the FBI's National Missing Person DNA Database program through its ability to identify missing and unidentified individuals. Those persons may be identified through matches between indices in CODIS, such

⁶ 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.

⁷ 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.

as through matches between the profiles in the Missing Persons Index and the Unidentified Human (Remains) Index. Identifications may also be generated through matches between the Unidentified Persons Index and the Relatives of Missing Persons Index. The profiles within the Missing Persons and Unidentified Human (Remains) Indices may also be vetted against the Forensic, Convicted Offender, Arrestee, and Legal Indices to provide investigators with leads in solving missing and unidentified persons cases.

State and Local DNA Index System

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

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

The utility of CODIS relies upon the completeness, accuracy, and quantity of profiles that laboratories upload to the system. Incomplete CODIS profiles are those for which the required number of core loci were not tested or do not contain all of the DNA information that resulted from a DNA analysis and may not be searched at NDIS. The probability of a false match among DNA profiles is reduced as the completeness of a profile increases. Inaccurate profiles, which contain incorrect DNA information or an incorrect specimen number, may generate false positive leads, false negative comparisons, or lead to the misidentification of a sample. CODIS becomes more useful as the quantity of DNA profiles in the system increases because the potential for additional leads rises. However, laws and regulations exclude certain types of profiles from being uploaded to CODIS to prevent violations to an individual's privacy and foster the public's confidence in CODIS. Therefore, it is the responsibility of the Laboratory to ensure that it

is adhering to the NDIS participation requirements and the profiles uploaded to CODIS are complete, accurate, and allowable for inclusion in NDIS.

Laboratory Information

The Houston Police Department Crime Laboratory is a Local DNA Index System laboratory. The Laboratory serves the Houston Police Department, which covers a population of approximately 2 million. The Laboratory's initial access to CODIS began in 1998.

According to the Director of the Houston Police Department Crime Laboratory, the Houston Police Department's Chief of Police requested deactivation from CODIS in March 2003 due to concerns about the quality of the analyses being performed. The Laboratory had serious problems ranging from poor documentation to serious analytical and interpretive errors that resulted in highly questionable results being reported by the Laboratory. Subsequently, an independent investigation conducted by Michael Bromwich, a former DOJ Inspector General, found that some of the weaknesses in the Laboratory included the absence of a quality assurance program, inadequately trained analysts, poor analytical technique, incorrect interpretation of data, characterizing of results as inconclusive when that was not the result, and the lack of meaningful and competent technical reviews.⁸ According to the Laboratory Director, this situation was remedied by: (1) a comprehensive review and re-testing of previously tested DNA cases; (2) replacement of staff conducting DNA testing, including the DNA Technical Leader and Laboratory Director; and (3) the implementation of an extensive quality assurance program that included training of remaining staff.

The Laboratory began analyzing forensic DNA samples again after receiving accreditation from the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) in June 2006. The Laboratory is due for reaccreditation in June 2012. The Laboratory began uploading profiles into SDIS in February 2007. The Laboratory does not process convicted offender samples and outsourced analysis of some forensic DNA samples with the LabCorp, Orchid Cellmark, Sorenson, and Strand Forensic laboratories.

⁸ Final Report of the Independent Investigator for the Houston Police Department Crime Laboratory and Property Room, June 13, 2007, led by Michael Bromwich, Independent Investigator.

FINDINGS AND RECOMMENDATIONS

I. Compliance with NDIS Participation Requirements

The OIG review examined the Houston Police Department Crime Laboratory's compliance with NDIS participation requirements. Our review found that the Laboratory did not have a policy for the retention of its personnel records, including the DNA analysts' proficiency tests, for the required 10 years. We also found that the Laboratory was in compliance with the 30-day timeframe for submission of the external audit to the NDIS Custodian, all Laboratory personnel had completed their annual training, and NDIS matches were confirmed in a timely manner.

The NDIS participation requirements, which consist of the MOU and 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 described in more detail in Appendix II of this report.

Results of the OIG Review

We noted one exception to the Laboratory's compliance with the NDIS participation requirements. Specifically, we found that the Laboratory did not have a policy in place to maintain all necessary personnel records for the required 10 years. The results of our audit are described in more detail below.

Personnel Records

The General Responsibilities Procedure states that the NDIS Participating Laboratory has to maintain records of CODIS users, including reports concerning proficiency testing and other records or audits required by the FBI for 10 years. It is the Houston Laboratory's policy to maintain these records only until it receives reaccreditation, which is usually a 5-year timeframe. However, the Houston Laboratory's Quality Manager stated that the Laboratory had not destroyed any personnel records since 2007 when the Laboratory began participating in NDIS again. When we brought the potential discrepancy to her attention, she immediately amended the

Laboratory's DNA Standard Operating Procedure manual to reflect the required 10-year timeframe as outlined in the NDIS manual.

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

- NDIS operational procedures require that CODIS be physically and electronically safeguarded from unauthorized use and only accessible to limited approved personnel. The Laboratory's CODIS work station and server is housed in the DNA Laboratory and only personnel assigned to the DNA Laboratory have access to this space. All users have their own CODIS user account, and their screens lock after 10 minutes of inactivity. The CODIS Administrator makes weekly backups and transfers them electronically to a secure off-site facility.
- NDIS operational procedures require that CODIS users are provided copies of NDIS procedures and understand and abide by them. We interviewed three of the Laboratory's CODIS users and verified they knew where to find and access the procedures in the Laboratory.
- On an annual basis, CODIS users are required to successfully complete DNA Records Acceptance training annually. We verified with the FBI that all current CODIS users had completed the web-based training within the last year.
- The FBI requires the Laboratory submit documentation regarding CODIS users. We verified that the Laboratory submitted all required information for each CODIS user to the FBI.
- NDIS procedures describe a required match confirmation process when matches are identified in CODIS. We judgmentally selected a sample of 5 out of 46 NDIS matches and found the Laboratory to be timely in match confirmation requests, match confirmations, confirmation dispositions, and the notification to investigators of forensic matches.
- The NDIS operational procedure manual requires that external quality assurance audit reports be forwarded to the NDIS custodian within 30 days of the Laboratory's receipt of the report. We reviewed the submission of the most recent external audit and found that the report was submitted to the NDIS custodian in a timely manner.

Conclusion

The Laboratory's policy manual did not require the maintenance of all necessary personnel records for the required 10 years. When we brought this issue to the attention of the Laboratory's management, it made corrections to address this issue. Therefore, we make no recommendations concerning our review of NDIS participation requirements.

II. Compliance with the Quality Assurance Standards

As a result of our review of the Laboratory's compliance with the Quality Assurance Standards (QAS), we found that the Laboratory did not have an auditor on its internal audit team who had completed the required FBI DNA auditor training course prior to engaging in the audit. We did not identify any additional concerns with regard to the Laboratory's compliance with the QAS for the remainder portions of our review.

During our audit, we considered the Forensic 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. The QAS we reviewed are described in more detail in Appendix II.

Results of the OIG Review

We noted one exception to the Laboratory's compliance with the Forensic QAS. Specifically, we found that an internal auditor lacked FBI DNA auditor training. The results of our audit are described in more detail below.

Internal Auditor's Lack of FBI DNA Auditor Training

According to the FBI's QAS Audit Guide for DNA Testing Laboratories, regardless of the type of audit (internal or external) it is the laboratory's responsibility to ensure that there is at least one person on the audit team who is a qualified DNA auditor. The auditor on the audit team must have completed the FBI's required DNA training course. In order to determine if the Laboratory was in compliance with the requirement, we sent the names of the Houston Police Department's analysts who conducted the most recent internal audit to determine if they had completed the training prior to the audit, which began in October 2008. FBI personnel informed us that the two auditors who completed the Laboratory's internal audit in October 2008 had not completed the FBI DNA auditor training as of that date. As a result, we recommend that the FBI ensure that the Laboratory implements procedures to verify that an FBI-trained DNA auditor is on the audit team for all QAS-required audits.

⁹ Forensic Quality Assurance Standards refers to the Quality Assurance Standards for Forensic DNA Testing Laboratories, effective July 1, 2009.

We took no exception with the remaining areas of our review of the Laboratory's compliance with the QAS. The results for these remaining areas are described below.

- The QAS requires that state laboratories undergo an annual audit, including an external audit every 2 years. We determined that the Laboratory complied with the requirement by undergoing an annual audit and alternating between an internal or an external audit each year.
- We obtained the most recent external and internal audit reports for the Laboratory. We determined that for both audits the FBI audit document was used and adequate corrective actions for audit findings were developed by the Laboratory. The internal audit report had one instance of noncompliance, and it was adequately corrected. The external audit report did not contain any findings.
- We verified that the entrances to the Laboratory were properly secured and controlled with an alarm system, employee scan cards, and a receptionist for the public entrance to prevent access by unauthorized personnel. Areas within the Laboratory were also adequately controlled with scan cards. Overall security at the Laboratory appeared to be adequate and in compliance with the QAS.
- The integrity of physical evidence samples is maintained by the Laboratory in accordance with the QAS. The chain of custody for evidence originates in the Property Room where all forensic samples are logged into the system. The Laboratory does not have the capability to electronically track forensic evidence so the Laboratory maintains a paper chain of custody for all forensic evidence within the pertinent case files. Evidence samples are properly stored from the point of receipt through processing. To ensure the accuracy of data loaded into the database, the Laboratory technically reviews all case files and completes checklists prior to uploading samples to CODIS.
- We interviewed the CODIS Administrator and reviewed policies and practices to determine that the Laboratory policies and practices regarding the separation of known and unknown samples during the analysis process appear to be adequate.
- We interviewed the CODIS Administrator and toured the Laboratory to determine that the Laboratory appeared to be in compliance with forensic standards governing the retention of samples and extracted DNA after analysis.

- The Laboratory contracted out the analysis of forensic samples in the past 2 years. We verified that the subcontractors underwent QAS audits, the Laboratory reviewed the integrity of all samples received from vendors, and each contractor met the specific testing and reporting requirements detailed in their contracts. Therefore, we found that the Laboratory is in compliance with the QAS with respect to subcontractor monitoring.
- We determined that the Laboratory has adequate procedures to verify the integrity of contractor data. Specifically, the Laboratory performs in-house reviews of the data from the vendor laboratories for each sample analyzed. Based on our audit, we determined that the Laboratory's actions help ensure the integrity of outsourced DNA analysis as required by the QAS.
- We reviewed documentation that the Laboratory has conducted on-site reviews of all four vendor laboratories used and were found to be sufficient to perform quality DNA analysis.

Conclusion

Based on the review of Laboratory and sample security, the Houston Police Department Laboratory was in compliance with the FBI's QAS we tested with one exception. We make one recommendation concerning our review of the Quality Assurance Standards.

Recommendation

We recommend that the FBI:

1. Ensure that the Laboratory implements procedures to verify that an FBI-trained DNA auditor is on the audit team for all QAS-required audits.

III. Suitability of Forensic DNA Profiles in CODIS Databases

We reviewed 100 DNA profiles in the Laboratory's forensic CODIS database and determined that all but 3 were complete, accurate, and allowable for inclusion in NDIS. We found two profiles that were inaccurate and one that was unallowable for upload to NDIS.

We reviewed a sample of the Laboratory's forensic DNA profiles to determine whether each profile was complete, accurate, and allowable for inclusion in NDIS.¹⁰ To test the completeness and accuracy of each profile, we established standards that require a profile include all the loci for which the analyst obtained results and that the values at each locus match those identified during analysis.¹¹ Our standards are described in more detail in Appendix II of this report.

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

Results of the OIG Review

We selected a random sample of 100 profiles out of the 740 forensic profiles the Laboratory uploaded to NDIS as of March 25, 2010. Of the 100 forensic profiles sampled, we found 2 profiles that were inaccurate and 1 profile that was unallowable for upload to NDIS. The remaining 97 profiles sampled were complete, accurate, and allowable for inclusion in NDIS. The specific exceptions are explained in more detail below.

OIG Sample Number CA-05

Sample number CA-05 was taken from a cutting of a cigarette butt. The evidence was from a sexual assault case in which the crime had taken place at the victim's home. The sample was taken from outside of a garage door of the victim's home. Additionally, the victim stated the perpetrator did

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.

not smell like cigarette smoke. There was no indication that the evidence could be attributable to the crime scene. We could not clearly conclude that this was allowable for upload to NDIS; therefore, the CODIS Administrator removed the profile from NDIS while we were still conducting fieldwork.

OIG Sample Numbers CA-19 and CA-35

Sample numbers CA-19 and CA-35 were uploaded to NDIS with an inaccurate value at locus D5 and TPOX, respectively. While we were conducting fieldwork in the Laboratory, the CODIS Administrator found errors in the forensic profiles when she was doing a review of the files. She told us that these were typographical errors that were overlooked during the first review. The CODIS Administrator removed the inaccurate forensic profiles from NDIS and uploaded the corrected profiles while we were still on-site. We were told that the Laboratory has since revised its procedures to require three different levels of review to prevent errors from being overlooked in the future.

Conclusion

We found two profiles that had an incorrect value at a locus and one profile that was unallowable for upload to NDIS. However, the CODIS Administrator removed the inaccurate forensic profiles from NDIS and uploaded the accurate profiles while we were still on-site. She also deleted the unallowable profile from NDIS before we left the Laboratory. We make 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 the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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

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

In accordance with the QAS, the internal and external laboratory review procedures are to address, at a minimum, a laboratory's quality assurance program; organization and management; personnel qualifications; facilities; evidence control; validation of methods and procedures; analytical procedures; calibration and maintenance of instruments and equipment; proficiency testing of analysts; corrective action for discrepancies and errors; and review of case files, reports, safety, and previous audits. The FBI's NDIS operational procedures state that, after January 1, 2002, an external laboratory review is required to 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. The QAS requires that every other year the audit must 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 refer to the QAS audits as reviews (either an internal laboratory review or an external laboratory review, as applicable) to avoid confusion with our audits that are conducted in accordance with GAS.

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

- Interviewed Laboratory officials to identify management controls, Laboratory operational policies and procedures, Laboratory certifications or accreditations, and analytical information related to DNA profiles.
- Toured the Laboratory to observe facility security measures as well as the procedures and controls related to the receipt, processing, analyzing, and storage of forensic evidence and convicted offender DNA samples.
- Reviewed the Laboratory's written policies and procedures related to conducting internal reviews, resolving review findings, and resolving matches among DNA profiles in NDIS.
- Reviewed supporting documentation for 5 of 46 NDIS matches to determine whether they were resolved in a timely manner. The Laboratory provided the universe of NDIS matches as of April 12, 2010. The sample was judgmentally selected to include both case-to-case and case-to-offender matches. This non-statistical sample does not allow projection of the test results to all matches.
- Reviewed 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.

APPENDIX I

- Reviewed the case files for selected forensic DNA profiles to determine if the profiles were developed in accordance with the Forensic QAS and were complete, accurate, and allowable for inclusion in NDIS.
- The NDIS Custodian, via the contractor used by the FBI to maintain NDIS and the CODIS software, provided a printout identifying the 740 STR forensic profiles the Laboratory had uploaded to NDIS as of March 25, 2010. We limited our review to a sample of 100 profiles. This sample size was determined judgmentally because preliminary audit work determined that risk was not unacceptably high.
- Using the judgmentally determined sample size, we randomly selected a representative sample of labels associated with specific profiles in our universe to reduce the effect of any patterns in the list of profiles provided to us. However, since the sample size was judgmentally determined, the results obtained from testing this limited sample of profiles may not be projected to the universe of profiles from which the sample was selected.

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

AUDIT CRITERIA

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

NDIS Participation Requirements

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

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

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 evidence control system to ensure the integrity of physical evidence.
- Analytical Procedures (Forensic QAS and Offender QAS 9.5): The laboratory shall monitor the analytical procedures using [appropriate] controls and standards.
- Review (Forensic QAS 12.1): The laboratory shall conduct administrative and technical reviews of all case files and reports to ensure conclusions and supporting data are reasonable and within the constraints of scientific knowledge.

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

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

At least once every 2 years, an external audit shall be conducted by an audit team comprised of qualified auditors from a second agency(ies)

and having at least one team member who is or has been previously qualified in the laboratory's current DNA technologies and platform.

- Outsourcing (Forensic QAS and Offender QAS Standard 17.1): A vendor laboratory performing forensic and database DNA analysis shall comply with these Standards and the accreditation requirements of federal law.

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

Offender QAS Standard 17.4: An NDIS participating laboratory shall have, follow and document appropriate quality assurance procedures to verify the integrity of the data received from the vendor laboratory including, but not limited to, the following: random reanalysis of database, known or casework reference samples; inclusion of quality control 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.

U.S. Department of Justice
Federal Bureau of Investigation

Washington, D. C. 20535-0001

July 26, 2010

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

Dear Mr. Sheeren:

Your memorandum to Director Mueller forwarding the draft report of the audit conducted at the Houston Police Department Crime Laboratory, Houston, Texas (Laboratory) has been referred to me for response.

Your draft report contained one recommendation relating to the Laboratory's compliance with the FBI's Memorandum of Understanding and *Quality Assurance Standards for Forensic DNA Testing Laboratories* (QAS). As you noted in the draft report, compliance with the QAS and Memorandum of Understanding is required for forensic laboratories participating in NDIS. The CODIS Unit has reviewed your draft report and offers the following comments.

With respect to recommendation one relating to the FBI ensuring that an FBI-trained DNA auditor is on the audit team for all audits of the Laboratory, the FBI Quality Assurance Audit Document currently addresses this matter. Standard 15.3 requires "a self-verification by the auditor(s) to ensure that the auditor, or the auditing team, consists of appropriately qualified individuals. This certification should be obtained and documented prior to the beginning of the audit and maintained by the laboratory." Further, "[r]egardless of the audit (internal or external), it is the laboratory's responsibility to ensure...that there is at least one person who is a qualified auditor on the audit team." A qualified auditor is defined as "a current or previously qualified DNA analyst who has successfully completed the FBI DNA Auditor's training course."

The CODIS Unit has recognized that additional guidance was needed on the issue of physical security of CODIS servers and revised its procedure to ensure appropriate physical security for CODIS and NDIS. The physical security of the LDIS server is adequate provided that only authorized personnel have physical access to the server. Authorized personnel are those who are CODIS users in addition to other personnel approved by the Laboratory. If you require a copy of the revised NDIS Procedure, please contact the CODIS Unit.

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,
/s/
Alice R. Isenberg
Section Chief
Biometrics Analysis Section
FBI Laboratory

CITY OF HOUSTON

Houston Police Department

Annise D. Parker, Mayor

1200 Travis Houston, Texas 77002-6000 713/308-1600

CITY COUNCIL MEMBERS: Brenda Stardig Jarvis Johnson Anne Clutterbuck Wanda Adams Michael Sullivan Al Hoang Oliver Pennington Edward Gonzalez
James G. Rodriguez Stephen C. Costello Sue Lovell Melissa Noriega C. O. "Brad" Bradford Jolanda "Jo" Jones CITY CONTROLLER: Ronald C. Green

July 13, 2010

Charles A. McClelland, Jr.
Chief of Police

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

Dear Mr. Sheeren:

We have reviewed the draft audit report on the Compliance with Standards Governing Combined DNA System Activities at the Houston Police Department Crime Laboratory attached to your correspondence dated June 25th, 2010.

We would like to first inform you that we appreciated [REDACTED] and [REDACTED] professionalism and thoroughness during the audit process.

The following are comments regarding the results of the review noted on the Executive Summary:

OIG Result

With regard to the Laboratory's compliance with NDIS participation requirement, we found that the CODIS server was not properly secured. In response to this finding, the Laboratory installed a key lock and removed the wheels from a cabinet containing the server to make it less mobile.

HPD Response/Clarification

The CODIS server is located in the Forensic Biology Section on the 26th Floor of 1200 Travis. The server is maintained in an area dedicated to the use of forensic biology. Access to this area is controlled via electronic badge access in addition to keyed locks. Only authorized individuals have been granted access to this area. The network connected to the CODIS server is also separate from the remainder of the building.

The CODIS server connects to a router located in the NIBIN work area of the Firearm Section on the 24th floor of 1200 Travis. This router connects the CODIS to a T1 line which is then routed out of the facility. The router is housed in a now-locked, non-portable cabinet. Like the CODIS

server, this cabinet is also in a restricted area with access that is controlled by electronic badge access in addition to keyed locks.

OIG Result

We also found that the Laboratory did not have a policy to maintain personnel records for the required 10 years. In addition, the Laboratory revised its DNA Standard Operating Procedure manual to reflect the 10-year retention policy.

HPD Response/Clarification

The Department's policy is to retain "personnel" records permanently. The records reviewed during the audit included quality system files such as proficiency tests of staff. While the interim process will be to maintain the quality files for 10 years, our long term plan is to merge these files with personnel files for permanent storage.

General Comments:

Laboratory Information-Page 6 of OIG Report

"The Houston Police Department's Chief of Police requested deactivation from CODIS in March 2003 due to concerns about the quality of the analyses being performed. This situation was remedied by a change in Laboratory personnel, and the remaining staff underwent training."

HPD Comment

The situation was remedied by not only the replacement of staff conducting DNA testing but the replacement of the DNA Technical Leader and Lab Director. A comprehensive review and re-testing of previously tested DNA cases was conducted. In addition to implementing an extensive quality assurance program which included training of remaining staff, an independent review was conducted of some of the Biology Section's work dating back to 1980.

If you have any questions, please contact me at 713-308-2636.

Sincerely,

/S/

Irma Rios, Director
Crime Lab Division

ir:ir

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

The OIG provided a draft of this audit report to the FBI and the Houston Police Department's Crime Laboratory. The FBI's response is incorporated in Appendix III of this final report, and the Houston Police Department's response is incorporated in Appendix IV. We made changes to the report where appropriate, based on our follow up of information contained in the responses.

Analysis of the Houston Police Department's Response

In response to our audit report, the Houston Police Department's Crime Laboratory concurred with our recommendation and discussed the actions it will implement in response to our finding. Additionally, the Houston Police Department provided clarification regarding the location of the CODIS server. At the time of our audit, a laboratory representative conducting a tour of the Crime Laboratory space, indicated that the CODIS server was located in a controlled area two floors below the CODIS laboratory. We relied on this representation in preparing our draft report. However, based on the information provided in the Houston Police Department's response to the draft report and our follow up on the issue, we have updated our final report to accurately reflect the location of the CODIS server.

The Houston Police Department's response also provided additional information regarding retention of all necessary personnel records. We have added language in our report to clarify this issue.

Analysis of the FBI's Response

The FBI also concurred with our recommendation and provided additional information regarding the physical security of the CODIS server.

1. **Resolved.** The FBI concurred with our recommendation to ensure that the Houston Police Department's Crime Laboratory implements procedures to verify that an FBI trained DNA auditor is on the audit team for all QAS-required audits. This recommendation can be closed when we receive a copy of the Laboratory's procedure requiring it to verify that an FBI trained DNA auditor conducts all QAS-required audits.