



AUDIT OF COMPLIANCE WITH STANDARDS GOVERNING COMBINED DNA INDEX SYSTEM ACTIVITIES AT THE LAS VEGAS METROPOLITAN POLICE DEPARTMENT'S FORENSIC LABORATORY LAS VEGAS, NEVADA

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

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EXECUTIVE SUMMARY

The Department of Justice Office of the Inspector General (OIG), Audit Division, has completed an audit of compliance with standards governing Combined DNA Index System (CODIS) activities at the Las Vegas Metropolitan Police Department's Forensic Laboratory (LVMPD Laboratory) in Las Vegas, Nevada.

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. 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 is used at the state level to serve as a state's DNA database

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.

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

OIG Audit Objectives

Our audit generally covered the period from September 2009 through August 2011. The objectives of our audit were to determine if the: (1) LVMPD Laboratory was in compliance with the NDIS participation requirements; (2) LVMPD Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) LVMPD Laboratory's forensic DNA profiles in CODIS databases were complete, accurate, and allowable for inclusion in NDIS.

Our review determined the following:

- The LVMPD Laboratory was in compliance with the NDIS
 participation requirements we tested, including: (1) current NDIS
 eligibility training for LVMPD Laboratory personnel; (2) availability
 and accessibility of NDIS procedures for CODIS users; and
 (3) adequate security for CODIS equipment that was located in a
 controlled laboratory space.
- The LVMPD Laboratory was in compliance with the QAS we reviewed, including: (1) completion of periodic internal and external QAS reviews; (2) implementation of corrective actions presented by internal and external reviews; and (3) had procedures in place to help ensure that access to the Laboratory was controlled and limited to authorized personnel. Finally, at the time of our audit, we found the LVMPD Laboratory did not outsource the analysis of its forensic DNA samples to another laboratory.
- We reviewed 100 of the LVMPD Laboratory's 2,650 forensic profiles that have been uploaded to NDIS as of August 26, 2011. Of the 100 forensic profiles sampled, we found that 91 profiles were complete, accurate, and allowable. However, we also found seven profiles that were unallowable and two more profiles were deemed inappropriate for inclusion in NDIS. Specifically, we identified the following unallowable profiles: (1) one profile that matched the victim's DNA profile, (2) three profiles that were obtained from the suspect's person or residence, (3) one profile uploaded that was not attributable to a putative perpetrator, and (4) two profiles that pertained to an item that was not connected to a crime. Another profile was deemed inappropriate for inclusion in NDIS because the laboratory had not yet attempted to gain an

elimination standard to rule out the victim. The LVMPD agreed and removed this profile. Finally, the LVMPD removed one more profile deemed inappropriate because it was based on a mixture containing DNA from several individuals with no major contributor. In addition to these nine profiles, the LVMPD Laboratory removed another two profiles from NDIS that were not part of our sample, but were associated with the sample profiles tested. In total, the LVMPD removed 11 profiles from NDIS as a result of our review.

The results of our audit are discussed in detail in the Findings section of the report. Our audit objectives, scope, and methodology are detailed in Appendix I of the report and the audit criteria are detailed in Appendix II.

We discussed the results of our audit with LVMPD Laboratory officials and have included their comments in the report as applicable. In addition, we requested from the LVMPD Laboratory and the FBI written responses to a draft copy of our audit report. We received those responses and they are found in Appendices III and IV, respectively. Based on our report that contained no recommendations and the responses that we received, we issue this final report closed.

TABLE OF CONTENTS

INT	RODUCTION	1
	Background	1
	OIG Audit Objectives	1
	Legal Foundation for CODIS	2
	CODIS Structure	2
	Laboratory Information	6
FIN	DINGS	7
1.	Compliance with NDIS Participation Requirements	7
	Results of the OIG Audit	7
	Conclusion	9
11.	Compliance with Quality Assurance Standards	10
	Results of the OIG Audit	10
	Conclusion	13
Ш.	Suitability of Forensic DNA Profiles in CODIS Databases	14
	Results of the OIG Audit	15
	Conclusion	17
APP	ENDICES:	
1.	OBJECTIVES, SCOPE, AND METHODOLOGY	18
П.	AUDIT CRITERIA	21
ш.	AUDITEE RESPONSE	25
W	DEDARTMENT OF HISTICE DESPONSE	26

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INTRODUCTION

LAS VEGAS, NEVADA

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 Las Vegas Metropolitan Police Department's Forensic Laboratory (LVMPD Laboratory) in Las Vegas, Nevada.

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. The FBI's CODIS Unit manages CODIS and is responsible for its use in fostering the exchange and comparison of forensic DNA evidence.

OIG Audit Objectives

Our audit covered the period from September 2009 through August 2011. The objectives of our audit were to determine if the: (1) LVMPD Laboratory was in compliance with the National DNA Index System (NDIS) participation requirements; (2) LVMPD Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) LVMPD 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.

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.

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.²

Allowable DNA Profiles

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

Allowable Disclosure of DNA Profiles

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

CODIS Structure

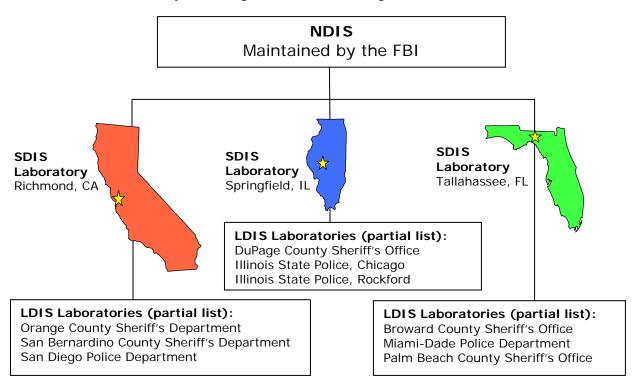
The FBI implemented CODIS as a distributed database with hierarchical levels that enables federal, state, and local crime laboratories to compare DNA profiles electronically. CODIS consists of a hierarchy of three distinct levels: (1) NDIS, managed by the FBI as the nation's DNA database containing DNA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

- 2 -

² 42 U.S.C.A. § 14132 (2006).

(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:

- <u>Convicted Offender Index</u> contains profiles generated from persons convicted of qualifying offenses.³
- Arrestee Index is comprised of profiles developed from persons who have been arrested, indicted, or charged in an information with a crime.
- <u>Legal Index</u> consists of profiles that are produced from DNA samples collected from persons under other applicable legal authorities.⁴
- <u>Detainee Index</u> 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.
- <u>Forensic Index</u> profiles originate from, and are associated with, evidence found at crime scenes.
- <u>Missing Person Index</u> contains known DNA profiles of missing persons and deduced missing persons.
- <u>Unidentified Human (Remains) Index</u> holds profiles from unidentified living individuals and the remains of unidentified deceased individuals.⁵
- Relatives of Missing Person Index is comprised of DNA profiles generated from the biological relatives of individuals reported missing.

Given these multiple databases, the main functions of CODIS are to: (1) generate investigative leads that may help in solving crimes, and

(2) identify missing and unidentified persons.

The Forensic Index generates investigative leads in CODIS that may help solve crimes. Investigative leads may be generated through matches between the Forensic Index and other indices in the system, including the Convicted Offender, Arrestee, and Legal Indices. These matches may

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

⁴ An example of a Legal Index profile is one from a person found not guilty by reason of insanity who is required by the relevant state law to provide a DNA sample.

⁵ An example of an Unidentified Human (Remains) Index profile from a living person is a profile from a child or other individual, who cannot or refuses to identify themselves.

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. The probability of a false match among DNA profiles is reduced as the completeness of a profile increases.

- 5 -

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

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 LVMPD 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

According to Laboratory officials, the LVMPD Laboratory annually serves more than 30 different law enforcement agencies located throughout Southern Nevada. In total, the LVMPD Laboratory serves a population size of 1.9 million people in Clark County, Nevada, another half a million people from neighboring counties (made up of Nye, Lincoln, and Esmeralda), and up to 3 million tourists who visit Las Vegas each month. The LVMPD Laboratory participates in the CODIS program as a LDIS laboratory. In addition to maintaining a Forensic database, the LVMPD Laboratory also maintains a Convicted Offender database. The LVMPD Laboratory began analyzing DNA in 1997, and began processing evidence in criminal cases and uploading forensic profiles into NDIS in 2001.

The LVMPD Laboratory was last accredited for 5 years by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) in July 2008. Thus, the LVMPD Laboratory is up for renewal in June 2013.

FINDINGS

I. Compliance with NDIS Participation Requirements

The LVMPD Laboratory was in compliance with NDIS participation requirements regarding updated NDIS eligibility training for its personnel, maintenance of CODIS-related training and proficiency- testing records for CODIS users, timeliness of NDIS matches, backing up the CODIS server in accordance with NDIS requirements, and timely submission of external audits to the FBI.

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 LVMPD 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 LVMPD Laboratory complied with the NDIS participation requirements we reviewed. Specifically, we found that the LVMPD Laboratory was in compliance with NDIS participation requirements regarding updated NDIS eligibility training for its personnel, maintenance of CODIS-related training and proficiency-testing records for CODIS users, timeliness of NDIS matches, backing up its CODIS server in accordance with NDIS requirements, and timely submission of external audits to the FBI. These results are described in more detail below.

• The NDIS General Responsibilities Operational Procedures manual in effect during our audit required that participating laboratories ensure that CODIS users are notified of and provided access to revised NDIS Operational Procedures and other documentation necessary to properly participate in NDIS. All LVMPD Laboratory forensic personnel have access to the manual on the FBI's Criminal Justice Information System—Wide Area Network (CJIS-WAN). In addition, the LVMPD Laboratory's CODIS Administrator stated that she also keeps a copy of the NDIS procedure manual on her desk where it is available to be perused by her staff. We selected 2 of the 10 CODIS users to interview and determined that both users were aware of the NDIS procedures and could access the procedures on the CJIS-WAN.

- LVMPD Laboratory's CODIS users are required to complete annual DNA Records Acceptance training. The FBI provided a list of LVMPD Laboratory personnel who had received this mandatory annual training, which we compared to a similar list provided by the LVMPD Laboratory. We found that all authorized personnel on the FBI's list have successfully completed the annual training in 2011.
- For each CODIS user, the FBI requires that a participating laboratory submit fingerprint cards, background information, CODIS user information, and other appropriate documentation to the FBI. We verified that all necessary documents were provided to the FBI for all 10 LVMPD Laboratory CODIS users.
- At the time of our audit, the NDIS General Responsibilities
 Operational Procedures manual required participating laboratories
 to maintain records of CODIS users, including reports concerning
 proficiency testing, and any other reports or audits required by the
 FBI. The LVMPD Laboratory's policy requires that for its CODIS
 users personnel files are to be maintained for 30 years after the
 employee has left the Laboratory and training files are to be
 maintained for 5 years after the employee has left the Laboratory,
 this local policy was in compliance with the NDIS Operational
 Procedures.
- The NDIS Interstate Candidate Match Operational Procedures provides guidance for participating laboratories to follow when confirming matches that are identified in the CODIS system. We reviewed a sample of five NDIS matches and determined:
 - The LVMPD Laboratory sent confirmation requests in a timely manner for all five matches;
 - Confirmation generally took place within 30 days after the originating laboratory's request was sent out for four of the five matches. For the one late match confirmation, the process took 115 days because another laboratory did not confirm the match request submitted by the LVMPD Laboratory in a timely manner; and
 - The LVMPD Laboratory notified investigators of match confirmation within 2 weeks for all five matches.

- The NDIS Security Requirements state the CODIS server shall be electronically safeguarded from unauthorized use and be only accessible to a limited number of approved personnel. We found that only CODIS users within the LVMPD Laboratory had access to CODIS. Access to the CODIS database is further limited, as only authorized personnel had access to the locked room that contained the CODIS terminals and server. We were informed that all LVMPD CODIS users had their own CODIS accounts, unique passwords, and must undergo annual CODIS training. Moreover, the LVMPD Laboratory's in-house policy limited access to the CODIS database to CODIS users only, required daily backups of its CODIS server, and required that the backed up material be transferred off-site on a monthly basis.
- The NDIS Security Requirements state that only authorized personnel shall have physical access to the CODIS server, and that locating a CODIS terminal and server in a common data center may be permitted as long as the data center is located within the criminal justice agency and has physical security. The CODIS server was stored in a room in the forensic laboratory behind cipher-locked doors. Access to CODIS terminals and the server was currently limited to CODIS users. We observed the location and accessibility of the CODIS server and found it to be in compliance with NDIS Security Requirements.
- The NDIS operational procedure entitled External Audit Review Procedures requires that an external quality assurance review be forwarded to the FBI's NDIS Custodian within 30 days of the participating laboratory's receipt of the report. We reviewed the submission of the most recent external review and found that the report was submitted to the FBI's NDIS Custodian within 30 days.

Conclusion

We found that the LVMPD Laboratory was in compliance with NDIS participation requirements regarding updated NDIS eligibility training for LVMPD Laboratory personnel, maintenance of training and proficiency-testing records for CODIS users, timeliness of NDIS matches, creating backups of its CODIS server on a daily basis and transferring the backed up material off-site on a monthly basis, and timely submitted external audits to the FBI. Based on our review, we made no recommendations concerning the LVMPD Laboratory's compliance with the NDIS participation requirements.

II. Compliance with Quality Assurance Standards

We found that the LVMPD Laboratory complied with the Quality Assurance Standards (QAS) issued by the FBI. Specifically, we found that the LVMPD Laboratory: (1) followed protocols with regard to amplified samples being maintained in separate rooms from the evidence examination, DNA extraction, and PCR setup areas, (2) underwent Quality Assurance Standard reviews within designated timeframes, and (3) had procedures in place to help ensure that access to the Laboratory was controlled and limited to authorized personnel.

During our audit, we considered the Forensic QAS issued by the FBI.⁷ These standards describe the quality assurance requirements that the LVMPD 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 LVMPD Laboratory underwent.⁸ The QAS we reviewed are listed in Appendix II.

Results of the OIG Audit

We found that the LVMPD Laboratory complied with the QAS issued by the FBI. Specifically, we found that the LVMPD Laboratory: (1) followed protocols with regard to amplified samples being maintained in separate rooms from the evidence examination, DNA extraction, and PCR setup areas; (2) underwent QAS reviews within designated timeframes; and (3) had procedures in place to help ensure that access to the Laboratory was controlled and limited to authorized personnel. These results are described in more detail below.

• The QAS requires amplified DNA to be maintained at separate times or in separate spaces from the evidence examination, DNA

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

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

extraction, and polymerase chain reaction (PCR) setup processes. We observed that the LVMPD Laboratory had separate rooms for DNA examination and extraction, PCR setup, and DNA amplification. Known and unknown samples were separated by time and space during the PCR setup and all evidence flowed one-way to avoid amplified DNA from being introduced into Pre-PCR areas of the laboratory. When we visited the LVMPD Laboratory, doors in the post-PCR areas of the laboratory were closed. Based upon our observations, we did not identify any material deficiencies with regard to the LVMPD Laboratory performing various DNA analysis processes in separate times and separate spaces.

- We reviewed the LVMPD Laboratory's policy for evidence sample control, which states that evidence is to be secured off-site at the Las Vegas Metropolitan Police Department's Criminalistics Bureau Vault and brought over when needed to the LVMPD Laboratory's onsite vault. When we visited the LVMPD Laboratory, we observed that the LVMPD Laboratory's on-site vault was secure and access was limited by key cards issued only to Laboratory Managers, Evidence Technicians, and Laboratory Aides. In addition, the chain of custody was documented in the LVMPD Laboratory's evidence retrieval system known as WinACE. The electronic log identified where and with whom each piece of evidence was located in the LVMPD Laboratory. For example, to retrieve evidence from the offsite Criminalistics Bureau Vault DNA Analysts were required to submit an electronic request into WinACE. Upon retrieval, DNA Analysts are required to sign a list affixed to the outside of each evidence package each time the evidence is checked out. During testing and while the evidence is not in custody of the DNA Analyst, DNA Analysts are required to secure the evidence in individually assigned locked storage spaces. Upon completion of DNA analysis, the LVMPD Laboratory's procedure is to return the evidence to the off-site Criminalistics Bureau Vault. Based on these procedures, the integrity of physical evidence is maintained by the LVMPD Laboratory in accordance with the QAS requirements that we tested.
- We learned that as of September 2011, the LVMPD Laboratory did not outsource the analysis of its forensic DNA or convicted offender samples to another laboratory and has not done so in the past 2 years.
- The QAS requires laboratories to undergo an annual review, including an external review every 2 years. During our fieldwork in September 2011, we found that the LVMPD Laboratory had an

- external QAS review performed in May 2010 and an internal QAS review performed in March 2011 in accordance with the FBI's requirement.
- We reviewed the LVMPD Laboratory's prior 2 years of QAS review reports. Both the internal and external reviews were conducted using the FBI's QAS Review Document. The FBI confirmed that at least one of the QAS reviewers for both reviews had successfully completed the FBI QAS Review training course.
 - o The external QAS review conducted in May 2010, noted that LVMPD Laboratory did not: (1) calibrate its UV Crosslinkers timely; (2) conduct annual preventative maintenance for the 3130XL timely; (3) perform monthly rebooting of computers and checking of available disk space in a timely manner; and (4) ensure the team that performed the previous internal audit contained a qualified analyst from a databasing laboratory, as required. We reviewed the LVMPD Laboratory's corrective actions that it took to remedy these findings, including: the establishment of new policies and procedures to ensure calibration and timely rebooting of computer systems; the creation of a master calendar listing all equipment in the laboratory requiring maintenance or calibration; and the issuance of administrative directives to ensure all members of the audit team are qualified to audit a databasing laboratory. We found, that the LVMPD Laboratory addressed all the findings in the May 2010 external review.
 - The internal QAS review conducted in March 2011, noted that the LVMPD Laboratory: (1) did not check available disk space in a timely manner; (2) failed to properly approve revised policies and procedures in the LVMPD Laboratory's Forensic Handbook; (3) did not have a clearly written policy for the retention of sample receipts, processing records, sample retention or hit confirmations; (4) did not adequately safeguard the key to the lock box containing the evidence locker keys; and (5) failed to safeguard evidence locker keys against loss or unauthorized use. We reviewed the LVMPD Laboratory's corrective actions that it took to remedy these findings including: the establishment of new policies and procedures to check available disk space in a timely manner, and the creation of a maintenance log to track and ensure timely checks of available disk space. The LVMPD Laboratory approved and updated the policy for the retention of sample receipts, processing records, and hit confirmations in the LVMPD Laboratory's Forensic Handbook. The LVMPD Laboratory

restricted access to the evidence locker keys by removing the key to the lock box, making copies of the restricted access evidence locker key and distributed the keys only to LVMPD Laboratory management. We found that the LVMPD Laboratory addressed the findings in the March 2011 internal review.

- We also asked each of the QAS reviewers who conducted the most recent external QAS reviews to certify that they had no impairments to independence. All QAS reviewers provided us with this certification.
- We reviewed the LVMPD Laboratory's policies on physical security of the facility, as well as the cipher locks and key card assignments to LVMPD Laboratory personnel for access to the secured areas of the Laboratory. We observed during our tour, that the facility was locked and closed off to the public. We also observed that authorized LVMPD Laboratory personnel entered the laboratory's facility using their key cards. All other visitors were required to push the call button and speak to a receptionist in order to gain entry through the front doors of the building. Once inside in the administrative office space, visitors were required to sign a log-in sheet in order to obtain a badge and they were required to be escorted by a staff member at all times while in the LVMPD Laboratory's facilities. The doors leading into the interior laboratories were secure with cipher combination locks and were limited only to authorized personnel. We found that overall external and internal security at the LVMPD Laboratory to be adequate and in compliance with the QAS requirements we tested.

Conclusion

We found that the LVMPD Laboratory complied with the FBI's Forensic QAS that we tested. Specifically, we found that the LVMPD Laboratory: (1) followed protocols with regard to amplified samples being maintained in separate rooms from the evidence examination, DNA extraction, and PCR setup areas; (2) underwent QAS reviews within designated timeframes; and (3) had procedures in place to ensure that access to the Laboratory was controlled and limited to authorized personnel. Based on our review, we made no recommendations concerning the LVMPD Laboratory's compliance with QAS.

III. Suitability of Forensic DNA Profiles in CODIS Databases

We found that 7 of the 100 forensic DNA profiles we reviewed did not meet NDIS standards and two more profiles were deemed inappropriate for inclusion in NDIS. Specifically, we identified the following unallowable profiles: (1) one profile matched the victim's DNA profile; (2) three profiles were obtained from the suspect's person or residence; (3) one profile was not attributable to a putative perpetrator; and (4) two profiles were obtained from items that were not connected to a crime. An additional profile was deemed inappropriate for inclusion in NDIS because the laboratory had not yet attempted to obtain an elimination standard to rule out the victim as the source of the DNA. The LVMPD Laboratory deemed yet another profile inappropriate for NDIS because the profile was based on a mixture containing DNA from several individuals with no major contributor. In addition to the nine profiles removed, the LVMPD Laboratory removed another two profiles that were not part of our sample, but were associated with the profiles we tested in our sample. In total, the LVMPD Laboratory removed 11 profiles from NDIS.

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

The FBI's NDIS operational procedures establish the DNA data acceptance standards by which laboratories must abide. The FBI also developed a flowchart as guidance for the laboratories for determining what is allowable in the forensic index at NDIS. Laboratories are prohibited from uploading forensic profiles to NDIS that clearly match the DNA profile of the victim or another known person that is not a suspect. A profile at NDIS that matches a suspect may be allowable if the contributor is unknown at the time of collection, however, NDIS guidelines prohibit profiles that match a suspect if that profile could reasonably have been expected to be on an item at the crime scene or part of the crime scene independent of the crime. For instance, a profile from an item that was seized from the suspect's

person, such as a shirt, or that was in the possession of the suspect when collected is generally not a forensic unknown and would not be allowable for upload to NDIS. The NDIS procedures we reviewed are listed in Appendix II of this report.

Results of the OIG Audit

We selected a sample of 100 profiles out of the 2,650 forensic profiles that the LVMPD Laboratory had uploaded into NDIS as of August 26, 2011. Of the 100 forensic profiles sampled, we found that 7 profiles were unallowable for upload to NDIS and another two profiles were deemed inappropriate for upload to NDIS. The remaining profiles sampled were complete, accurate, and allowable for inclusion in NDIS. In addition to our sampled profiles, we found two more unallowable profiles uploaded to NDIS that were associated with the unallowable profiles we identified as part of our sample testing. In total, the LVMPD Laboratory removed 11 profiles from NDIS. The specific exceptions are explained in more detail below.

Sample Number NV-18

Sample NV-18 was taken from an empty whiskey bottle found near the crime scene of a homicide. We deemed this profile to be unallowable because it was developed from the whiskey bottle, which the police could not connect to the crime. In addition, the profile did not contain the required 10 core loci to be auto-searched in NDIS. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that since the profile was not developed from evidence connected to the crime and since the profile did not have the required 10 core loci; the profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Sample Number NV-25

Sample NV-25 was taken from a trash can found in the suspect's residence where a sexual assault occurred. We deemed this profile to be unallowable because it was taken from the suspect's residence and is not a forensic unknown profile, but rather a deduced suspect profile. Deduced suspect profiles are not allowed to be uploaded to CODIS. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Sample Number NV-28

Sample NV-28 was taken from a male victim's shorts obtained during the investigation of a sexual assault. After reviewing this profile that was uploaded to NDIS, we deemed it to be unallowable because the profile matched the victim's profile. Victim profiles are unallowable for upload to CODIS. We presented this to the CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Sample Number NV-44

Sample NV-44 was a blood swab taken from the concrete surface of an apartment parking lot where a homicide had occurred. The suspects in the case shot and killed one victim, and hit another victim in the head with a weapon. The LVMPD Laboratory processed an elimination standard for the deceased victim; however it did not attempt to obtain an elimination standard for the injured victim. We presented this to the LVMPD Laboratory CODIS Administrator, who removed the inappropriate profile and one other related profile taken from the same crime scene from CODIS. The LVMPD Laboratory CODIS Administrator stated she would attempt to obtain an elimination standard from the injured victim in order to verify that neither of the two victims was uploaded into CODIS. If the LVMPD Laboratory verifies that the profile does not belong to the other victim, then this profile could be placed back in to CODIS.

Sample Number NV-58

Sample NV-58 was taken from the cigarette butt found on the sidewalk located near an apartment complex. The crime being investigated was a homicide which occurred inside one of the apartments. The cigarette butt was found near the apartment's covered parking spaces and trash dumpsters. We deemed this profile to be unallowable because the information in the case file did not connect the item to a putative perpetrator. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS. Further, the LVMPD Laboratory removed an additional profile from CODIS that had been taken from another cigarette butt found in the same location.

Sample Number NV-59

Sample NV-59 was taken from a tissue found at the suspect's residence. We deemed this profile to be unallowable because it was taken from the suspect's residence and it was not a forensic unknown profile, but rather a deduced suspect profile. Deduced suspect profiles are not allowable for upload to CODIS. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Sample Number NV-68

Sample NV-68 was taken from an orange cigarette filter found at the crime scene of a suspicious death investigation. The LVMPD Laboratory's case file lacked information regarding the location of the cigarette filter relative to the scene of the suspicious death. In addition, this cigarette butt was collected 11 days after the suspicious death, the crime scene had been unsealed, and the residence (the location of the crime scene) had been cleaned. Therefore, we deemed this profile unallowable because we could not connect it to a crime. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Sample Number NV-75

Sample NV-75 was taken from a swab of the trigger of a handgun that was used in an assault and robbery. The LVMPD Laboratory deemed this profile inappropriate for CODIS because it was a mixture of three individuals with no major contributor. The Laboratory removed the profile from CODIS.

Sample Number NV-79

Sample NV-79 was taken from a white sock collected directly from the suspect. We deemed this profile to be unallowable because it is not a forensic unknown profile, but rather a deduced suspect profile. We presented this to the LVMPD Laboratory CODIS Administrator, who agreed that this profile was unallowable and the LVMPD Laboratory removed it from CODIS.

Conclusion

Based on our testing of 100 sample forensic profiles that the LVMPD Laboratory uploaded to NDIS, we found 91 profiles were complete, accurate, and allowable for inclusion in NDIS, but we questioned the Laboratory's upload of 7 forensic profiles that do not meet the standards for NDIS. The Laboratory agreed and removed all seven unallowable profiles. We also confirmed that the LVMPD Laboratory removed two more profiles from our sample that we deemed inappropriate for CODIS, as well as an additional two profiles associated, but not part of our sample of 100 forensic profiles. Because the LVMPD Laboratory took corrective action on all 11 profiles, we make no recommendations concerning the suitability of LVMPD Laboratory's forensic DNA profiles that are in CODIS.

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 September 2009 through August 2011. The objectives of the audit were to determine if the:
(1) LVMPD Laboratory was in compliance with the NDIS participation requirements; (2) LVMPD Laboratory was in compliance with the Quality Assurance Standards (QAS) issued by the FBI; and (3) LVMPD 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 LVMPD Laboratory complied with the QAS, (b) repeat findings were identified, and (c) recommendations were adequately resolved.⁹

In accordance with the QAS, the internal and external laboratory review procedures 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.

⁹ 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 Government Auditing Standards (GAS) 7.42 (2007 revision), we generally relied on the results of the LVMPD Laboratory's external laboratory review to determine if the LVMPD Laboratory complied with the QAS. 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 LVMPD Laboratory's external laboratory review.

- Interviewed LVMPD Laboratory officials to identify management controls, LVMPD Laboratory operational policies and procedures, LVMPD Laboratory certifications or accreditations, and analytical information related to DNA profiles.
- Toured the LVMPD 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 LVMPD Laboratory's written policies and procedures related to conducting internal reviews, resolving review findings, expunging DNA profiles from NDIS, and resolving matches among DNA profiles in NDIS.
- Reviewed supporting documentation for 5 of 391 NDIS matches to determine whether they were resolved in a timely manner. The LVMPD Laboratory provided the universe of NDIS matches as of September 26, 2011. The sample was judgmentally selected to include both case-to-case and case-to-offender matches. This nonstatistical sample does not allow projection of the test results to all matches.
- Reviewed the case files for selected forensic DNA profiles to determine if the profiles were developed in accordance with the Forensic QAS and were complete, accurate, and allowable for inclusion in NDIS.

Working in conjunction with the contractor used by the FBI, we obtained an electronic file identifying the 2,650 (STR) forensic profiles the LVMPD Laboratory had uploaded to NDIS as of August 26, 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 LVMPD 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). We did not test for compliance with elements that were not applicable to the LVMPD 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 NDIS¹⁰

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

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 LVMPD 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 LVMPD Laboratory's most recent annual external review to determine if the LVMPD Laboratory was in compliance with the QAS. Additionally, we performed audit work to verify that the LVMPD 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

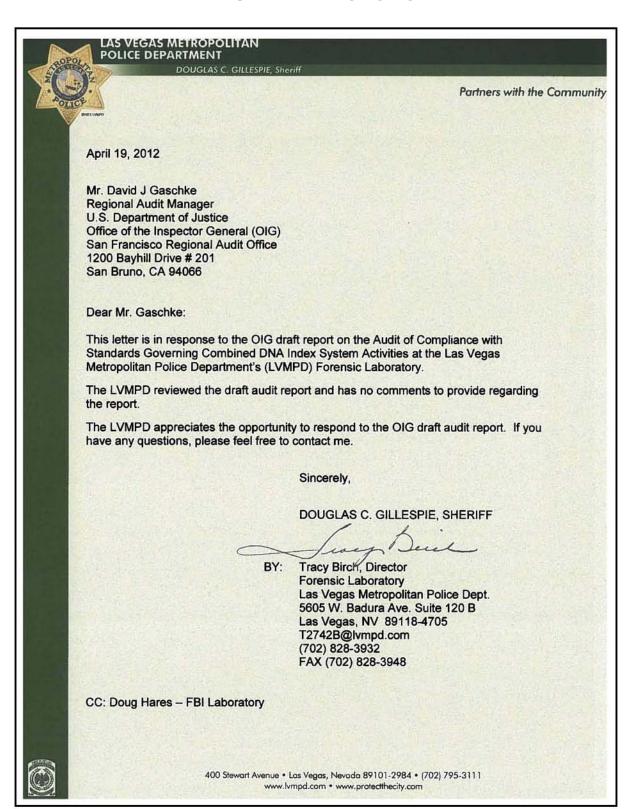
We established standards to test the completeness and accuracy of DNA profiles as well as the timely notification of law enforcement when DNA profile matches occur in NDIS. Our standards are listed below.

 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.

APPENDIX III

AUDITEE RESPONSE



DEPARTMENT OF JUSTICE RESPONSE



U.S. Department of Justice

Federal Bureau of Investigation

Washington, D.C. 20535-0001

May 2, 2012

David J. Gaschke Regional Audit Manager San Francisco Regional Audit Office Office of the Inspector General 1200 Bayhill Drive, Suite 201 San Bruno, CA 94066

Dear Mr. Gaschke:

Your memorandum to Director Mueller forwarding the draft audit report for the Las Vegas Metropolitan Police Department's Forensic Laboratory, Las Vegas, Nevada (Laboratory), has been referred to me for response.

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

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

Sincerely,

Anthony J. Onorato Acting Section Chief Biometrics Analysis Section FBI Laboratory