REPORT OF THE

TEXAS FORENSIC SCIENCE COMMISSION

INTEGRATED FORENSIC LABORATORIES, LLC
FIREARMS SECTION
LABORATORY SELF-DISCLOSURE

Approved by Unanimous Vote at Quarterly Meeting:

October 2, 2015
Austin, Texas

I. BACKGROUND AND STATUTORY AUTHORITY

A. History and Mission of the Texas Forensic Science Commission

The Texas Legislature created the Texas Forensic Science Commission ("Commission") during the 79th Legislative Session by passing House Bill 1068 (the "Act"). The Act amended the Texas Code of Criminal Procedure to add Article 38.01, which describes the composition and authority of the Commission. *See* Act of May 30, 2005, 79th Leg., R.S., ch. 1224, § 1, 2005. During the 83rd and 84th Legislative Sessions, the Legislature further amended the Act to clarify and expand the Commission's jurisdictional authority. *See* Acts 2013, 83rd Leg., ch. 782 (S.B.1238), §§ 1 to 4, eff. June 14, 2013; Acts 2015, 84th Leg., ch. 1276 (S.B.1287), §§ 1 to 7, eff. September 1, 2015, (*except* TEX. CODE CRIM. PROC. art. 38.01 § 4-a(b)*, which takes effect January 1, 2019*).

The Act requires the Commission to "investigate, in a timely manner, any allegation of professional negligence or professional misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility or entity." TEX. CODE CRIM. PROC. art. 38.01 § 4(a)(2). The Act also requires the Commission to implement a reporting system through which accredited laboratories, facilities, or entities may report professional negligence or professional misconduct, *and* require all laboratories, facilities, or entities that conduct forensic analyses to report professional negligence or misconduct to the Commission. *Id.* at § 4(a)(1)-(2). The Commission released guidance for accredited crime laboratories regarding the categories of non-conformances that may require self-reporting; this guidance is provided with the self-disclosure form located on the Commission's website at www.fsc.texas.gov.

The Commission has nine members appointed by the Governor of Texas. *Id.* at art. 38.01 § 3. Seven of the nine commissioners are scientists and two are attorneys (one prosecutor nominated by the Texas District and County Attorney's Association, and one criminal defense attorney nominated by the Texas Criminal Defense Lawyer's Association). *Id.* The Commission's Presiding Officer is Dr. Vincent J.M. Di Maio, as designated by the Governor. *Id.* at § 3(c).

II. INVESTIGATIVE PROCESS

A. Self-Disclosures

This report involves a self-disclosure by Integrated Forensic Laboratories, Inc. ("IFL") When the Commission receives a self-disclosure, the Complaint and Disclosure Screening Committee ("Committee") conducts an initial review of the disclosure and supporting documents at a publicly noticed meeting. (*See Policies and Procedures* at 3.0). After discussing the disclosure, the Committee votes to recommend to the full Commission whether the disclosure merits any further action based on the complexity of the case facts and whether the laboratory has resolved the questions and concerns regarding the issues raised. *Id.*

In this case, the Committee discussed the disclosure and posed questions to IFL's Quality Director at a publicly noticed meeting in Fort Worth, Texas on July 31, 2014. The following day, on August 1, 2014, the Commission held its quarterly meeting, also in Fort Worth, Texas. The Commission again discussed the disclosure and posed follow-up questions to IFL. After deliberation, the Commission voted unanimously to create a 3-member investigative panel to review the disclosure pursuant to Section 3.0(b)(2) of the *Policies and Procedures* and determine what, if any, additional action would be appropriate to remedy the issues raised by the disclosure. Members voted to elect Dr.

Ashraf Mozayani, Dr. Jeffrey Barnard, and Mr. Bobby Lerma as members of the panel, with Dr. Mozayani serving as Chair.

Once a panel is created, the Commission's investigation may include some or all of the following components: (1) relevant document review; (2) interviews with members of the laboratory as necessary to assess the facts and issues raised; (3) collaboration with the laboratory's accrediting body and any other relevant investigative agency (*e.g.,* ASCLD/LAB); (4) requests for follow-up information where necessary; (5) hiring of subject matter experts where necessary; and (6) any other steps needed to meet the Commission's statutory obligations.

B. Limitations on the Commission's Authority

The Commission's authority contains important statutory limitations. For example, no finding contained herein constitutes a comment upon the guilt or innocence of any individual. TEX. CODE CRIM. PROC. art. 38.01 at § 4(g); *Policies and Procedures* at § 4.0(d). In addition, the Commission's written reports are not admissible in a civil or criminal action. *Id.* at § 11; *Id.* at § 4.0(d).

The Commission also does not have the authority to issue fines or other administrative penalties against any individual or laboratory as part of a complaint or self-disclosure. Information the Commission receives during the course of any investigation is dependent upon the willingness of the forensic laboratory or other entity under investigation and other concerned parties to submit relevant documents and respond to questions posed. The information gathered has **not** been subjected to the standards for admission of evidence in a courtroom.

Moreover, documents obtained during the course of an investigation have not been subject to any independent forensic evaluation. For example, if the Commission

receives an email or case note pages from a laboratory, and the documents indicate they were sent or created on a given date, the Commission assumes this information is accurate and has not been altered. The Commission requests information from the laboratory and other concerned parties based on its understanding of the facts as presented in the self-disclosure, and relies on the parties to provide supplemental information if they believe such information will shed light on the Commission's review of the self-disclosure. Because the Commission has no authority to subpoena documents, it relies on the parties' willingness to cooperate with the investigation.

Finally, the investigation discussed herein concerns IFL's firearms section. Not every section of the laboratory has the same challenges or faces the same opportunities for improvement. Thus, the observations made herein, unless specifically designated for broader application, are limited to the firearms section and do not impact other forensic divisions of IFL (or its parent company, NMS).

III. SUMMARY OF KEY FACTS AND DISCLOSURE TIMELINE

A. Background/Summary of Nonconformance

On April 10, 2014, IFL submitted a self-disclosure to the Commission reporting a nonconformance in the laboratory's firearms section. An IFL firearms examiner ("Examiner") issued a report that excluded a group of cartridge cases as having been fired from a group of five firearms provided for examination by the submitting law enforcement agency. After initially defending his work against questions raised by the submitting law enforcement agency, the Examiner reviewed the case file and discovered he had mistakenly eliminated the cartridge cases. The Examiner confirmed a match to one of the five firearms he had originally excluded. The erroneous exclusion was the

extent of the error made by the Examiner; the case does not involve a mistaken identification but rather an error in the initial exclusion of one group of cartridge cases.

The Examiner used a manufacturer anomaly (considered a classic characteristic) found on the head stamp of cartridge cases to separate the cartridge cases into five groups. He then compared the cartridge cases in each group to test cartridge cases fired from any of the five firearms. He was able to associate four groups of cartridge cases, but he reported the fifth as not being fired from any of the five firearms. A firearms examiner and the General Manager of IFL ("Tech Reviewer") technically reviewed the case, but did not catch the Examiner's failure to compare the excluded cartridge cases to firearms 1-4.

B. Commission Investigation Timeline

At its August 1, 2014 meeting in Fort Worth, Texas, Commission members voted to accept the complaint for investigation and establish an investigative panel of the following commissioners: Dr. Ashraf Mozayani, Dr. Jeffrey Barnard, and Mr. Bobby Lerma. *See* **Ex. A**. On October 7, 2014, members voted to delegate to the complaint's investigative panel the authority to retain firearms expert John Murdock from John E. Murdock & Associates ("Murdock") *See* **Ex. B**. The Commission hired Murdock on November 13, 2014. Upon hiring Murdock, the Commission drafted several questions for him to answer. *See* **Ex. C.** Murdock returned a report to the Commission on June 24, 2015 in response to the questions posed and after having reviewed all relevant case file information. *See* **Ex. D.** The Commission met again for its next quarterly meeting on August 14, 2015. The day before the Commission's meeting, IFL staff and management had an opportunity to discuss Murdock's findings and exchange questions and answers

with him. During that meeting, IFL provided some points of clarification as described below. On August 14, 2015, the Commission voted to finalize the investigation and issue a report to be adopted at the Commission's next quarterly meeting on October 2, 2015.

In addition to the extensive work performed by Murdock, the Commission's general counsel, Lynn Garcia, had numerous discussions with IFL's Quality Manager and with ASCLD/LAB to ensure the Commission and ASCLD/LAB understood the full scope of corrective action and retroactive case review performed by the laboratory. *See* **Ex. E**.

C. Investigative Findings Underlying the Nonconformance

The original questions posed by the Commission to Murdock included an erroneous assumption that the Examiner had used bunter marks – the result of a tool the factory uses to impress a headstamp on the cartridge cases – to associate the fired cartridge cases with the firearm used. Class characteristics like bunter marks cannot be used to determine whether or not a cartridge case has been fired by any particular firearm, because bunter marks are not marks produced during firing. An Examiner must compare and identify using individual characteristics. However, during discussion with IFL management and examiners, Murdock discovered the Examiner did not use bunter marks as a characteristic for exclusion, but rather grouped the items by bunter marks and then made decisions regarding exclusion using individual characteristics. ***Thus, any references to bunter marks being used as an exclusionary characteristic in the Murdock report attached to this document are superseded by the explanation contained herein.***

Murdock observed the Examiner had received 25 questioned cartridge cases from a police shooting. The Examiner also received 5 semi-automatic pistols allegedly used in the shooting. All the pistols are the same make and model (Sig Sauer P226) and leave very similar markings on fired cartridge cases. During the original examination, the Examiner noticed an apparent anomaly in the headstamp design. The Examiner thought each officer may have had his/her own box of ammunition, so he grouped them by bunter marks as a way of possibly associating the ammunition to one box and therefore one officer. Using this theory, the Examiner grouped the cartridge cases into a series of five groups and then began to compare the groups with guns. The Examiner reviewed the first four guns. Gun 1 was determined by *individual characteristics* – *comparison and test firings with the group* – to be associated with bunter mark Group 1. Gun 2 was determined to be associated with bunter mark Group 2, and so on through Gun 4. When the Examiner reached bunter mark Group 5, he experienced difficulty comparing Gun 5 with Group 5 and set the case aside temporarily.

The Examiner was then absent from the laboratory for a brief period after the death of his father. The Examiner returned to the laboratory to address the case again. Upon his return, the Examiner did not recognize that because he was experiencing such difficulty in associating Gun 5 with bunter mark Group 5, Group 5 may have been fired by Gun 1, 2, 3, or 4. The Examiner did not go back and make the appropriate *individual characteristic* comparison between bunter mark Group 5 and Guns 1-4, but rather reported in his notes that he had eliminated bunter mark Group 5 cartridge cases with Guns 1-5. The Examiner did not provide a written basis or justification for this analytical conclusion in his case notes.

D. Investigative Findings Related to the Technical Review

When the case was technically reviewed, the Tech Reviewer should have been alerted by the fact that the Examiner provided no justification for the bunter mark Group 5 exclusion in his notes. The Tech Reviewer explained he knew about the background comparison and separation by bunter marks, although there are no notes in the case file about the separation process. The Tech Reviewer explained that since he knew of the separation process and the background rationale, he did not question the conclusionary statement made by the Examiner. The Tech Reviewer should have asked the Examiner to express the basis of his analytical conclusion. The basis for any conclusion should be in the case file notes and if it is not there, the Tech Reviewer should have asked the Examiner and required a written recording of the basis. Moreover, even armed with "background information" regarding the Examiner's rationale, the Tech Reviewer should have reminded the Examiner that bunter mark Group 5 could have been associated with Guns 1-4.

E. Action Taken by the Laboratory

1. Re-examination and Audit of Cases

In response to the nonconformance described herein, IFL re-tested 55 cases worked by the Examiner. *See* **Ex. F.** Of those cases, the following results were issued:

- One case was not returned to IFL because it was "taken over by the FBI."
- Fifty-three cases resulted in identical results as the original report.
- One case resulted in a "match to test fires" conclusion when re-examined, where the Examiner had originally reported the result as "inconclusive."

In addition, IFL audited all firearms case files for the 12 months before the nonconformance *See* **Ex. F.** The firearms section reported 234 cases during that period.

Since it was determined the potential for an erroneous exclusion was unlikely in a case with less than 12 items, all cases with 12 or more items were audited, representing 23 cases in total. The case folders were audited to determine whether:

- all comparisons, including inconclusive results, were documented in the case file and clearly discussed in the report;
- evidence was compared to all potential sources; and
- case documentation and reporting language was clear and consistent.

The audit found one instance in which evidence was not compared to all potential sources. IFL also made numerous observations regarding comparisons that were not documented sufficiently or discussed in clear and understandable language. *See* **Ex. F.** The Commission encourages IFL to continue implementation of all observations and recommendations made in the audit document.

2. IFL Root Cause Analysis

IFL completed a Corrective Action Report ("CAR") dated August 28, 2014. (**Ex. G)** In the CAR, IFL describes four reasons the Examiner did not take appropriate action, including the following: 1) the Examiner did not compare excluded cartridge cases to all possible firearms; 2) the Examiner reported that the excluded cartridge cases were compared to all possible firearms when they were not; 3) the Examiner did not acknowledge the concern of the client and immediately relay that concern to the laboratory and Quality Director; and 4) the Examiner did not communicate to the client the issue would be thoroughly investigated and the client would be kept abreast of the progress of the investigation. In addition to those four causes, Murdock suggested adding a fifth cause—that Examiner did not include the scientific basis for his exclusionary conclusion in the case notes. The Commission agrees with Mr. Murdock's addition and

would also add a sixth cause—the Tech Reviewer did not observe and challenge the Examiner's failure to compare the erroneously excluded Group 5 to Guns 1-4.

3. Permutation and Verification Worksheets

IFL also created revised "permutation" and "verification" worksheets in response to the incident. *See* **Ex. H.** Murdock believes the permutation worksheet is useful for helping to ensure that all possible comparisons have either been made or at least considered. *See* **Ex. D, Page 3.**

With respect to the verification worksheet (*See* **Ex. H**), Murdock explains that there are three conclusions recommended by the Association of Firearm and Tool Mark Examiners ("AFTE") under the heading of "Inconclusive" that should be used where the Examiner does not have either sufficient agreement to identify, or sufficient differences to eliminate. *See* **Ex. D, Page 4.** Murdock recommends the conclusions given by AFTE be used on the verification worksheet in order to provide justification of the examiners findings. Murdock also recommended using the word "Conclusion" as opposed to "Result" or "Opinion," and changing the heading of the worksheet to "Basis for Conclusion." The Commission and IFL agree with Murdock's recommendations regarding these changes to the verification worksheet.

With respect to reporting conclusions, Murdock explained the word "inconclusive," or the two equivalent words "neither/nor," should not be used alone in a laboratory report. AFTE's Range of Conclusions should be incorporated into the laboratory report as it includes further justifications of the findings when the finding is "inconclusive" or "elimination". Another reason not to allow a single word like "inconclusive" to stand alone in a laboratory report, as Murdock explained, is that

ASCLD/LAB Supplemental Requirement 5.10.3.7 (*See* **Ex. I**) states that, "when no definitive conclusion can be reached, the test report shall clearly communicate the reason(s)." In other words, the report should clearly reflect the supporting notes. IFL does not use the term inconclusive in firearms reports. The Commission and IFL agree with Murdock's recommendations regarding these changes to the report.

Finally, Murdock recommended investigating the practice of "blind verification" (withholding the verification worksheet from the verifier) with the recognition that blind verification is an important tool for protecting against cognitive bias in pattern-matching disciplines such as the firearm/tool mark discipline.

IV. FSC RECOMMENDATIONS

Mr. Murdock concluded the main issue in this case was the failure of the Examiner to compare Group 5 against Guns 1-4, and to clearly describe the basis for his exclusion of Group 5 in his case notes so that it could be considered during technical review. These errors were compounded by the Tech Reviewer not recognizing the absence of the Examiner's rationale in the case notes (or if he knew the rationale as part of "background" information, suggesting to the Examiner that Group 5 should be compared against Guns 1-4). At the August 14, 2015 Commission meeting, members adopted these observations as well as the recommendations provided below. While these recommendations arose from the facts described above, they are fundamental concepts and therefore should apply to all firearms sections in Texas.

RECOMMENDATION 1: The basis for analytical conclusions reached in forensic casework must be supported by clear and comprehensive case notes.

RECOMMENDATION 2: Technical reviewers and those responsible for verifications of forensic casework must have the ability to recognize when an examiner's basis for

conclusions (including exclusions and inconclusive results) is deficient, and take the necessary action to remedy the deficiency.

In addition, the Commission discussed whether the audit performed by IFL was sufficient considering most of the audit work was conducted by the same technical reviewer who had performed the review on the case work in the first instance. Murdock opined that because there was no mistaken identification in this case, it is not necessary for IFL to re-audit the casework. However, if any future audits were to occur, or if other laboratories in Texas need to perform an audit of cases for whatever reason, such audits should be performed by someone other than the original technical reviewer. To that end, the Commission adopts the following recommendation:

RECOMMENDATION 3: All retroactive audits of casework in any area of forensic science should be performed by parties other than the original examiner and technical reviewer or verifier.

Finally, though the Commission recognizes that blind verification in the area of firearms and tool mark verification (and other pattern-matching disciplines) is not currently an accreditation requirement and is still aspirational in many laboratories due to resource considerations, it is clear (based on ample published peer reviewed research) that blind verification is an important tool in protecting against cognitive bias. Accordingly, the Commission adopts the following recommendation:

RECOMMENDATION 4: Forensic laboratories in Texas should explore resource-efficient methods for minimizing the effects of cognitive bias in pattern-matching disciplines such as firearms/tool mark examination and implement those methods as soon as practicable.

EXHIBIT LIST

Exhibit A	**August 1, 2014 Meeting Minutes**
Exhibit B	**October 7, 2014 Meeting Minutes**
Exhibit C	**FSC Questions Posed to Murdock**
Exhibit D	**John Murdock Report**
Exhibit E	**Correspondence with IFL and ASCLD/LAB**
Exhibit F	**IFL Re-testing Reports**
Exhibit G	**IFL August 28, 2014 Corrective Action Report**
Exhibit H	**IFL Permutation and Verification Worksheets**
Exhibit I	**Comments requested from the Texas Association of Firearms and Tool marks Examiners**

EXHIBIT A

Texas Forensic Science Commission
Minutes from August 1, 2014 Meeting in Fort Worth, Texas

The Texas Forensic Science Commission met at 8:30 a.m. on Friday, August 1, 2014, at the Courtyard Marriott Downtown – Blackstone, 601 Main Street, Fort Worth, Texas 76102.

Members of the Commission were present as follows:

Members Present:	Alpert, Peerwani, Barnard, Eisenberg, Mozayani, Kerrigan, Lerma, Kessler
Members Absent:	Di Maio
Staff Present:	Lynn Garcia, FSC General Counsel Leigh Heidenreich, Commission Coordinator Esteban Serrano, Summer Intern

Review and adopt minutes from 4/4/14 quarterly and complaint screening committee meetings.

MOTION AND VOTE: *Alpert moved to adopt the meeting minutes drafts. Lerma seconded the motion. The FSC unanimously adopted the drafts.*

Office administrative update.

Staff introduced the summer intern, Esteban Serrano, discussed budget items remaining for FY 2014, the budget outlook for FY 2015, and developments in database management for case files.

Staff discussed the significant cost that would be associated with translating the Commission's website and members agreed they would not proceed with translating the website at this time.

MOTION AND VOTE: *Eisenberg moved to approve and publish Spanish-translated drafts of the FSC's complaint forms. Kessler seconded the motion. The FSC unanimously adopted the motion.*

Discuss and consider recommendations from Complaint Screening Committee concerning pending complaints and self-disclosures.

1. #14-01 Powell (Digital Evidence)

MOTION AND VOTE: *Eisenberg moved to accept the complaint for investigation and establish an investigative panel. Mozayani seconded the motion. The FSC unanimously adopted the motion.*

2. #14-06 Robinson (Autopsy)

MOTION AND VOTE: *Peerwani moved to dismiss the complaint, because it falls outside the Commission's jurisdiction and direct staff to send a letter to the complainant, providing contact information for the various Texas innocence clinics. The FSC unanimously adopted the motion.*

3. #14-08 Blazek (Firearms/Tool Marks)

MOTION AND VOTE: *Alpert moved to accept the complaint for investigation and establish an investigative panel. Eisenberg seconded the motion. Barnard abstained from deliberation and voting. All other members present voted in favor of the motion. The FSC adopted the motion.*

4. #14-09 Gambles (DNA)

MOTION AND VOTE: *Barnard moved to dismiss the complaint because it falls outside the Commission's jurisdiction and direct staff to provide the Innocence Project of Texas with a copy of the corresponding laboratory report to determine if additional legal remedies are available to the complainant. Lerma seconded the motion. The FSC unanimously adopted the motion.*

5. #14-12 Scharmen (Breath Alcohol)

MOTION AND VOTE: *Eisenberg moved to dismiss the complaint and issue a letter to the complainant directing him to seek additional information from Alamo Forensic Services. Alpert seconded the motion. The FSC unanimously adopted the motion.*

6. #14-07 IFL (Firearms/Tool Marks)

MOTION AND VOTE: *Eisenberg moved to accept the complaint for investigation and establish an investigative panel. Barnard seconded the motion. The FSC unanimously adopted the motion.*

7. #14-10 IFL (Blood Alcohol)

MOTION AND VOTE: *Mozayani moved to direct staff to send a letter to IFL stating that, given the information provided in the laboratory self-disclosure, no further action is necessary at this time. Alpert seconded the motion. The FSC unanimously adopted the motion.*

8. #14-11 DPS (Toxicology)

MOTION AND VOTE: *Mozayani moved to direct staff to send a letter to DPS stating that, given the information provided in the laboratory self-disclosure, no further action is necessary at this time. Eisenberg seconded the motion. The FSC unanimously adopted the motion.*

9. #14-13 Houston Forensic Science Center (Blood Alcohol)

MOTION AND VOTE: *Alpert moved to accept the complaint for investigation and establish an investigative panel. Barnard seconded the motion. The FSC unanimously adopted the motion.*

The FSC took a 5-minute break after discussing complaint #14-11. After the break, Judge Barbara Hervey provided the Commission with an update on the Texas Criminal Justice Integrity Unit's defendant notification initiatives.

10. #14-16 Houston Police Department (DNA)

MOTION AND VOTE: *Peerwani moved to table the complaint until further information can be obtained from ASCLD/LAB regarding the status of the disclosure. Alpert seconded the motion. The FSC unanimously adopted the motion.*

11. #14-14 DPS Garland (DNA)

MOTION AND VOTE: *Eisenberg moved to direct staff to send a letter to the DPS regional laboratory in Garland stating that, given the information provided in the laboratory's self-disclosure, no further action is necessary at this time. Barnard seconded the motion. The FSC unanimously adopted the motion.*

12. #14-15 SWIFS (Controlled Substance)

MOTION AND VOTE: *Peerwani moved to direct staff to send a letter to SWIFS stating that, given the information provided in the laboratory's self-disclosure, no further action is necessary at this time. Mozayani seconded the motion. The FSC unanimously adopted the motion.*

"Massively Parallel Sequencing and Forensic Identity Testing" by Dr. Bruce Budowle, Institute of Applied Genetics, University of North Texas Health Science Center.

Dr. Bruce Budowle delivered the above presentation to the Commission during their lunch break. After Dr. Budowle's presentation, the Commission continued with its Complaint Screening Committee agenda item.

MOTION AND VOTE: *Alpert moved to adopt the following investigative panel assignments for newly accepted complaints:*

#14-01 Powell (Digital Evidence)

1. Barnard (Chair)
2. Kessler
3. Lerma

#14-08 Blazek (Firearms/Toolmarks)

1. Di Maio (Chair)
2. Kerrigan
3. Alpert

#14-07 IFL (Firearms/Toolmarks)

1. Mozayani (Chair)
2. Barnard
3. Lerma

#14-13 HFSC (Blood Alcohol)

1. Alpert (Chair)
2. Kerrigan
3. Peerwani

Lerma seconded the motion. The FSC unanimously approved the motion.

Update on Attorney General Abbott's response to opinion request submitted by District Attorney Rod Ponton regarding arson review by State Fire Marshal.

Garcia reported the AG's response explained the State Fire Marshal was acting within their jurisdictional authority in establishing the arson review panel.

Discussion of Attorney General opinion request regarding confidentiality of pending laboratory self-disclosures under Article 38.01, Section 10 of the Texas Code of Criminal Procedure.

Garcia reported that staff submitted an opinion request to the Attorney General to clarify the confidentiality exception in the Commission's statute as it relates to laboratory self-disclosures. Commission staff is awaiting a response to the request and will report the response at the next Commission meeting as available.

Update on arson case review and implementation of recommendations

Nick Vilbas (Executive Director of the Innocence Project of Texas) provided an update on the ongoing arson case review.

Update from hair microscopy panel meeting on July 31, 2014, and hair microscopy review team meetings on June 20, 2014 and July 25, 2014; discussion and deliberation on recommended action items.

Hair Microscopy Review Team members Deborah Lind and Nick Vilbas provided the Commission with an update on the hair review team's activities thus far. Garcia and Kerrigan provided further information on documents and processes created by the team members.

MOTION AND VOTE: *Alpert moved to appoint Baldwin Chin as an additional TDCAA member of the hair review team. Peerwani seconded the motion. The FSC unanimously adopted the motion.*

MOTION AND VOTE: *Lerma moved to appoint Phillip Aviles as an additional hair microscopy expert member of the hair review team. Alpert seconded the motion. The FSC unanimously adopted the motion.*

MOTION AND VOTE: *Lerma moved to have Nick Vilbas replace Jeff Blackburn as the Innocence Project representative on the hair microscopy review team. Barnard seconded the motion. The FSC unanimously adopted the motion.*

MOTION AND VOTE: *Barnard moved to approve the notification letters presented by the hair microscopy review team. Eisenberg seconded the motion. The FSC unanimously adopted the motion.*

Update on Texas Department of Public Safety ("DPS") Houston regional crime laboratory self-disclosure #12-06, including final Harris County *Coty* appellate decision denying relief, Montgomery County *Cavil* decision granting relief, and latest re-test results from DPS.

Garcia provided an update from the DPS Houston regional crime laboratory's latest re-testing results and an overview of the Court of Criminal Appeals decisions named above.

Discuss and consider adopting El Paso Police Department Crime Laboratory #11-11 language clarification addendum request from Texas Association of Crime Laboratory Directors ("TACLD").

Garcia provided a description of the language clarification from TACLD.

MOTION AND VOTE: *Alpert moved to amend Complaint #11-11's final investigative report language to reflect the language clarification provided by TACLD. Lerma seconded the motion. The FSC unanimously adopted the motion.*

Discuss the possibility of conducting a survey of latent print forensic service providers in Texas.

Garcia discussed the idea of conducting a survey in the State to determine the number and categories of latent print examiners in Texas. Members asked staff to look into the project and come back to the next quarterly meeting with a proposal for the project cost. The item was tabled until the next Commission meeting.

Update from Forensic Development Committee.

The following forensic development activities were reported on by the Committee:

1. Update on certification/licensure positions from June 27, 2014 TACLD meeting an subsequent vote by membership;
2. Progress regarding certification training support at SHSU including Commission partnership;
3. Status of web-based forensic training program in collaboration with New York Office of Forensic Services;
4. Addition of scenario-based ethics training program;
5. ASCLD/LAB assessor training to be held August 4-8 in Austin.

MOTION AND VOTE: *Alpert moved to approve fully funding the assessor training in Austin. Peerwani seconded the motion. The FSC unanimously adopted the motion.*

6. August 18-19 crime lab manager leadership academy in Houston;
7. Discussion of Foresight support for Texas laboratories.

MOTION AND VOTE: *Lerma moved to provide Foresight funding and support for Texas laboratories that would like to participate in the initiative. Barnard seconded the motion. The FSC unanimously adopted the motion.*

8. Addition of TACLD member to Commission's forensic development committee, including any necessary revisions to policies and procedures.

MOTION AND VOTE: *Alpert moved to amend the FSC's policies and procedures to include a TACLD member on the Commission's Forensic Development Committee. Lerma seconded the motion. The FSC unanimously adopted the motion.*

9. Michael Morton Act training request from TACLD; and

MOTION AND VOTE: *Alpert moved to contribute up to $5,000 to collaborate with the Texas Criminal Justice Integrity Unit on training initiatives related to the Michael Morton Act. Mozayani seconded the motion. The FSC unanimously adopted the motion.*

10. AAFS annual meeting abstracts.

Garcia and Kerrigan will submit an abstract for the AAFS annual meeting related to state-wide, discipline-specific reviews, focused on the Texas method used in its hair microscopy review.

Review of policies and procedures, including clarification of professional negligence and professional misconduct definitions, particularly with respect to laboratory self-disclosure obligations under Article 38.01, Section 4(a)(2) of the Texas Code of Criminal Procedure.

MOTION AND VOTE: *Alpert moved to adopt the revised policies and procedures as presented by Garcia. Eisenberg seconded the motion. The FSC unanimously adopted the motion.*

MOTION AND VOTE: *Eisenberg moved to accept the revised language as presented by Garcia related to the Commission's self-disclosure guidelines. Kessler seconded the motion. The FSC unanimously adopted the motion.*

Discussion of potential notification issue regarding ISO-17025 measurement uncertainty reporting changes.

Members discussed some potential notification issues related to the ISO-17024 measurement uncertainty reporting changes, but it was determined no further action was necessary.

Report from May 12-13, 2014 National Commission on Forensic Science meeting.

Garcia provided an update regarding the activities of the NCFS.

Report regarding appointments to National Institute for Standards and Technology ("NIST") Organization for Scientific Area Committees ("OSAC"), Forensic Science Standards Board ("FSSB"), and Legal Resource Committee ("LRC").

Garcia reported that Kerrigan was appointed to the OSAC's FSSB and Garcia was appointed to the OSAC's LRC. Kerrigan gave an overview of the OSAC.

Report from June 6, 2014 American Academy of Forensic Sciences/American Bar Association's June "Prescription for Criminal Forensics" conference.

Garcia reported on staff attendance at the conference and information learned related to Firearms/Tool Marks and DNA forensic disciplines.

Report from June 9, 2014 Fire Death Investigations/Post Blast: "Positive Identification of Buried Remains: Resources for Investigators" seminar sponsored by the Collin County Fire and Arson Investigation Association ("CCF&AIA").

Peerwani briefly reported on his presentation at the conference.

Steve Seddig, President of the CCF&AIA, addressed the Commission on the seminar and other possible training initiatives.

MOTION AND VOTE: *Barnard moved to allocate $4,000 to fund arson-related training initiatives sponsored by the CCF&AIA. Peerwani seconded the motion. The FSC unanimously approved the motion.*

Consider updates to composition of Commission committees including complaint screening, legislative, and forensic development.

MOTION AND VOTE: *Alpert moved to approve the following Legislative Committee members:*

1. Lerma (Chair)
2. Kessler
3. Peerwani

Barnard seconded the motion. The FSC unanimously adopted the motion.

Consider proposed agenda items for next quarterly meeting.

Schedule and location of future meeting.

Members proposed the next meeting be held in Austin, TX.

MOTION AND VOTE: *Alpert moved to approve the budget items as listed for the remaining FY 2014 budget and as forecasted for the FY 2015 budget. Kessler seconded the motion. The FSC unanimously adopted the motion.*

Hear public comment.

Devin Potts, The National Innocence Project

Adjourn.

EXHIBIT B

Texas Forensic Science Commission
Minutes from October 7, 2014 Meeting in Austin, Texas

The Texas Forensic Science Commission met at 8:30 a.m. on Tuesday, October 7, 2014, at the Omni Austin Southpark, 4140 Governor's Row, Austin, Texas 78744.

Members of the Commission were present as follows:

Members Present:	Alpert, Peerwani, Barnard, Eisenberg, Mozayani, Kerrigan, Lerma, Di Maio
Members Absent:	Kessler
Staff Present:	Lynn Garcia, FSC General Counsel Leigh Heidenreich, Commission Coordinator

Review and adopt minutes from August 1, 2014 quarterly meeting and July 31, 2014 complaint screening committee meeting.

MOTION AND VOTE: *Lerma moved to adopt the meeting minutes drafts. Alpert seconded the motion. The FSC unanimously adopted the drafts.*

Executive Session

The Commission broke for an executive session for legal advice from FSC General Counsel, Lynn Robitaille Garcia.

Office administrative update.

Staff discussed the closing of FY2014 budget, the budget forecast for FY2015, developments in database management, an upgrade for the office copy machine, and potentially hiring additional administrative staff on a contracted basis.

MOTION AND VOTE: *Kerrigan moved to approve a contracted administrative position up to the amount of funds the FSC may have available. Peerwani seconded the motion. The FSC unanimously adopted the motion.*

Report on D. Pat Johnson's retirement and promotion of Brady Mills.

FSC general counsel, Garcia, announced Pat Johnson's retirement from DPS and Brady Mills briefly addressed the FSC regarding DPS leadership and continued working relationship.

Discuss and consider recommendations from Complaint Screening Committee concerning pending complaints and self-disclosures.

1. #14-16 HPD - Lentz (DNA)

MOTION AND VOTE: *Kerrigan moved to table the complaint until more information can be obtained from the laboratory and to readdress the complaint at the FSC's January 2015 meeting. Peerwani seconded the motion. The FSC unanimously adopted the motion.*

2. #14-17 Rivas (Cameron County DA's Office – DNA)

MOTION AND VOTE: *Eisenberg moved to dismiss the complaint, because it does not allege any negligence and/or misconduct related to any forensic analysis and to direct staff to send a letter to the complainant, providing contact information for the various Texas innocence clinics. Alpert seconded the motion. The FSC unanimously adopted the motion.*

3. #14-19 Bexar County Medical Examiner's Office – Maddex (DNA)

MOTION AND VOTE: *Alpert moved to dismiss the complaint, because it does not allege any negligence and/or misconduct related to the DNA analysis referenced in the complaint. Kerrigan seconded the motion. Di Maio abstained from deliberation and voting. All other members present voted in favor of the motion. The FSC adopted the motion.*

4. #14-18 DPS – Breath Alcohol Program Disclosure (Proficiency Test)

MOTION AND VOTE: *Eisenberg moved to dismiss the complaint and issue a letter to DPS Office of Scientific Director stating that, given the information provided in the laboratory self-disclosure, no further action is necessary at this time. Kerrigan seconded the motion. The FSC unanimously adopted the motion.*

5. #14-20 DPS – Tyler (Controlled Substance)

MOTION AND VOTE: *Peerwani moved to dismiss the complaint and issue a letter to DPS stating that, given the information provided in the laboratory self-disclosure, no further action is necessary at this time. Eisenberg seconded the motion. The FSC unanimously adopted the motion.*

6. #14-21 DPS – El Paso (Controlled Substance)

MOTION AND VOTE: *Peerwani moved to table the complaint until the laboratory has the opportunity to reweigh the 100 cases it has sent to the Lubbock laboratory. Barnard seconded the motion. The FSC unanimously adopted the motion.*

Discussion of Attorney General opinion request regarding confidentiality of pending laboratory self-disclosures under Article 38.01, Section 10 of the Texas Code of Criminal Procedure.

Garcia reported the Attorney General responded to the FSC's opinion request, clarifying that the confidentiality exception in the Commission's statute applies to both complaints *and* laboratory self-disclosures.

Update on arson case review and implementation of recommendations.

Nick Vilbas (Executive Director of the Innocence Project of Texas) provided an update on the ongoing arson case review.

Update from hair microscopy panel meeting on September 12, 2014; discussion and deliberation on recommended action items.

Hair Microscopy Review Team members Deborah Lind, Nick Vilbas, and Melissa Valadez provided the Commission with an update on the hair review team's activities thus far. Garcia provided further information on documents and processes created by the team members.

Update on Texas Department of Public Safety ("DPS") Houston regional crime laboratory self-disclosure #12-06, including latest re-test results from DPS.

Garcia provided an update from the DPS Houston regional crime laboratory's latest re-testing results provided by the laboratory.

Discuss and consider adopting El Paso Police Department Crime Laboratory #11-11 language clarification addendum request from Texas Association of Crime Laboratory Directors ("TACLD").

Garcia provided a description of the language clarification from TACLD.

MOTION AND VOTE: *Kerrigan moved to adopt the revised language in the El Paso PD Crime Lab #11-11 final report. Alpert seconded the motion. The FSC unanimously adopted the motion.*

Update from Houston Forensic Science Center (Toxicology) #14-13 investigative panel.

MOTION AND VOTE: *Alpert moved to instruct the FSC's general counsel to draft a final report issuing a negligence finding, including but not limited to the following observations:*

1) *Lack of timeliness in responding;*
2) *Delay in issuance of amended report and corrective action;*
3) *Facts and related observations communicated in the general counsel's summary memorandum and presentation by Mr. Alpert; and*
4) *Scientific leadership and laboratory culture issues.*

Staff will present the draft report for review and adoption by commission members at its January 2015 meeting. Eisenberg seconded the motion. The FSC unanimously adopted the motion.

Update from Blazek (SWIFS – Firearms/Tool Marks) #14-08 investigative panel.

See MOTION AND VOTE below.

Update from IFL (Firearms/Tool Marks) #14-07 investigative panel.

The following motion and vote relates to the two above named complaints.

MOTION AND VOTE: *Alpert moved to delegate to the complaint's investigative panels the authority to approve any estimate and hire expert John Murdock, assuming the cost is within the FSC's budget for subject matter experts. Peerwani seconded the motion. The FSC unanimously adopted the motion.*

Update from Bell County (Digital Video Evidence) #14-1 investigative panel.

MOTION AND VOTE: *Barnard moved to defer to the Chair of the investigative panel to get an estimate and hire expert Grant Fredericks, assuming the estimate is within the FSC's budget for subject matter experts. Alpert seconded the motion. The FSC unanimously adopted the motion.*

Update from forensic development committee.

a. Progress regarding certification training support at Sam Houston State University, including Commission partnership;
b. Status of Web-based forensic training program in collaboration with New York Office of Forensic Services;
c. Status of scenario-based ethics training program;
d. Update from ASCLD/LAB assessor training held August 4-8, 2014 in Austin;
e. Update from August 18-19 crime lab manager leadership academy in Houston;
f. Update on Foresight support for Texas laboratories;
g. Michael Morton Act training request from TACLD; and
h. AAFS annual meeting abstracts.

Commission members discussed the above forensic development items. Members also discussed developing a root-case analysis training for analysts to better understand root-cause analysis. Staff will work to develop the training initiative.

Discussion of Texas Association of Crime Lab Director's final position statement on statewide forensic certification/licensure in Texas and legislative request regarding same.

Members discussed the certification/licensure position statement from TACLD and will work with TACLD members to respond to related legislative inquiries.

Report from State Fire Marshal's Office and Texas Criminal Justice Integrity Unit's August 19, 2014 fire science conference, Withstanding Heat: Fire Science In and Out of the Courtroom.

Garcia briefly reported on the SFMO's and TCJIU's joint fire-science conference.

Report from National Commission on Forensic Science August Meeting.

Di Maio gave a brief report from the National Commission on Forensic Science meeting.

Update on NIST/DOJ Organization for Scientific Area Committees (OSAC).

Kerrigan and Garcia provide comments on the status of NIST/DOJ's OSACs.

Consider proposed agenda items for next quarterly meeting.

Schedule and location of future meetings.

The Commission's next meeting will be either January 16 or January 23, 2014.

Hear public comment.

None.

Adjourn.

EXHIBIT C

Questions for Mr. Murdock:

1. In your opinion, was the bunter mark an appropriate criteria for the initial exclusion? Should the examiner's erroneous exclusion have been caught during technical review? Why or why not?

2. The laboratory has conducted a root cause analysis and implemented corrective actions including "permutation worksheets" and "verification worksheets" for complex cases involving multiple firearms. Are these worksheets sufficient to address the issue? Should they be implemented at other laboratories for similarly complex cases? Why or why not?

3. IFL conducted an audit of all cases submitted by the particular law enforcement client who cited the error as well as an additional selection of cases by the examiner who committed the error. Those audits were performed by the same firearms examiner who conducted the technical review for those cases when they were originally analyzed. Is it acceptable for the original technical reviewer to conduct the subsequent audit of cases? What would be best practices for retroactive re-examination of the analyst's cases in this scenario?

4. Any other recommendations or observations with respect to the issues identified in the IFL self-disclosure? To the extent you believe the Commission should make any recommendations, should they be extended to other labs in Texas? Why or why not?

EXHIBIT D

John E. Murdock & Associates
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REPORT OF EXAMINATION*

Laboratory No:	PCF 14-4	**Agency:**	Texas Commission on Forensic Science
Report Date:	June 24, 2015	**Agency Case No:**	14-07
Service:	Review documents and respond to questions	**Requested by:**	Lynn Robitaille Garcia, General Counsel
Request Date:	November 2014	**Case Type:**	Elimination of firearms using bunter marks
Subject of Investigation:	Self-disclosure by the Integrated Forensic Laboratories		

In November 2014, I was retained by the Texas Commission on Forensic Science (the Commission) to respond to a series of questions (attachment 1) formulated by the Commission in response to an April 11, 2014 disclosure by the Integrated Forensic Laboratories (IEF) of a non-conformance by one of its Firearm Examiners, Paul Slocum. This report will consist of the following three parts: 1) General review of various IFL documents; 2) Evaluation of the IFL Corrective Action Report (CAR); and 3) Responses to the questions posed by the Commission.

Part 1 - General Review of various IFL documents

It was reported to me (attachment 1) that, while working on IFL case #13080642, P. Slocum grouped fired cartridge cases together based upon which bunter had produced which head stamps. He then used at least one of these groups as the basis for determining that a series of eight fired cartridge cases, all head stamped by the same bunter, could not have been fired by any of the submitted firearms of the same caliber. It is inappropriate to use bunter marks in this way because bunter marks are not marks produced during firing and cannot, therefore, be used to determine whether or not a cartridge case has been fired in any particular firearm.

After signing a non-disclosure agreement (attachment 2), I was provided with IFL laboratory reports and case notes associated with IFL case #13080642, as well as various documents related to the IFL Corrective Action Report (CAR) #1407, dated 8-29-14.

Examined By:

John E. Murdock, Criminalist
June 24, 2015

*Attachments: 11 documents totaling 32 pages

I reviewed IFL Forensic Firearms Report for Laboratory #13080642, dated February 18, 2014 (attachment 3), and noted the following exclusionary conclusion in the last paragraph on page 3: "Items 4-25, 4-28, 4-30, 4-32, 4-34, 4-36, 4-37 and 4-38 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the same gun, however, they can be eliminated as having been fired in the items 6-1, 6-2, 6-3, 6-4 and 6-5".

I next reviewed P. Slocum's case notes and found the following hand written exclusionary conclusion near the bottom of page PS57 (attachment 4): " Items 25, 28, 30, 32, 34, 36, 37, and 38 can be eliminated from the item 6-1 pistol, 6-2 pistol, 6-3 pistol, 6-4 pistol, and 6-5 pistol". I searched the remainder of P. Slocum's case notes for what I assumed would be present: a justification, or basis, for this exclusionary conclusion. I found no such justification.

Another reason why I assumed that a justification for the exclusionary conclusion would be present somewhere in P. Slocum's case notes was that a review of the IFL Review Checklist for Laboratory #13080642, dated 2-18-14 (attachment 5), constituting PS note page 88, revealed that the following Technical Review entries had been checked "OK": 1) Performed appropriate test(s) on the item(s) of evidence; 2) Documented all tests and analysis; and 3) Conclusions matched the work documented. In addition, the following sentence appears under the heading "Technical Reviewer": "…I have reviewed the notes, data and other documents which form the basis for a scientific conclusion and agree with the findings of the original analyst." The Technical Reviewer, R. Fazio, signed and dated (2-18-14) this Review Checklist as both the Technical and Administrative Reviewer. If I were to revise this checklist, I would add a check box for "complete justifications for all conclusions are present".

The reported exclusion of the eight cartridge cases as having been fired in any of the five 40 S&W caliber pistols, as well as the handwritten exclusion on page 57 of P. Slocum's case notes, are both scientific conclusions. Since I could find no basis for this exclusion in either the report or the case notes, I sent an email to P. Slocum asking where I would be able to find it. Quality Director Aliece Watts responded to my inquiry via email, stating that "…at the time of the examination of case 13080642, it was IFL policy that only identifications needed to be verified by another examiner. Exclusions and inconclusive comparisons were not routinely verified" (attachment 6).

In my opinion, this is not a verification issue. The issue is that no basis for P. Slocum's scientific conclusion of exclusion was recorded in his case notes. The absolute need to record the basis for scientific conclusions is well established in forensic science case work. For example, ISO/IEC 17025 – Section 5 "Technical Requirements"- Subsection 5.10.5, "Opinions and Interpretations" states: "When opinions and interpretations are included, the laboratory shall document the basis upon which the opinions and interpretations have been made" (attachment 7). In addition, the "Clear Communication" section of the ASCLD/LAB Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists (attachment 8) states that "The ethical and professionally responsible forensic scientist and laboratory manager…15) Make and retain full, contemporaneous, clear and accurate records of all examinations and tests conducted, and conclusions drawn, in sufficient detail to allow meaningful review and assessment of the conclusions by an independent person competent in the field."

It is clear that in this case, this was not done. The absence of a clearly stated basis for P. Slocum's exclusionary conclusion should have been a red flag for Technical reviewer R. Fazio, because without this basis, a through Technical Review could not, and was not, done. If P. Slocum would have stated that his exclusion was based on bunter marks, a competent technical reviewer would have questioned this immediately, and the error would have been caught before the report was written.

Part 2 – Response to The IFL Corrective Action Report (CAR) #1407, dated 8-29-14 (attachment 9)

On page 1 there is a list of four "actions" that IFL felt that P. Slocum should have taken. While I agree with these four, I would have added a fifth action, and that is that P. Slocum did not take appropriate action because he did not include the basis (alleged to be matching bunter marks) for his exclusionary conclusion.

The following sentence appears on page 3, in the first paragraph under "Procedures", "In examining this case, P. Slocum excluded the group 5 cartridge cases based on the class characteristics." While I agree that this is what he did, I would add the following sentences to the CAR: *But, he failed to note this in his case notes. Had he included this as the basis for his exclusionary conclusion, a competent Technical Reviewer would have caught this mistake and an incorrect report would not have been sent to the client.*

Numbered items 5 and 6 under "Corrective Action Taken" are: 5) A Permutation Worksheet #700.11, dated 2-28-14, and 6) A Verification Worksheet #700.12, also dated 2-28-14. Comments about these two worksheets will be made in Part 3 of this report.

Although I am not sure why, an AFTE article, entitled "Bunter Marks, What Do They Mean?" (Vol. 29, No. 1, Winter 1997, pp 33-36), was attached to the CAR. This article provides some information about the longevity of bunters as a manufacturing tool, and describes an example of how bunter marks can be used as class characteristic associative evidence, but does not say anything about using bunter marks for firearm identification purposes.

Part 3 – Response to the Commission's "Scope of Work" questions (attachment 1)

1. **Question:** In your opinion, was the bunter mark an appropriate criteria for the initial exclusion? Should the examiner's erroneous exclusion have been caught during technical review? Why or why not?

   Response: The use of bunter marks was not an appropriate criterion for the initial exclusion. Yes, the examiner's erroneous exclusion should have been caught during Technical Review because, even though the examiner gave no basis for his exclusion, the Technical Reviewer should not have approved the case notes in the absence of a sound basis.

2. **Question:** The laboratory has conducted a root cause analysis and implemented corrective actions including "permutation worksheets" and verification worksheets" for complex cases involving multiple firearms. Are these worksheets sufficient to address the issue? Should they be implemented at other laboratories for similarly complex cases? Why or why not?

   Response: The Permutation Worksheet is okay as is and would be useful for helping to ensure that all possible comparisons have either been made or at least considered.

   I have some reservations about the Inconclusive/Elimination Verification Worksheet.

   a. **First**, it appears that the only results possible are either N/N (neither/nor) or Elim (elimination). I think it is reasonable to say that most examiners in the U.S. use the AFTE Range of Conclusions as they appear on page 92 of the 2013, 6th Edition, of the AFTE Glossary (attachment 10). There are three conclusions under the heading of "Inconclusive" that are supposed to be used in cases where the Examiner does not have either sufficient

agreement to identify, or sufficient differences to eliminate. The word "inconclusive", or the two equivalent words "neither/nor", should not, in my opinion, be used alone in a laboratory report. I was the Chairman of the AFTE Criteria for Identification Committee that formulated the AFTE Range of Conclusions and I know that it was never the intent to use "inconclusive", or its equivalent, alone in a laboratory report. The word "inconclusive" was chosen as a heading simply because conclusions 2A, 2B and 2C are less conclusive than "identification". Perhaps an even more compelling reason not to allow a single word like "inconclusive" to stand alone in a laboratory report is that ASCLD/LAB Supplemental Requirement 5.10.3.7 (attachment 11) states "When no definitive conclusion can be reached, the test report shall clearly communicate the reason(s)." Granted, this doesn't address the notes, but the notes need to support the report, so it follows that the reasons need to be clearly stated in the notes.

b. **Second**, the heading "Result" should be changed to "Conclusion" because this is what it really is, and more space should be available for a written explanation. In addition, the heading "opinion" should be changed to "Basis for Conclusion".

c. **Finally**, this form should not be allowed to be seen by the verifier prior to the evaluation by him or her. All verifications should be done as blind as possible in an attempt to minimize confirmational bias.

I think that it would be acceptable to offer these forms, once suitable edited, to other laboratories' for their consideration, but that they not be mandated, because some labs might already have similar worksheets that work for them.

3. **Question:** IFL conducted an audit of all cases submitted by the particular law enforcement client who cited the error as well as an additional selection of cases by the examiner who committed the error. Those audits were performed by the same firearms examiner who conducted the technical review for those cases when they were originally analyzed. Is it acceptable for the original technical reviewer to conduct the subsequent audit of cases? What would be the best practices for retroactive re-examination of the analyst's cases in this scenario?

   Response: In my opinion, it was not acceptable for the original Technical Reviewer to conduct the subsequent audit of cases, because I believe that the original Technical Review was faulty, due to the fact that the reviewer did not require a basis for P. Slocum's exclusionary conclusion. So, the original reviewer might perform subsequent reviews in a similar faulty manner. It would have been better to have had another examiner from IFL do the audit, unless it is, or was, common practice at IFL to allow conclusions to be reached without requiring a stated scientific basis to be described in the case notes. If this is, or was, common practice at IFL, then some qualified examiner from outside of the lab should have done the audit.

4. **Question:** Any other recommendations or observations with respect to the issues identified in the IFL self-disclosure? To the extent you believe the Commission should make any recommendations, should they be extended to other labs in Texas? Why or why not?

   Response: It is my opinion that the main issue in this case is the failure of the examiner to clearly describe the basis for his exclusionary conclusion. This failure was compounded by the Technical Reviewer not recognizing its absence and taking remedial steps to ensure its inclusion.

I believe that the Commission is justified in making two recommendations: 1) The basis for conclusions reached in forensic case work must be supported by clear and comprehensive case notes, and 2) Technical Reviewers of forensic case work must have the ability to recognize when an examiner's basis for conclusions (including exclusions and inconclusive results) is deficient, and take the actions necessary to remedy the situation.

End of Report

PCF 14-4-Attachment #1
rec'd 11-13-14
p. 1/1

SCOPE OF WORK FOR DISCUSSION WITH JOHN MURDOCK, FIREARM/TOOLMARK EXPERT

IFL Self-Disclosure Filed by Laboratory (Chair: Dr. Ashraf Mozayani)

Summary of Key Facts:

On April 11, 2014, Integrated Forensic Laboratories ("IFL") disclosed a non-conformance by one of its firearms examiners. The examiner was presented with a case involving 6 firearms, 31 cartridge cases, 10 bullets, bullet fragments and test fires. Of the 6 firearms, 5 were of the same make; model and caliber (40). Of the 31 cartridge cases, 25 were 40 caliber.

Using a preliminary microscopic examination, the examiner grouped the cartridge cases by comparing a manufacturing anomaly in the head stamp – the bunter mark, considered a class characteristic. Based on the bunter marks, the examiner separated the cartridge cases into five groups. He excluded one of the groups based on a bunter mark characteristic (bunter marks are produced by a bunter, or head-stamping, tool), which led him to conclude the cartridge cases in that group were *not* fired from any of the five firearms submitted for testing. This conclusion was incorrect, and was not discovered until the law enforcement client expressed concerns about the examiner's conclusion. The examiner re-analyzed the case and realized he had made the erroneous initial exclusion.

Questions for Mr. Murdock:

1. In your opinion, was the bunter mark an appropriate criteria for the initial exclusion? Should the examiner's erroneous exclusion have been caught during technical review? Why or why not?

2. The laboratory has conducted a root cause analysis and implemented corrective actions including "permutation worksheets" and "verification worksheets" for complex cases involving multiple firearms. Are these worksheets sufficient to address the issue? Should they be implemented at other laboratories for similarly complex cases? Why or why not?

3. IFL conducted an audit of all cases submitted by the particular law enforcement client who cited the error as well as an additional selection of cases by the examiner who committed the error. Those audits were performed by the same firearms examiner who conducted the technical review for those cases when they were originally analyzed. Is it acceptable for the original technical reviewer to conduct the subsequent audit of cases? What would be best practices for retroactive re-examination of the analyst's cases in this scenario?

4. Any other recommendations or observations with respect to the issues identified in the IFL self-disclosure? To the extent you believe the Commission should make any recommendations, should they be extended to other labs in Texas? Why or why not?

PCF 14-4- Attachment #2.

P. 1/2

NON-DISCLOSURE AGREEMENT

THIS AGREEMENT MADE THIS January 6 2015 **by and between Integrated Forensic Laboratories, LLC** (hereinafter "IFL") **under National Medical Services, Inc.,** (hereinafter "NMS") a Pennsylvania corporation with its principal place of business located at 3701 Welsh Road, Willow Grove, PA 19090 (hereinafter "NMS") **and John Murdock** (hereinafter "Visitor Expert").

WITNESSETH:

1. IFL and NMS have agreed to accept John Murdock as a Visitor Expert for the purpose of technically reviewing IFL case 13080642.

2. As part of his review of the case files, Visitor Expert may come into contact with certain confidential information belonging to IFL or NMS, including, but not limited to, scientific methodologies, trade secrets, client lists, operational and technical processes, confidential patient health information, and case information.

3. IFL and NMS have explained to Visitor Expert the importance of keeping such information confidential, and Visitor Expert acknowledges the same. Visitor Expert understands that, given the nature of IFL's and NMS' business activities, discretion is of the utmost importance.

4. Visitor Expert therefore agrees, as a condition of his review, to keep all such information confidential and secret, both during the term of his review with IFL and NMS, and after such time as his review is terminated. Visitor Expert shall not, during review with IFL and NMS or thereafter, use such information for the benefit of Visitor Expert or others, without the written consent of IFL and NMS.

5. Visitor Expert further agrees that disclosure of such information to any person or entity outside IFL, NMS or the Texas Forensic Science Commission is to be made only with the written consent of IFL and NMS, except where required by law, and that failure to obtain such consent shall be sufficient grounds for immediate termination of the review process. Permission is given to the Visitor Expert to share with the Texas Forensic Science Commission copies of any material obtained from IFL and/or NMS for the purposes of conducting the review, as well as a summary report of his review of IFL case 13080642 and related corrective/preventative actions taken by the laboratory. Nothing herein shall be construed as prohibiting the Visitor Expert from discussing IFL case 13080642 and any related information obtained in the course of Visiting Expert's review with members of the Texas Forensic Science Commission and its staff.

IFL and NMS acknowledge that Visitor Expert is conducting his review on behalf of the Texas Forensic Science Commission and is required to report his analysis, conclusions and recommendations to the Texas Forensic Science Commission. IFL and NMS acknowledge that the Texas Forensic Science Commission is subject to the laws of Texas regarding confidentiality of information as set forth in Texas Code of Criminal Procedure Article 38.01, Section 10, as well as the provisions of the Texas Open Meetings Act and the Texas Public Information Act. Visiting Expert, IFL and NMS acknowledge that the provisions of these laws apply to all information obtained by the Visitor Expert during the review process.

6. Visitor Expert acknowledges the opportunity to gain information from an established laboratory is good and sufficient consideration for entering into this agreement.

7. This agreement shall be construed and enforceable pursuant to the laws of the State of Texas and the Commonwealth of Pennsylvania. For purposes of enforcing the terms of this agreement, Visitor Expert agrees to submit to the jurisdiction of the Courts of the State of Texas.

8. Visitor Expert understands that IFL and NMS shall have the right to pursue all remedies available to it to enforce this Agreement, including, but not limited to, injunctive relief.

9. Visitor Expert will promptly advise IFL and NMS of each invention, discovery, idea or improvement (collectively hereinafter referred to as "Invention"), whether or not patentable, that is made or conceived by Visitor Expert, either alone or with others, during the term of review and which is directly or indirectly related to, or useful in, the business of IFL or NMS. Each such Invention shall be the sole and exclusive property of IFL and NMS. Visitor Expert will promptly submit to IFL and NMS a written disclosure of each Invention describing its nature, use, and operation. Visitor Expert will, without further consideration, assign to IFL and NMS all right, title and interest in each Invention, which Visitor Expert may possess, whether or not patentable, and will at all times during review and after its termination for any reason, assist IFL and NMS in every proper way in obtaining, defending and enforcing its rights therein. IFL and NMS may obtain, for its own benefit, patents or other forms of protection for each Invention in any and all countries. From time to time at request of IFL or NMS, Visitor Expert will execute all papers and do all proper things that may reasonably be required to protect and maintain the rights of IFL and NMS in an Invention, whether or not patentable. IFL and NMS shall bear all expenses it authorizes to be incurred in connection with such activity and shall pay Visitor Expert reasonable compensation for any time spent by Visitor Expert performing such duties at the request of IFL and NMS after termination of review.

10. If any portion of the covenants contained herein, or the application thereof, is invalid or unenforceable, the other portions of the covenant or the application thereof shall not be affected, and shall be given full force and effect without regard to the invalid or unenforceable portion. If any covenant is unenforceable, the court making such determination shall have the power to reduce the scope of such covenant to the extent required to make such covenant enforceable as so reduced.

IN WITNESS WHEREOF, and intending to be legally bound hereby, the parties have set their hands the day and year above written.

ATTEST:

Jan 2, 2015
John Murdock, Visitor Expert

INTEGRATED FORENSIC LABORATORIES, LLC

1/6/15
Nathanael I. Stevens, Ph. D., Director of Laboratory Operations

Robin Freeman, General Manager

PCF 14-4 - attachment #3

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FORENSIC FIREARMS REPORT
LABORATORY # 13080642

Date: February 18, 2014

Agency: [redacted]

Suspect(s): [redacted]

Offense Number: [redacted]

Date of Offense: [redacted]

Homicide Number: [redacted]

Report To: [redacted]

Evidence List:

Received at NMS on August 21, 2013 at 1330 hours from [redacted] by A. Harris.

1[redacted]43. One Norinco 9mm luger pistol, model 213, serial number [redacted]
1[redacted]44. One magazine
6[redacted]1. One Sig Sauer 40 S&W pistol, model P226, serial number [redacted], with one magazine containing eleven Speer 40 S&W cartridges
6[redacted]2. One Sig Sauer 40 S&W pistol, model P226, serial number [redacted], with one magazine containing five Speer 40 S&W cartridges
6[redacted]3. One Sig Sauer 40 S&W pistol, model P226, serial number [redacted], with one magazine containing eight Speer 40 S&W cartridges
6[redacted]4. One Sig Sauer 40 S&W pistol, model P226, serial number [redacted], with one magazine containing ten Speer 40 S&W cartridges
6[redacted]5. One Sig Sauer 40 S&W pistol, model P226, serial number [redacted], with one empty magazine and one magazine containing eleven Speer 40 S&W cartridges

Received at IFL-Bedford on August 28, 2013 at 1015 hours from FedEx by A. Watts.

2[redacted]66. One magazine containing five Blazer 9 mm Luger cartridges, two bullets and two cartridge cases labeled as NYSP test fires
3[redacted]7. One fired damaged bullet
4[redacted](8-17, 24-38). Twenty five Speer 40 S&W cartridge cases
4[redacted](18-23). Six Blazer 9 mm Luger cartridge cases
4[redacted]39. One fired damaged bullet
5[redacted](40, 41, 51, 55) Four fired damaged bullets
5[redacted]42. One bullet jacket fragment
5[redacted]52. One fired damaged bullet and two bullet jacket fragments
5[redacted]53. One fired damaged bullet and four bullet jacket fragments
5[redacted]54. One fired damaged bullet and one bullet jacket fragment
7[redacted]12. One bullet

FORENSIC FIREARMS REPORT
LABORATORY # 13080642

Results:

Item 1[redacted]43 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with right twist and a trigger pull force of approximately 5.91 to 6.88 pounds single action. Item 1[redacted]43 was test fired using ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 4[redacted]18 through 4[redacted]23 are 9 mm Luger cartridge cases, and item 7[redacted]12 is consistent with a 9 mm bullet having six land and groove impressions with right twist. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in and through the item 1[redacted]43 pistol.

Item 6[redacted]1 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 11.17 to 11.68 pounds double action. Item 6[redacted]1 was test fired using ammunition submitted as evidence and ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Item 6[redacted]2 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 14.85 to 15.07 pounds double action. Item 6[redacted]2 was test fired using ammunition submitted as evidence and ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 4[redacted]8 through 4[redacted]12, 4[redacted]14 and 4[redacted]24 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the item 6[redacted]2 pistol.

Items 5[redacted]51, 5[redacted]52, 5[redacted]54 and 5[redacted]55 are consistent with 40 caliber bullets manufactured by Speer having six land and groove impressions with left twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that they were all fired through the item 6[redacted]2 pistol.

Item 6[redacted]3 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 12.15 to 13.84 pounds double action. Item 6[redacted]3 was test fired using ammunition submitted as evidence and ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 4[redacted]13 and 4[redacted]15 through 4[redacted]17 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the item 6[redacted]3 pistol.

FORENSIC FIREARMS REPORT
LABORATORY # 13080642

Item 6[redacted]4 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 10.07 to 10.78 pounds double action. Item 6[redacted]4 was test fired using ammunition submitted as evidence and ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 4[redacted]26 and 4[redacted]29 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the item 6[redacted]4 pistol.

Item 5[redacted]39 is consistent with a 40 caliber bullet manufactured by Speer having six land and groove impressions with left twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that it was fired through the item 6[redacted]4 pistol.

Item 6[redacted]5 (pistol) is a mechanically functional firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 11.49 to 12.46 pounds double action. Item 6[redacted]5 was test fired using ammunition submitted as evidence and ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 4[redacted]27, 4[redacted]31, 4[redacted]33 and 4[redacted]35 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the item 6[redacted]5 pistol.

Items 3[redacted]7, 5[redacted]40 and 5[redacted]41 are consistent with 40 caliber bullets manufactured by Speer having six land and groove impressions with left twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that they were all fired through the item 6[redacted]5 pistol.

Items 4[redacted]25, 4[redacted]28, 4[redacted]30, 4[redacted]32, 4[redacted]34, 4[redacted]36, 4[redacted]37 and 4[redacted]38 are 40 S&W cartridge cases. It was determined through microscopic examination that there are sufficient individual markings present to identify them as having been fired in the same gun, however, they can be eliminated as having been fired in the items 6[redacted]1, 6[redacted]2, 6[redacted]3, 6[redacted]4 and 6[redacted]5. They do, however, lack the characteristics necessary to identify the brand or model of gun that may have fired them. In the event a suspect firearm is recovered during the course of this investigation, it would be necessary to submit it along with items 4[redacted]25, 4[redacted]28, 4[redacted]30, 4[redacted]32, 4[redacted]34, 4[redacted]36, 4[redacted]37 and 4[redacted]38 for comparative analysis.

FORENSIC FIREARMS REPORT
LABORATORY # 13080642

Item 5[redacted]53 is consistent with a 10mm/40 caliber bullet having six land and groove impressions with left twist. It was determined through microscopic examination that it can neither be identified nor eliminated as having been fired through the items 6[redacted]1, 6[redacted]2, 6[redacted]3, 6[redacted]4 and 6[redacted]5 pistols. Common firearms with the same general rifling characteristics as item 5[redacted]53 include Colt, Daewoo, Fabrique Nationale, Glock, Irwindale Arms/IAI, Keltec, Sigarms, Smith & Wesson, Springfield Inc., Storm Lake and Walther. This is not an **all** inclusive list; therefore, all 10mm/40 caliber weapons encountered during the course of this investigation should be submitted along with item 5[redacted]53 for comparative examination.

Item 5[redacted]42 is consistent with a bullet jacket fragment; it can neither be identified nor eliminated as having been fired through the items 1[redacted]43, 6[redacted]1, 6[redacted]2, 6[redacted]3, 6[redacted]4 and 6[redacted]5 pistols. The inability to effect an identification is not sufficient grounds to eliminate the firearms as having fired the item 5[redacted]42 bullet jacket fragment.

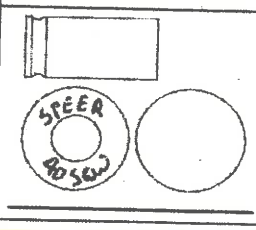
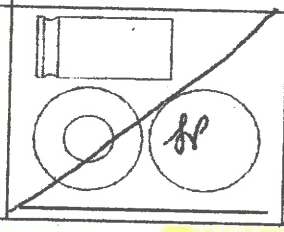
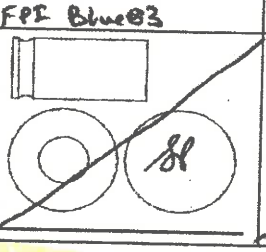
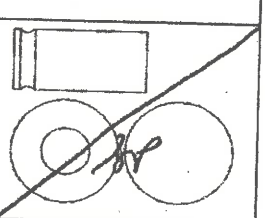
All conclusions were reached using microscopic and/or macroscopic examination.

This report reflects the test results, conclusions, interpretations and/or the findings of the analysts and technical reviewers below as indicated by their signatures below.

Paul Slocum
Firearm Examiner
Senior Forensic Scientist

INTEGRATED FORENSIC LABORATORIES
FIREARMS UNIT

Cartridge Case and Cartridge Worksheet **Lab Number** 13080642

Item #	4[redacted]8	4[redacted]9	4[redacted]10	4[redacted]11
Agency #	8 N/A	9 N/A	10 N/A	11 N/A
Caliber	40S&W	40S&W	40S&W	40S&W
Description	(Cartridge case) Cartridge	(Cartridge case) Cartridge	(Cartridge case) Cartridge	(Cartridge case) Cartridge
Manufacture	Speer	Speer	Speer	Speer
Condition	Good (Damaged) Other	(Good) Damaged Other	(Good) Damaged Other	Good (Damaged) Other
Case type	Brass (Nickel) Steel Aluminum	Brass (Nickel) Steel Aluminum	Brass (Nickel) Steel Aluminum	Brass (Nickel) Steel Aluminum
Primer	Brass (Nickel) Rim	Brass (Nickel) Rim	Brass (Nickel) Rim	Brass (Nickel) Rim
Bullet type	FMJ JHP (N/A) JSP SJ Lead	FMJ JHP (N/A) JSP SJ Lead	FMJ JHP (N/A) JSP SJ Lead	FMJ JHP (N/A) JSP SJ Lead
Bullet style	RN HP SWC TRUNC WC (N/A)	RN HP SWC TRUNC WC (N/A)	RN HP SWC TRUNC WC (N/A)	RN HP SWC TRUNC WC (N/A)
Sealant/color	Color Clear N/A	Color Clear N/A	Color Clear N/A	Color Clear N/A
Trace evidence	none	none	none	none
How marked/where	13080642 [redacted] / EG	13080642 [redacted] / EG	13080642 [redacted] / EG	13080642 [redacted] / EG
Identification to which item	9	11, 8, 10, 12, 24 2T1	9, 14	9
Identification area/phase color	BF BLU03	BF Blue03	Blue03 BF FPI Blue03	BF Blue03
Details: (See Photos)				

1/14/14 B ~~Items 25, 28, 30, 32, 34, 36, 37, and 38 can be eliminated from the~~ item 6[redacted]1 pistol, 6[redacted]2 pistol, 6[redacted]3 pistol, 6[redacted]4 pistol and 6[redacted]5 pistol

Comparison Microscope: MC01-BED MC02-BED

Examiner/Date Started: SEP 16 2013 B Date Finished: FEB 13 2014 Verified by/Date: RTC 2/12/14

Reviewed by IFL Firearms Supervisor

Approved by IFL Quality Director

Effective Date 4-1-13
WS-700.3.2

B57

PCF 144 - attachment #5 — 1/1

Integrated Forensic Laboratories™
ANSWERS NOW™

REVIEW CHECKLIST
LABORATORY # 13080642
Nassau County Police Department

Firearms: Hom Special 16-13

TECHNICAL REVIEW OK	TECHNICAL REVIEW N/A		ADMINISTRATIVE REVIEW OK
☑		Chain of Custody	☑
☑		Completed header information	☑
☑		All pages are numbered and initialed	☑
☑		Description of packaging documented	
☐		Performed appropriate test(s) on the items(s) of evidence	
☑		Documented all tests and analysis	
☑		Appropriate controls are included in case file	
☑	☐	Instrumental analysis included for appropriate tests	
☑	☐	Calculations are verified	
☑		Conclusions matched the work documented	
☑		Corrected notations are crossed out and initialed by person making the correction	☑
☑		Related case documentation (e.g. phone conversations, emails, with special instructions, etc)	☑
☑		Report complies with information in worksheets and bears no typographical errors	☑
☑		All tests requested have been completed	☑
☐	☑	Quantification method verified	

TECHNICAL REVIEWER:

All analysis performed in accordance with the current Integrated Forensic Laboratories, Inc, Firearms Standard Operating Procedures. I have reviewed the notes, data and other documents which form the basis for a scientific conclusion and agree with the findings of the original analyst.

[signature] 2/18/14
Technical Reviewer Date

Pages reviewed PS 1-89

☑ Report

ADMINISTRATIVE REVIEWER:

I have reviewed the above noted case file for compliance with administrative quality requirements of the Integrated Forensic Laboratories, Inc.

[signature] 2/18/14
Administrative Reviewer [signature] Date

Pages reviewed 1-88 B

☒ Report

Reviewed by IFL Director of Business Operations
Approved by IFL Quality Director

Effective Date 11-01-2012
F-200.20.1

RGB

PCF 14-4 - attachment #6 — P. 1/3

John Murdock - RE: IFL Case #13080642; Texas FSC Case #14-07; JEM PCF #14-4.

From: "Watts, Aliece" <AWatts@iflabs.com>
To: John Murdock <jmurdock@so.cccounty.us>, "Slocum, Paul" <PSlocum@iflabs.com>
Date: 1/21/2015 7:19 AM
Subject: RE: IFL Case #13080642; Texas FSC Case #14-07; JEM PCF #14-4.
CC: "lynn.garcia@fsc.texas.gov" <lynn.garcia@fsc.texas.gov>, "Stevens,Nathan...
Attachments: Response to Murdock.pdf; CAR 1407 redacted signed.pdf; Bunter1.pdf; FA Permutation WS 700.11.xlsx; FA Verification WS 700.12.xlsx

Mr. Murdock,

Please find the attached response to your question. Thank you for your efforts in this matter.

Aliece Watts, MS, F-ABC
Quality Director
Integrated Forensic Laboratories, LLC
An NMS Company
3001 Brown Trail, Suite 101
Bedford, TX 76021
817-428-6565 ext. 2023
www.iflabs.com

From: John Murdock [mailto:jmurdock@so.cccounty.us]
Sent: Wednesday, January 14, 2015 9:12 PM
To: Slocum, Paul
Cc: lynn.garcia@fsc.texas.gov; Watts, Aliece; John Murdock
Subject: IFL Case #13080642; Texas FSC Case #14-07; JEM PCF #14-4.

Paul:

As you have probably heard, I am the Firearm and Toolmark Examiner that has been retained by the Texas Forensic Science Commission to look into the firearms identification aspects of IFL Case #13080642. I have signed a Non-Disclosure Agreement with IFL, and I intend to abide by the provisions of this document.

I have been provided with the following pages of your case notes, each of which are identified with your initials and page number: 1 through 66, and 81 through 91. I understand that the pages I do not have are just photos of evidence packaging.

I have reviewed your note pages carefully, looking for the justification for the following handwritten exclusionary conclusion that appears near the bottom of your note page 57: "Items 25, 28, 30, 32, 34, 36, 37, and 38 can be eliminated from the item 6-1 pistol, 6-2 pistol, 6-3 pistol, 6-4 pistol and 6-5 pistol". This same exclusionary conclusion appears in the last paragraph of page 3 your lab report, dated February 18, 2014. I cannot find the justification. Would you please direct me to the section of your case notes that contains the examination results that justify this exclusionary conclusion. John

Integrated Forensic Laboratories™
ANSWERS NOW™
3001 Brown Trail. Ste. 101
Bedford, Texas 76021
(817) 428-6565
Fax (817) 428-6578

January 21, 2015

Mr. John Murdock

In response to your inquiry about the documentation for the statement "Items 25, 28, 30, 32, 34, 36, 37, and 38 can be eliminated from the item 6-1 pistol, 6-2 pistol, 6-3 pistol, 6-4 pistol and 6-5 pistol", at the time of the examination of case 13080642, it was IFL policy that only identifications needed to be verified by another examiner. Exclusions and inconclusive comparisons were not routinely verified. We recognized the problem and addressed this situation in our Corrective Action Report (CAR 1407) by updating our manual (IFL-700.9) to require that all comparisons in complicated cases be verified by another examiner. Reasons for exclusions or inconclusive results must be documented on the new verification worksheet (WS700.12) or on the analyst's notes if the case is not complicated.

6.1 Definitions
A case will be considered a "Complicated Case" when and if any of the following criteria are met.
1. The case consists of at least 12 items that are similar in class characteristics (i.e. caliber)
2. The case possesses two or more firearms of similar caliber (i.e. 38 S/W and 357 Mag)
3. The results include a "neither/nor" or "inconclusive" result
4. The results include an exclusion based on the comparison of individual characteristics

6.5.8 Examine the bullet(s) and/or cartridge case(s) to determine if they have the same class characteristics as the submitted firearm. Compare bullets and/or cartridge cases that were possibly fired from multiple guns to each other prior to comparing to any test fires (in order to group them).
6.5.9 Any exclusion or inconclusive determination on bullets and/or cartridge cases submitted with multiple guns must be compared to each gun.
6.5.10 Any case that falls under the "complicated" definition will be verified by another examiner.

Please refer to the attached Corrective Action Report (CAR 1407) for additional details of the investigation and subsequent corrective actions taken. As of 1-15-15, all 54 cases tested by P. Slocum for the agency have been re-worked.

I hope this answers your questions. Don't hesitate to call myself or Lab Director Dr. N. Stevens (nstevens@iflabs.com) if you have any further questions.

Sincerely,

Aliece Watts
2015.01.21
09:15:02 -06'00'

Aliece Watts, MS, F-ABC
IFL Quality Director
awatts@iflabs.com

PCF 14-4 - attachment #7 - P. 1/2

ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories *

* - Second Edition 2005-05-15

2.

5.10.5 Opinions and interpretations

When opinions and interpretations are included, the laboratory shall document the basis upon which the opinions and interpretations have been made. Opinions and interpretations shall be clearly marked as such in a test report.

NOTE 1 Opinions and interpretations should not be confused with inspections and product certifications as intended in ISO/IEC 17020 and ISO/IEC Guide 65.

NOTE 2 Opinions and interpretations included in a test report may comprise, but not be limited to, the following:

- an opinion on the statement of compliance/noncompliance of the results with requirements;
- fulfilment of contractual requirements;
- recommendations on how to use the results;
- guidance to be used for improvements.

NOTE 3 In many cases it might be appropriate to communicate the opinions and interpretations by direct dialogue with the customer. Such dialogue should be written down.

PCF 144 - attachment #8 - p. 1/4

ASCLD/LAB GUIDING PRINCIPLES OF PROFESSIONAL RESPONSIBILITY FOR CRIME LABORATORIES AND FORENSIC SCIENTISTS

"If the law has made you a witness,
Remain a man of science.
You have no victim to avenge,
No guilty or innocent person to convict or save --
You must bear testimony within the limits of science."

Dr. P.C.H. Brouardel
19th Century French Medico-legalist

Preamble

These Guiding Principles are written specifically for forensic scientists[i] and laboratory management. The concepts presented here have been drawn from other professional codes and suggestions made by leaders in the forensic community.[ii] The Guiding Principles have been vetted[iii] and adopted by the ASCLD/LAB Board of Directors and staff with the hope that laboratory management will use them in training sessions, performance evaluations, disciplinary decisions, and as guides in other management decisions. It is also important that all laboratory personnel, including forensic scientists and other laboratory employees who assist forensic scientists in their work, are equally aware of these Guiding Principles and support forensic scientists and managers by incorporating the principles into their daily work.

These Guiding Principles provide a framework for describing ethical and professional responsibilities in the forensic laboratory community. While not all inclusive, they describe key areas and provide some specific rules to supplement existing codes of ethics adopted by professional organizations and individual laboratories. The Guiding Principles are designed to promote integrity among practitioners, and to increase public confidence in the quality of laboratory services, whether or not the laboratory is accredited by any accrediting body.

ASCLD/LAB has adopted the ASCLD Guidelines for Forensic Laboratory Management Practices, many of which have been incorporated into the ASCLD/LAB accreditation standards. Those practices provide for management support of the guiding principles set forth below and are intended to create a culture of ethical behavior and professional responsibility within the laboratory. The ASCLD practices should be implemented and followed to give practical meaning to the Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists.

Professionalism

The ethical and professionally responsible forensic scientist and laboratory manager . . .

1. Are independent, impartial, detached, and objective, approaching all examinations with due diligence and an open mind.

2. Conduct full and fair examinations. Conclusions are based on the evidence and reference material relevant to the evidence, not on extraneous information, political pressure, or other outside influences.

3. Are aware of their limitations and only render conclusions that are within their area of expertise and about matters which they have given formal consideration.

4. Honestly communicate with all parties (the investigator, prosecutor, defense, and other expert witnesses) about all information relating to their analyses, when communications are permitted by law and agency practice.

5. Report to the appropriate legal or administrative authorities unethical, illegal, or scientifically questionable conduct of other laboratory employees or managers. Laboratory management will take appropriate action if there is potential for, or there has been, a miscarriage of justice due to circumstances that have come to light, incompetent practice or malpractice.

6. Report conflicts between their ethical/professional responsibilities and applicable agency policy, law, regulation, or other legal authority, and attempt to resolve them.

7. Do not accept or participate in any case on a contingency fee basis or in which they have any other personal or financial conflict of interest or an appearance of such a conflict.

Competency and Proficiency

The ethical and professionally responsible forensic scientist and laboratory manager . . .

8. Are committed to career-long learning in the forensic disciplines which they practice and stay abreast of new equipment and techniques while guarding against the misuse of methods that have not been validated. Conclusions and opinions are based on generally accepted tests and procedures.

9. Are properly trained and determined to be competent through testing prior to undertaking the examination of the evidence.

10. Honestly, fairly and objectively administer and complete regularly scheduled:

    - relevant proficiency tests;

- comprehensive technical reviews of examiners' work;
- verifications of conclusions.

11. Give utmost care to the treatment of any samples or items of potential evidentiary value to avoid tampering, adulteration, loss or unnecessary consumption.

12. Use appropriate controls and standards when conducting examinations and analyses.

Clear Communications

The ethical and professionally responsible forensic scientist and laboratory manager . . .

13. Accurately represent their education, training, experience, and area of expertise.

14. Present accurate and complete data in reports, testimony, publications and oral presentations.

15. Make and retain full, contemporaneous, clear and accurate records of all examinations and tests conducted, and conclusions drawn, in sufficient detail to allow meaningful review and assessment of the conclusions by an independent person competent in the field. Reports are prepared in which facts, opinions and interpretations are clearly distinguishable, and which clearly describe limitations on the methods, interpretations and opinions presented.

16. Do not alter reports or other records, or withhold information from reports for strategic or tactical litigation advantage.

17. Support sound scientific techniques and practices and do not use their positions to pressure an examiner or technician to arrive at conclusions or results that are not supported by data.

18. Testify to results obtained and conclusions reached only when they have confidence that the opinions are based on good scientific principles and methods. Opinions are to be stated so as to be clear in their meaning. Wording should not be such that inferences may be drawn which are not valid, or that slant the opinion to a particular direction.
19. Attempt to qualify their responses while testifying when asked a question with the requirement that a simple "yes" or "no" answer be given, if answering "yes" or "no" would be misleading to the judge or the jury.

[i] The term "forensic scientist" is used throughout this document. These Guiding Principles are meant to apply to all laboratory personnel, including technical support personnel and others who assist forensic scientists in their work.

[ii] The materials from which the concepts embodied in these Guiding Principles have been drawn include:

a. ASCLD Guidelines for Forensic Laboratory Management Practices. http://ascld-lab.org/documents/labmgtguide.pdf

b. ASCLD Code of Ethics. http://ascld-lab.org/documents/ASCLD-Code-of-Ethics.pdf

c. American Academy of Forensic Sciences Code of Ethics and Conduct. www.aafs.org.

d. The Code of Ethics of the California Association of Criminalistics. www.cacnews.org.

e. The Code of Ethics of the Midwestern Association of Forensic Scientists, Incorporated. www.mafs.net.

f. Schroeder, O. C., "Ethical and Moral Dilemmas Confronting Forensic Scientists," *Journal of Forensic Sciences.* Vol. 29, No. 4, Oct. 1984, pp. 966-986.

g. Lucas, D. M., "The Ethical Responsibilities of the Forensic Scientist: Exploring the Limits," *Journal of Forensic Sciences.* Vol. 34, No. 3, May 1989, pp. 719-729.

h. Peterson, J. L., Murdock, J.E., "Forensic Science Ethics: Developing an Integrated System of Support and Enforcement," *Journal of Forensic Sciences.* Vol. 34, No.3, May 1989, pp. 749-762.

i. Saks, M. J., "Prevalence and Impact of Ethical Problems in Forensic Science," *Journal of Forensic Sciences.* Vol. 34, No.3, May 1989, pp. 772-793.

j. Starrs, J.E., "The Ethical Obligations of the Forensic Scientist in the Criminal Justice System," *Journal of the Association of Official Analytical Chemists.* Vol. 54, 1971, pp. 906-914.

[iii] The draft of this document was distributed to thirty (30) forensic science organizations and several legal commentators for comment. The comments received were considered and many suggestions incorporated into the final version.

PCF 14-4 - Attachment #9 - P. 1/11

INTEGRATED FORENSIC LABORATORIES
CORRECTIVE ACTION REPORT (CAR)

CAR identification #: 1407 **CAR arose from:** Client Review from Report

Personnel involved: Paul Slocum, Ron Fazio

Case file #: 13080642

Manual Reference: Firearms Manual 3.3.17 and 6.5.8.

Brief description of occurrence:

Firearms examiner, P. Slocum, was presented with a case that involved 6 firearms, 31 cartridge cases, 10 bullets, bullet fragments and test fires. Of the 6 firearms, 5 were of the same make, model and caliber (40). Of the 31 cartridge cases, 25 were 40 caliber. Using a preliminary microscopic examination, he was able to group the cartridge cases by comparing a manufacturing anomaly in the head stamp – the bunter mark (considered a class characteristic). Using this detail, the cartridge cases were separated into 5 groups. The individual cartridge cases within each group were then compared microscopically for individual characteristics. The cartridge cases within each group were determined to have been fired from a single firearm. The groups were then compared to test fired cartridge cases from the five firearms. Four of the five groups of cartridge cases were identified as being fired from one of the five firearms. The fifth group of cartridge cases was not consistent as being fired from the fifth firearm. Because the cartridge cases had been grouped with class characteristics, "group 5" cartridge cases were not compared to firearms 1-4 and were (erroneously) reported as not being fired from any of the 5 firearms.

The case was technically reviewed by another qualified firearms examiner, R. Fazio, but the oversight of not comparing the excluded cartridge cases to firearms 1-5 was missed. Since they were reported as exclusions, no verification was made.

The original report was issued and [redacted] of the [redacted] Police Department called to express his concern about the excluded set of cartridge cases. P. Slocum assured [redacted] that all possible comparisons had been made. It was subsequently determined that this was not the case. P. Slocum reviewed the case file and recognized the omission. He re-opened the evidence to compare the items that he had omitted in the initial examination.

The examiner did not take appropriate action by:

1. Not comparing excluded cartridge cases to all possible firearms
2. Reporting that the excluded cartridge cases were compared to all possible firearms when they were not
3. Not acknowledging the concern of the client and immediately relaying that concern to the Laboratory Director and Quality Director
4. Not communicating to the client that the issue would be thoroughly investigated and the client be kept abreast of the progress of the investigation

Subsequent examination by the examiner P. Slocum and verification by R. Fazio did confirm that the excluded set of cartridge cases was, in fact, fired from one of the submitted firearms. The differences in

INTEGRATED FORENSIC LABORATORIES
CORRECTIVE ACTION REPORT (CAR)

the bunter marks allowed grouping of like cartridge cases, but the individual characteristics of the excluded cartridge cases should have been compared to each firearm.

Corrective Action to be taken:

Case File:
The affected cartridge cases will be reexamined by another examiner to verify the findings from 13080642. Due 2/26/14

Report:
A corrected report needs to be prepared, reviewed and issued to the client. Due 2/26/14

SOP:
The firearms manual 3.3.17 states that "Other tests and examinations may also be used at the discretion of the examiner/technician." Also, "6.5.8 Examine the bullet(s) and/or cartridge case(s) to determine if they have the same class characteristics as the submitted firearm."
The examination approach based on segregation of class characteristics will be added to the SOP. The SOP needs to have language that specifically states that eliminations should be compared to all possible matches of the same caliber cartridge cases or caliber family (e.g. 9 mm & .380) from other firearms associated with that case file.
The firearms reporting language needs to be reviewed and standardized.
The new language needs to be incorporated in reports via Phrase Express.
The use of a Permutations Worksheet will be developed for the inclusion in all comparative science casework to prevent this type of omission from occurring again. See attached forms. Due 2/28/14
The SOP should be changed to require objective documentation of eliminations (based on individual characteristics) and "neither/nor" results. "Objective documentation" is typically photomicrographs, but other methods may be used.
Exclusions based on GRC need to be explicitly stated in the notes and report.

All IFL Staff:
A class will be delivered to all IFL employees on appropriate client response and measures to be taken when a client expresses a concern over a case. The appropriate action should include informing the Laboratory and Quality Directors as soon as possible, reexamination of the case file and if necessary reopening and reexamining the evidence. Due 3/10/14

Case File Review:
The IFL General Manager will audit all firearms case work conducted in the last 12 months. The audit will be designed to determine if a similar situation could have occurred. If a similar situation is found, the case will be further investigated by the Laboratory and Quality Directors.

Per Client request, IFL Examiner Slocum will not be utilized in any capacity to examine [redacted] ballistic evidence until further notice. This includes examination, reporting, technical or administrative reviews, and testimony.

All [redacted] cases examined and/or reported by Examiner Slocum, including those in progress, will be retested by IFL using other examiner(s). [redacted] will provide a priority order list in which it is

INTEGRATED FORENSIC LABORATORIES
CORRECTIVE ACTION REPORT (CAR)

seeking to have the cases in question retested. All costs associated with this re-testing will be borne by IFL.

Name of person to resolve: Paul Slocum
Ron Fazio
Nate Stevens
Aliece Watts

Due Date: 3-25-14

Signature of Quality Director:
Aliece Watts
2014.08.29
11:28:30 -05'00'

Date:

Root Cause Analysis:

A root cause analysis was performed to try to identify underlying issues and to develop a plan to prevent its recurrence.

Equipment was found to have no influence in this occurrence.

Policies: The use of bunter marks to group cartridge cases was not specifically addressed in the firearms manual. However, Firearms Manual 3.3.17 states that "Other tests and examinations may also be used at the discretion of the examiner/technician." This allows the examiner the flexibility to work a case when faced with forensic evidence that might be atypical. P. Slocum used these manufacturing marks to sort the 31 cartridge cases into more manageable groups in order to efficiently examine the cartridge cases. The error occurred when he erroneously believed that these class characteristics precluded the individual characteristics from matching. After review, no breach of policy was found.

Procedures: Routine examination of firearms components involves class characteristics and individual characteristics. To eliminate components based on class characteristics is appropriate; for example, 9 mm cartridge case cannot come from the same gun as a 45 caliber cartridge case. However, the class characteristics in this case were manufacturing marks and were not made by a weapon. In examining this case, P. Slocum excluded the "group 5" cartridge cases based on the class characteristics. No procedure existed that required all exclusions to be compared to all possible sources.

The firearms examiners select the order of the cases that will be worked with input from the client. There is no "first in/first out" policy. Cases are routinely submitted in groups of 20 or more from various clients. The client had called a few times in January, 2014, to inquire on the status of this case. No unusual pressure was put on the analyst by management.

Preparation for and subsequent findings remediation for the ASCLD/LAB audit in October, 2013, produced a lull in casework output. Clients were notified of the situation and understood. This case was very complex and the analysis was ongoing from November until February. Many events were occurring simultaneously, but nothing specific was found to have caused the error.

People: This case was a complicated case with numerous items of evidence. P. Slocum's microscopic comparison of the cartridge cases is not in question; he just neglected to compare the "group 5" to other

INTEGRATED FORENSIC LABORATORIES
CORRECTIVE ACTION REPORT (CAR)

possible guns. When questioned by the agency, he initially stood behind his report because it had been technically reviewed. But, the question prompted him to review the case where he noted his error.

The investigation into this incident has provided documentation that this was an isolated incident.

Corrective Action taken:

1. The cartridge cases were re-examined by R. Fazio and the results verified that the "group 5" cartridge cases were fired from one of the submitted firearms.
2. The corrected report has been issued.
3. The verbiage that specifically authorizes the use of class characteristics has been added to the Firearms Manual. (FAM 6.5.8)
4. The verbiage that specifically states that eliminations must be compared to all possible submitted firearms of the same caliber or caliber family has been added to the Firearms Manual. (FAM 6.5.9)
5. A "Permutation Worksheet" (WS700.11) has been created to document all possible comparisons and to aid in the case review.
6. A "Verification Worksheet" (WS700.12) has been created to aid in the technical review of comparisons.
7. A class on appropriate response to client concerns was held on 3-10-14 for all employees of IFL.
8. The IFL General Manager has audited all firearms case work conducted in the last 12 months. No findings of concern were noted. See attached Firearms Audit Report.
9. P. Slocum is currently not working on [redacted] firearms cases until further notice from [redacted].
10. The 39 cases from [redacted] that have been reported are being re-worked by other qualified examiner(s).
11. An analysis of the firearms section to improve the workflow and process is being conducted.

Confirmation Corrective Action taken (Signature) **Date:**

Aliece Watts
2014.08.29 11:28:49 -05'00'

Documentation Attached: Corrected Report, Permutation Chart (WS700.11), Inconclusive/Elimination Verification Work Sheet (WS700.12), Quality Meeting Agenda (3-10-14), Firearms Case Audit Report, Article "Bunter Marks, What Do They Mean?" AFTE Journal (Vol. 29, No. 1, Winter 1997).

Located in File: 13080642

AFTE JOURNAL(VOLUME 29, NUMBER 1) WINTER 1997

BUNTER MARKS, WHAT DO THEY MEAN?

By: Ronald V. Dodson and Joseph J. Masson, Bureau of Alcohol, Tobacco and Firearms, National Laboratory Center, Forensic Science Laboratory, 1401 Research Boulevard, Rockville, MD. 20850

Keywords: Bunter toolmarks, Manufacturers' marks

ABSTRACT

In order to point out the significance of similar or identical toolmarks created from manufacturers' use of bunter tools (1), a case study is cited. The information gathered after inquiries regarding the manufacturing process from a particular cartridge company will have an effect in determining what identical bunter toolmarks may mean.

Recently the ATF National Laboratory Center received firearms evidence from the scene of a homicide where four victims were fatally shot with a 9mm Luger pistol. Thirteen fired cartridge cases, all 9mm Luger caliber, were recovered from the scene. No 9mm weapon was recovered at the scene or through the subsequent investigation. In conjunction with this investigation four boxes of 9mm Luger ammunition, three of which were partially full, were seized from a suspect's house.

Prior to the submission to our laboratory it had already been determined by the submitting agency's laboratory that the original thirteen cartridge cases were fired in the same pistol. The agency's request of the ATF Laboratory was to determine if the cartridge cases had the same or similar manufacturer's toolmarks.

A microscopic examination of the headstamps of the thirteen cartridge cases from the scene revealed three different bunter tools were used in the manufacturing process. Cartridges with headstamps created by all three bunter tools were identified in the four boxes of cartridges from the suspect's house.

To gauge the significance of these comparison results the following information should be addressed: 1. How many cartridges are made with one bunter? 2. How will the toolmarks change during the continued headstamping with one bunter? 3. Can cartridges be identified from the same bunter from the start of the life of the bunter tool to the last cartridges stamped before the bunter tool used is discontinued?

At Olin Manufacturing Co. East Alton Il., maker of Winchester Cartridges, one bunter tool is in use for approximately 80,000 cartridges for military production. This is specified as required for military contracts on 9mm Luger cartridges. The civilian production is longer. According to Olin the same bunter is used for approximately 120,000 to 180,000 rounds. Olin indicated the bunter tools are changed every 16 to 24 hours of use depending on the production run, military or civilian. During the production run the cartridges are packaged as they are being produced. The result of this process is generally a box of cartridges or several boxes of cartridges packaged on the same day will have been headstamped by the same bunter.

Bureau of Alcohol, Tobacco and Firearms, Forensic Science Laboratory personnel observed the process in March 1996 and requested sample cartridges from the same bunter tool at the beginning and end of a production run. *Samples received from* Olin represented cartridge cases which were stamped 180,000 cases apart with the same bunter tool, representing about two days use. The bunter marks on these cartridge cases differed enough so that they could not be identified to each other. (See photos)

Brad Holmbo, Products Service Representative for Federal Cartridge Company of Aroka, MN. was contacted. Mr. Holmbo advised that the service life of the typical bunter tool under perfect conditions is about two days. There are variables that

may shorten the service life such as damage, different caliber specification, etc.. This is mentioned to point out the manufacturing similarities among the different companies in the industry.

For further information on the subject one can refer to the A.F.T.E. Journal January 1983(2) and Crime Laboratory Digest July 1984.(3)

CONCLUSION

Based upon this study it was determined that the bunter toolmarks represent a relatively short manufacturing time span, making the identification and comparison of these manufacturers' toolmarks significant.

References:

(1)A.F.T.E. Glossary 1994, Definition of BUNTER: The die which produces the headstamp on rimfire cartridge cases or the headstamp and primer pocket on centerfire cartridge cases.

(2)A.F.T.E. Journal January 1983, volume 15, number 1; The Formation and Persistence of Toolmarks in the Cartridge Case Head Forming Process by William Matty Ca Doj Lab- Riverside, Ca.

(3)Crime Laboratory Digest Vol.11 No. 3 July 1984, The Identification of Cartridge Case Headstamps-Paul Schrecker Firearms-Toolmarks Unit FBI Laboratory, Washington D.C.

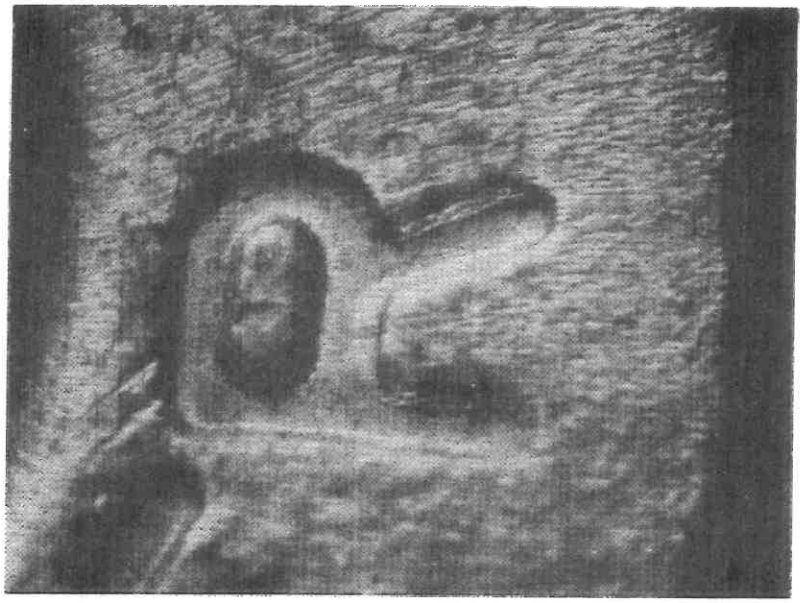


Photo 1: Impression from new bunter

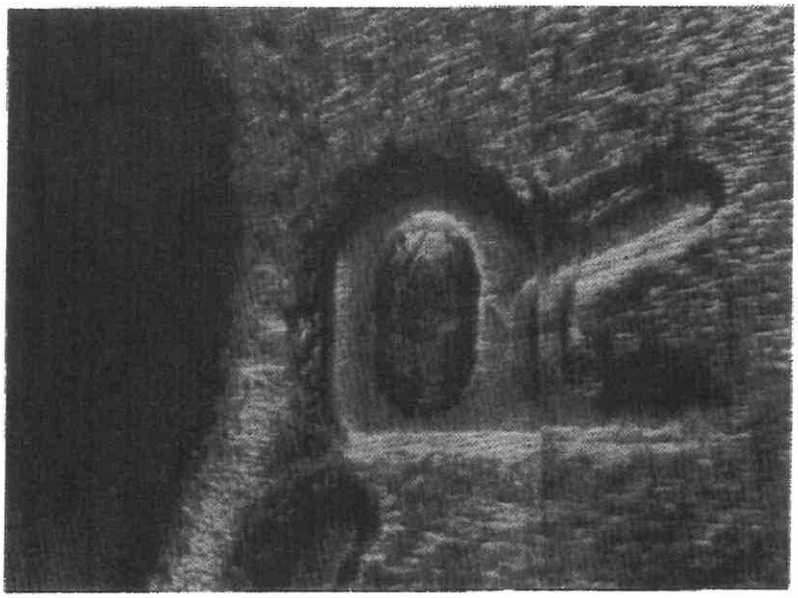


Photo 2: Matching impressions from new bunter

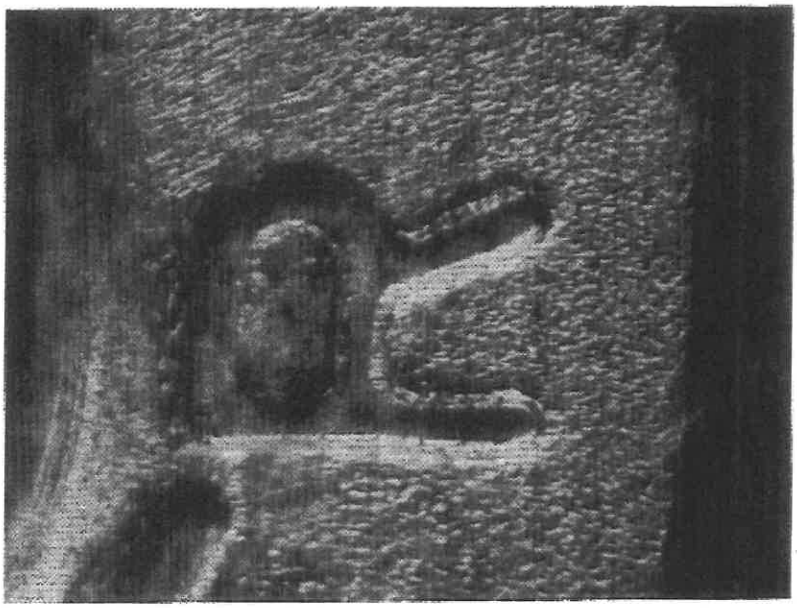


Photo 3: Bunter impression after 180,000 casings

8.

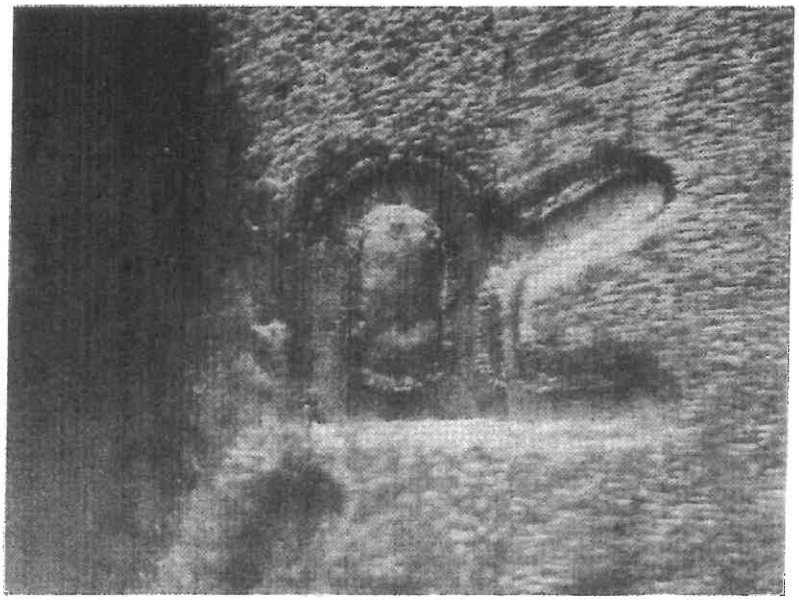


Photo 4: Bunter impression comparison, non-match, with new bunter on right, and bunter after 180,000 casings on left

Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ______________ Date ______________ Verified ______________ Date ______________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ______________ Date ______________ Verified ______________ Date ______________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ______________ Date ______________ Verified ______________ Date ______________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ______________ Date ______________ Verified ______________ Date ______________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ______________ Date ______________ Verified ______________ Date ______________

PCF 14-4 - attachment 10 - P. 1/1

Radius, Shoulder
Refer to **Shoulder Radius**.

Ramrod
A rod used to seat a load in muzzle-loading firearms.

Range
(1) An area equipped for testing firearms and ammunition.
(2) The horizontal distance between the firearm and the target.

Range, Effective
Refer to **Effective Range**.

Range, Maximum
Refer to **Maximum Range**.

Range of Conclusions Possible When Comparing Toolmarks
The examiner is encouraged to report the objective observations that support the findings of toolmark examinations. The examiner should be conservative when reporting the significance of these observations.

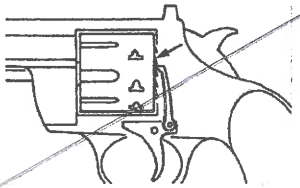
1. **Identification:**
Agreement of all discernible class characteristics and sufficient agreement of a combination of individual characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.

2. **Inconclusive:** this word was not intended to be used alone in a lab report. 2A, B or C are simply less conclusive than an identification. (*)
A. Agreement of all discernible class characteristics and some agreement of individual characteristics, but insufficient for an identification.
B. Agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility.
C. Agreement of all discernable class characteristics and disagreement of individual characteristics, but insufficient for an elimination.

3. **Elimination:**
Significant disagreement of discernible class characteristics and/or individual characteristics.

4. **Unsuitable:**
Unsuitable for examination.

Ratchet
A notched wheel on the rear of a revolver cylinder which causes the cylinder to rotate when force is applied by a lever called a hand.



Rate of Twist
Refer to **Rifling Pitch**.

Reamer
One of many spiral or straight-fluted, multi-edged cutting tools used to size and shape a hole.

(*) Numbers + note added by John Murdock 6-13-15

PCF 14-4 Attachment #11 P. 1/2

ASCLD/LAB-*International*

Supplemental Requirements for the Accreditation of Forensic Science Testing Laboratories

2011 Edition

Corresponds to ISO/IEC 17025:2005

ASCLD/LAB-*International* is a program of the
American Society of Crime Laboratory Directors / Laboratory Accreditation Board
ASCLD/LAB

Approval Date: November 22, 2011
Approved By: ASCLD/LAB Executive Director
Effective Date: November 22, 2011
ASCLD/LAB Document Control Number: AL-PD-3040-Ver 1.2

5.10.3.5 When associations are made, the significance of the association shall be communicated clearly and qualified properly in the test report.

5.10.3.6 When comparative examinations result in the elimination of an individual or object, the test report shall clearly communicate the elimination.

5.10.3.7 When no definitive conclusions can be reached, the test report shall clearly communicate the reason(s).

5.10.4 **Calibration certificates** – *Not Applicable to Testing Laboratories*

5.10.5 **Opinions and interpretations** - *No Supplemental Requirements*

5.10.6 **Testing and calibration results obtained from subcontractors** - *No Supplemental Requirements*

5.10.7 **Electronic transmission of results** - *No Supplemental Requirements*

5.10.8 **Format of reports and certificates** - *No Supplemental Requirements*

5.10.9 **Amendments to test reports and calibration certificates** - *No Supplemental Requirements*

EXHIBIT E

Subject: 150224-IFL-FA Elim and Comp-update_ack-rqst for followup

Date: Tuesday, February 24, 2015 at 12:26:52 PM Central Standard Time

From: Anna Yoder

To: Watts, Aliece

CC: Stevens, Nathanael, Freeman, Robin, Steven.Noel@NMSLABS.COM, Lynn Garcia

RE: Acknowledgment of Update and Request for Follow-up to 2014 Nonconformance: Firearms Eliminations and Comparisons
ASCLD/LAB-*International* Certificate: # ALI-322-T

Dear Quality Director Watts:

Thank you for the update which served to notify ASCLD/LAB of the outcome of the retesting of the 55 firearms cases associated with the above referenced nonconformity. Kindly accept this email as formal acknowledgment for the receipt of the laboratory update by ASCLD/LAB on February 20, 2015, which provided the following additional information:

- Confirmation that one (1) case of the 55 cases was not returned to IFL for retesting but rather, was "taken over by the FBI."
- Confirmation that fifty-three (53) of the 55 cases retested resulted in "identical results as the original report."
- Confirmation that one (1) case of the 55 cases retested resulted in a "match to test fires" conclusion which was inconsistent with the originally reported results of "inconclusive."
- Affirmation that the verification policy, new worksheets and remedial training have sufficiently addressed the nonconformity and demonstrated that the examiner is "qualified to perform firearms examinations."

From review of the laboratory update and to assist me in completing my review and to work toward bringing this matter to an appropriate resolution, I am respectfully requesting the following:

- Confirmation whether the retesting results were technically reviewed and appropriately verified. If applicable, please provide the names of the individual(s) conducting the reviews/verification.
- Confirmation whether an amended report has been issued for the case where the retesting conclusion was 'a match' and the original results were 'inconclusive.' Please provide the description and status of any other action(s), if any, taken as a result of the inconsistency.
- Confirmation whether the examiner associated with this nonconformity has been reinstated to casework and if so, a description of actions(s) taken (e.g. competency testing), if any, which measured the examiner's readiness to return to casework.
- Confirmation whether the new verification policy also required verification of "inconclusive" results. If no verification of an 'inconclusive' result is required, what measure(s), if any, are in place to assure an 'inconclusive' result.

The follow-up is respectfully requested to be submitted electronically to me at ayoder@ascld-lab.org on or before March 31, 2015.
Please note that the status of the matter will remain active until ASCLD/LAB has received confirmation that all actions have been completed.

Thank you very much for your continued diligence in keeping ASCLD/LAB apprised of this matter.

Cc: Nathanael Stevens

Robin Freeman
Steven Noel
Lynn Garcia, Texas FSC

Sincerely,
Anna
Anna T. Yoder, Investigations Program Manager
ASCLD/LAB
Phone: 724-331-4117
Email: ayoder@ascld-lab.org
Quality Matters ®

From: Watts, Aliece [mailto:AWatts@iflabs.com]
Sent: Friday, February 20, 2015 8:33 AM
To: John Neuner; Anna Yoder; Joelyn Cornwell
Cc: Freeman, Robin; Stevens, Nathanael; Noel, Steven
Subject: IFL Firearms CAR

Good Morning,
Here is the final report for IFL CAR1-1407 (Firearms). Please let me know if there is anything else needed.
Thank you,
Aliece

Aliece Watts, MS, F-ABC
Quality Director
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An NMS Company
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Bedford, TX 76021
817-428-6565 ext. 2023
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March 30, 2015

John Neuner
ASCLD/LAB

Anna Yoder
ASCLD/LAB

Joelyn Cornwell
ASCLD/LAB

Re: IFL CAR 1407 Firearms

Greetings,

I have attached several documents to this email in response to your request for additional information.

1. Copy of the email received from the client regarding the one case (13CR347317/13CR58797) that is part of an FBI Federal Task force investigation and therefore could not be sent back to IFL for re-analysis.

2. The original report for case 13040341

3. The amended report for case 13040341

4. A memo that explains the IFL policy and reason for the change of result from "inconclusive" to "identification".

5. Pages from the Firearms Manual that include the definition of a "complicated case" and that all comparisons must be verified on these cases.

6. Verification worksheet

7. Permutation worksheet

8. Example of Permutation worksheet used in case work

9. Example of Verification worksheet used in case work

All cases that were re-worked by L. Peterson were technically reviewed by R. Fazio, former firearms section supervisor.

The examiner associated with the nonconformity, P. Slocum, was removed from all firearms casework during the initial investigation and has yet to receive authorization from the agency to resume examination of their casework. Rework of all the cases from the agency demonstrated that he had correctly interpreted and reported the findings of the 53 cases in line with the Firearms protocol at the time. When technical issues were ruled out as the root cause, he resumed casework on all other agencies (except the one agency involved) following the new SOP and using the new worksheets.

Thank you for working with us to complete this corrective action. Please let me know if you need any further information.

Sincerely,

Aliece Watts
2015.03.30
16:02:57 -05'00'

Aliece Watts, MS
IFL Quality Director
awatts@iflabs.com
817-428-6565 ext 2023

From: Healy, Regina [mailto:RHealy@PDCN.ORG]
Sent: Friday, November 21, 2014 6:37 AM
To: Peterson, Lorelei
Cc: Slocum, Paul
Subject: RE: Evidence not received

Hi Lorelei
I just spoke with Sgt Marino regarding some evidence we had given back to homicide squad on cases 13CR347317 and 13CR58797. That evidence is part of an FBI Federal Task force and we are unable to get it back at this time to send to you. His cell phone is 516-983-8893 if there are any questions he asked that you call him.
I will be sending the rest of the evidence that we have today to arrive at your lab on Monday. It will include the two cases mentioned in the email below (08CR0052154 and 08CR0067518). We are still in the process of retrieving evidence in case 11CR41454 and that will be sent as soon as we get it back. Thanks again for all of your help.

Regina Healy
Evidence Management Unit
1490 Franklin Ave., Mineola, NY 11501
Phone: (516) 573-7800
Fax: (516) 573-7848

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Bedford, Texas 76021 (817) 428-6578 Fax

FORENSIC FIREARMS REPORT
LABORATORY # 13040341

Date:	May 28, 2013	**Offense Number:**	212CR0064637
Agency:	Nassau County Police Department	**Date of Offense:**	9/28/2012
Suspect(s):	Rodmon Green	**Offense:**	HOM-420-12

Evidence List:

Received at NMS on March 28, 2013 at 1230 hours from M. Marino by J. Sears.

3NCPD4. One Clerke Technicorp 32 S&W revolver, model Clerke 1st, serial number 057940

Received at IFL-Bedford on April 18, 2013 at 1245 hours from FedEx by A. Watts.

1NCPD2. One fired damaged bullet
2NCPD3. One fired damaged bullet
4NCPD13. One fired damaged lead bullet
5NCPD21. One fired damaged bullet

Results:

Item 3NCPD4 (revolver) is a hazardous firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 5.93 to 6.4 pounds single action and approximately 14.5 pounds double action. Item 3NCPD4 was test fired using ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Items 1NCPD2, 2NCPD3 and 5NCPD21 are consistent with 32 caliber bullets having six land and groove impressions with left twist. They can neither be identified nor eliminated as having been fired through the same firearm or the item 3NCPD4 revolver. The inability to effect an identification is not sufficient grounds to eliminate the firearm as having fired them. Common firearms with the same general rifling characteristics as items 1NCPD2, 2NCPD3 and 5NCPD21 include Astra, Clerke, Colt, Dickson, Haerens Tojhus, LePage, Liberty, Retolaza Hermanos, Spain and Unique. This is not an all inclusive list; therefore, all 32 caliber weapons encountered during the course of this investigation should be submitted along with items 1NCPD2, 2NCPD3 and 5NCPD21 for comparative examination.

Item 4NCPD13 is consistent with a 38/357 caliber bullet having seven land and groove impressions with right twist. Common firearms with the same general rifling characteristics as item 4NCPD13 include Enfield, England and Webley & Scott. This is not an all inclusive list; therefore, all 38/357 caliber weapons encountered during the course of this investigation should be submitted along with item 4NCPD13 for comparative examination.

Paul Slocum
2013.06.03
14:38:58 -05'00'

Paul Slocum
Senior Forensic Scientist

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(817) 428-6578 Fax

FORENSIC FIREARMS REPORT
LABORATORY # 13040341
SUPPLEMENTAL REPORT

Date:	December 18, 2014	**Offense Number:**	212CR0064637
Agency:	Nassau County Police Department	**Date of Offense:**	9/28/2012
Suspect(s):	Rodmon Green	**Offense:**	HOM-420-12

Evidence List:

Received at NMS on March 28, 2013 at 1230 hours from M. Marino by J. Sears.

3NCPD4. One Clerke Technicorp 32 S&W revolver, model Clerke 1st, serial number 057940

Received at IFL-Bedford on November 18, 2014 at 0957 hours from FedEx by C. Woullard.

1NCPD2. One fired damaged bullet
2NCPD3. One fired damaged bullet
4NCPD13. One fired damaged lead bullet
5NCPD21. One fired damaged bullet

Results:

Item 3NCPD4 (revolver) is a mechanically functional yet hazardous firearm as received in the Laboratory. It has six lands and grooves with left twist and a trigger pull force of approximately 5.93 to 6.40 pounds single action and approximately 14.50 pounds double action. Item 3NCPD4 was test fired using ammunition from laboratory stock. The test bullets and cartridge cases will be returned.

Item 5NCPD21 is consistent with a 32 caliber bullet having six land and groove impressions with left twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that item 5NCPD21 was fired through the item 3NCPD4 revolver.

Items 1NCPD2 and 2NCPD3 are consistent with 32 caliber bullets having six land and groove impressions with left twist. They can neither be identified nor eliminated as having been fired through the same firearm or the item 3NCPD4 revolver. The inability to effect an identification is not sufficient grounds to eliminate the firearm as having fired them. Common firearms with the same general rifling characteristics as items 1NCPD2 and 2NCPD3 include Astra, Clerke, Colt, Dickson, Haerens Tojhus, Le Page, Liberty, Retolaza Hermanos, Spain and Unique. This is not an **all** inclusive list; therefore, all 32 caliber weapons encountered during the course of this investigation should be submitted along with items 1NCPD2 and 2NCPD3 for comparative examination.

Item 4NCPD13 is consistent with a 38/357 caliber bullet having seven land and groove impressions with right twist. Common firearms with the same general rifling characteristics as item 4NCPD13 include Enfield, England and Webley & Scott. This is not an **all** inclusive list; therefore, all 38/357 caliber weapons encountered during the course of this investigation should be submitted along with item 4NCPD13 for comparative examination.

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FORENSIC FIREARMS REPORT
LABORATORY # 13040341
SUPPLEMENTAL REPORT

All conclusions were reached using microscopic and/or macroscopic examination.

This report reflects the test results, conclusions, interpretations and/or the findings of the analysts and technical reviewers below as indicated by their signatures below.

I participated in the determination of the results and have reviewed the analytical data utilized in reporting the results of this case, and they are accurate and correct as reported. This analysis was performed under chain of custody. The chain of custody documentation is on file at Integrated Forensic Laboratories, LLC. False statements made herein are punishable as a class A misdemeanor pursuant to section 210.45 of the New York State penal law.

Lorelei Peterson
2015.03.13
14:58:43 -05'00'

Lorelei Peterson
Forensic Scientist
Firearm Examiner I

Katie Poplin
2015.03.13
14:59:48
-05'00'

Katie Poplin
Forensic Scientist
Technical Reviewer

I, Lorelei Peterson, Firearm Examiner I
hereby certify that I am employed by Integrated Forensic Laboratories, LLC (hereinafter "IFL") 3001 Brown Trail Ste. 101, Bedford Texas 76021 and that my company has been contracted by the Nassau County Police Department to perform firearms analysis. I personally performed an examination on the above referenced evidence involving the case of The People of the State of New York vs. Rodmon Green; 212CR0064637. The above report, which I prepared, contains the result of the examination which I performed.

I certify this copy to be a true copy of the original report, prepared by me, on file at IFL Bedford, Texas.

Lorelei Peterson
2015.03.13
14:59:23 -05'00'

Lorelei Peterson, B.S., M.A.
Firearm Examiner I
Integrated Forensic Laboratories, LLC.
An ASCLD-LAB Accredited Crime Lab

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MEMO
DATE: 3-11-2015
TO: Nassau County Police Department
FROM: Aliece Watts, Quality Director awatts@iflabs.com

Re: NCPD 212CR0064637 (IFL 13040341) item 5NCPD21

NCPD 212CR0064637 item 5NCPD21 (fired damaged bullet) was determined at the original time of testing be "inconclusive" to all other items in the case (three fired damaged bullets and test fires from item 3NCPD4). The item 5NCPD21 was identified during reexamination by another analyst to the test fires from item 3NCPD4 (Clerke Technicorp 32 S&W revolver).

The original examiner identified areas of some agreement during examination of the evidence, however, the agreement was not repeating across all the bullet items of evidence. The bullets in this case all had evidence of being fired "out of time" and striking the forcing cone causing a swaging effect on the bullets. IFL policy at the time (Firearms Manual FAM-700.8) required the analyst to report the comparisons as "inconclusive". Additionally, the manual did not require that inconclusive comparisons be verified by a second examiner.

A literature search in the AFTE (Association of Firearm and Tool Mark Examiners) journal for articles that investigated bullets striking the forcing cone was conducted. One article was found that addressed the same situation as this case. The article "A 'Forcing Cone' Effect on Fired Bullets"[1] discussed a case involving bullets that were striking the forcing cone as they entered the barrel. The bullets in the referenced case had some areas of agreement, but not of high quality. Ten consecutive test fires were compared to determine if the unique markings were reproducible. The test fires were unable to reproduce markings that would allow for an identification to be made. The author concluded there were insufficient reproducible markings on the test fires to make an identification. Based on the reference literature and the lack of sufficient markings on the bullets on case IFL 13040341, the decision was made by the original analyst to conservatively call the bullet comparisons "inconclusive".

The case was reexamined at the request of the NCDA. The item 5NCPD21 was looked at by four examiners, including the original examiner. All four examiners agreed that there were enough markings to match 5NCPD21 to 3NCPD4.

The current IFL Firearm Manual (FAM-700.9) has been updated to require that all conclusions be verified (match, elimination with individual characteristics, inconclusive). Also included in the IFL Firearm Manual is the requirement that, if the examiner and the verifier cannot come to an agreement on a conclusion, the conservative "inconclusive" report is made. This practice is consistent with other Firearm Examiners with respect to evidence of this nature.

1. Davis, JE. "A "Forcing Cone' Effect on Fired Bullets. AFTE Journal 1973, Vol 5, No 6 (December), p34-36.

PAGES FROM IFL FIREARMS MANUAL FAM-700-10
6 Bullets and Cartridge Case Examination and Comparison

6.1 Definitions
A case will be considered a "Complicated Case" when and if any of the following criteria are met.

6.1.1 The case consists of at least 12 items that do not share a common source
6.1.2 The case possesses multiple firearms of similar caliber (i.e. 38 S/W and 357 Mag)
6.1.3 The results include a "neither/nor" or "inconclusive" result
6.1.4 The results include an exclusion based on the comparison of individual characteristics

For all others see AFTE Glossary

6.2 Equipment
Comparison microscope
Stereomicroscope
Pliers
Electronic balance
Calibrated calipers or micrometer

6.3 Materials/Supplies
Bullet worksheet
Weapon worksheet
Inconclusive/Elimination Worksheet

Ammunition
WD-40 (or other water dispersing lubricant)

6.4 Reagents
Bleach
Acetone

6.5 Procedure

6.5.1 Perform firearm functionality and complete firearm worksheet prior to test firing.

6.5.2 Examine and document any alterations to the firearm, paying attention to the breechface and the bore of the firearm. Also document any unusual characteristics such as sighting systems (and their functioning capability), silencers, etc..

6.5.3 Examine and document the presence of trace evidence on the bullet(s), cartridge(s), cartridge cases(s), and firearm(s).

6.5.4 Remove trace evidence from the bore of the firearm before test firing it.

6.5.5 Treat any firearm recovered from a body of water with a water dispersing lubricant (such as WD-40) to stop oxidation.

6.5.6 Remove blood from the bore of all firearms as soon as possible to prevent oxidation and then

spray with a water dispersing lubricant (such as WD-40).

6.5.7 Avoid cleaning evidence bullets when possible. If evidence bullets must be cleaned to complete an examination, pick an appropriate solution. For example, when cleaning off biological material, use a disinfecting solution (such as bleach). Document the cleaning of the bullet on the worksheet.

6.5.8 Examine the bullet(s) and/or cartridge case(s) to determine if they have the same class characteristics as the submitted firearm. Compare bullets and/or cartridge cases that were possibly fired from multiple guns to each other prior to comparing to any test fires (in order to group them).

6.5.9 Any exclusion or inconclusive determination on bullets and/or cartridge cases submitted with multiple guns must be compared to each gun of the same caliber.

6.5.11 The following fields of the weapon worksheet should be filled out, as a minimum:

- Manufacturer
- Caliber
- Model
- Serial Number
- Magazine capacity
- Barrel length
- Importer (if applicable)

6.5.12 Determine the type of firearm that fired the bullet(s) and/or cartridge case(s) using the Determine Weapon Type procedure (FA-1 DWT) if they do not have the same class characteristics as the submitted firearm(s). A photograph is recommended if the class characteristics of the bullet(s) and/or cartridge case(s) do not match the submitted firearm(s).

6.5.13 Mark (color coding is permissible) or number the test bullets and cartridge cases to identify their firing sequence.

6.5.14 Using a comparison microscope, compare the evidence bullet(s) and/or cartridge case(s) to the best test bullet and/or cartridge case to determine whether the evidence items were fired from/in the firearm.

6.5.15 If the test and evidence bullets can be placed in a common rotation, mark the corresponding landmark (with a permanent marker) on both the test and evidence bullets for future examination and peer review.

6.5.16 Photograph the comparison of one land or groove impression, when appropriate. The area photographed will be of the characteristics the examiner used to reach his/her conclusion. All photographs will have a unique identifier for reference.

6.5.17 Photograph the areas used for the cartridge case comparison, when appropriate.

6.5.18 When possible, mark all evidence bullet(s) and/or cartridge case(s) with the examiner's identifying mark or initials.

6.5.19 Document, in detail, all examinations, observations, and tests on the weapon, bullet, and cartridge case worksheets.

6.5.20 In the comparison section of the bullet and cartridge case worksheets, identify the areas used for the conclusion.

6.5.21 Appropriate abbreviations may include, but are not limited to, LI or LIW (land impression), GI or GIW (groove impression), FP, FPI (for firing pin impression), Ext or Exm (extractor mark), Ejr or Ejm (for ejector mark), BF or BFM (for breechface marks) and CW (consistent with). Other abbreviations can be used at the examiner's discretion as long as the peer reviewer can understand the areas used for the conclusion

6.5.22 If a firearm is not submitted for comparison to the evidence bullet(s) and/or cartridge case(s), and there are more than one bullet and/or cartridge case, compare the bullets and/or cartridge cases to each other to determine if they were fired from or in the same gun and the number of guns involved.

6.5.23 By using the Determine Weapon Type procedure (FA-1 DWT), determine the type(s) of firearms that fired the evidence bullets and/or cartridge cases.

6.6 Verifications

6.6.1 Verifications by a second examiner are required on comparative microscopy examinations where the opinion of identifications reached by an examiner. Each tool-working surface identified to another tool-working surface in support of an identification conclusion will be verified.

6.6.2 Verifications are required for Inconclusive or neither/nor conclusions.

6.6.3 Verifications are required for Eliminations/exclusions based on individual characteristics when the items have the same discernible class characteristics.

6.6.4 Eliminations/exclusions based on class characteristics are not required to be verified.

6.6.5 The analyst will document the justification for all inconclusive, neither/nor, and eliminations/exclusion results. The "Inconclusive/Elimination" work sheet (WS 700.12) is recommended.

6.6.6 A permutation work sheet (WS 700.11) or other suitable worksheet is recommended for any case that meets the definitions 6.1.1 and 6.1.2.

6.7 Disagreement Resolution

6.7.1 If there is not agreement in the comparison, the Firearm Section Supervisor shall be notified by the examiner and or the verifier. No further work, examinations or discussions between the examiner and the verifier should occur until a consultation between the examiner and the verifier is coordinated by the Firearm Section supervisor

6.7.2 The Firearm Section Supervisor or third independent examiner shall examine the questioned comparison.

6.7.3 The original examiner, verifier and the Firearm Section Supervisor shall participate in a coordinated discussion as to how they reached their conclusion

6.7.4 If an agreement is reached, the consensus conclusion is reported

6.7.5 When a conclusion is changed, the examiner shall document the specific rationale for the revised opinion

6.7.8 If a consensus is not reached, an inconclusive result shall be reported and documented

6.7.9 If the verifier utilizes areas for the conclusion that the original examiner did not, the verifier shall document the other areas on the worksheet.

6.8 Quality Control

Technical and Administrative Review

6.9 References

- FA-1 Determine Weapon Type
- FA-11 Firearm Safety
- AFTE Procedures Manual
- AFTE Glossary, 3rd Edition, 1994.
- Howe, Walter J., "**Laboratory Work Sheets**", *AFTE Newsletter*, No. 2, Aug, 1969, p.13.
- Janneli, R., and Geyer, G., "**Smoking a Bullet**", *AFTE Journal*, Vol. 9, No. 2, p.128.
- Mathews, J. Howard, Firearms Identification Volume I, 1973.

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

14100331

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
(2, 3) 14100330	N/N Elim	3.1 (C-D) 14100331	Class characteristic difference in GRC 6 Right vs. 8 Right.

Examiner NP Date 04 Feb 2015 Verified [signature] Date FEB 10 2015

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Reviewed by IFL Firearms Supervisor
Quality Director

Approved by IFL

Effective Date 2-28-14 WS
700.12

NP 34

14070710

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
1NCPD2B3, 1NCPD2B4 (14070710)	N/N Elim	1NCPD7 (14030024)	Due to damage and insufficient agreement of individual characteristics

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
5NCPD7, 6NCPD8 (13090555), 2NCPD16 (14030018), 6NCPD21, 6NCPD24, 6NCPD25 (14030022)	N/N Elim	1NCPD2B3 (14070710)	Due to damage and insufficient agreement of individual characteristics

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
5NCPD7, 6NCPD8 (13090555), 2NCPD16 (14030018), 6NCPD21, 6NCPD24, 6NCPD25 (14030022)	N/N Elim	1NCPD2B4 (14070710)	Due to damage and insufficient agreement of individual characteristics

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
8NCPD1 (14030023)	N/N Elim	8NCPD4 (13121401)	Similar class characteristics & insufficient agreement of individual characteristics

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
8NCPD1 (14030023), 8NCPD4 (13121401)	N/N Elim	1NCPD1 (13090409)	Similar class characteristics & insufficient agreement of individual characteristics

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Reviewed by IFL Firearms Supervisor
IFL Quality Director

Approved by

Effective Date 2-28-14 WS
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14070710

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
8NCPD1 (14030023), 8NCPD4 (13121401)	N/N Elim	1NCPD1 (14070710)	Elimination based on differences in class characteristics (5R vs 6R)

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
1NCPD1, 2NCPD2, 3NCPD3, 4NCPD4, 5NCPD1 (13121401)	N/N Elim	4NCPD1 (14030020)	Elimination based on differences in class characteristics; FPI

Examiner [signature] Date SEP 03 2014 Verified [signature] Date 9/10/14

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Reviewed by IFL Firearms Supervisor
IFL Quality Director

Approved by

Effective Date 2-28-14 WS
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14030018

MAR 26 2014

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
2NCP016	(N/N) Elim	2NCP013, 2NCP014, 2NCP015, 2NCP023	Due to lack of correspondence of individual characteristics and similarities in class characteristics

Examiner AJ Date 3/26/14 Verified [signature] Date MAR 26 2014

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Item	Result	To Item	Opinion
	N/N Elim		

Examiner _____ Date _____ Verified _____ Date _____

Reviewed by IFL Firearms Supervisor
IFL Quality Director

Approved by

Effective Date 2-28-14
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Lab Number 14070710

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		+	+	+	+	+	+	+	ELIM	ELIM	N/N	x	x	x
2			+	+	+	+	+	+	x	x	x	ELIM	ELIM	N/N
3				+	+	+	+	+	N/N	N/N	x	N/N	x	x
4					+	+	+	+	x	x	x	ELIM	ELIM	N/N
5						+	+	+	ELIM	N/N	x	ELIM	x	x
6							+	+	x	x	x	ELIM	ELIM	N/N
7								+	x	x	N/N	ELIM	x	x
8									ELIM	ELIM	x	x	ELIM	N/N
9										+	x	ELIM	x	x
10											x	N/N	x	x
11												ELIM	x	x
12													+	+
13														+
14														

Legend
1: Item 1NPCD1 (1309409); 5R pistol
2: Items 5NCPD7,6NCPD8 (13090555); 6R bullets
3: Items 2NPCD(1 ,3, 4), 7NCPD(2, 5) (13090409), 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4 and 4NCPD6 (13090555), 5NCPD(1, 2) (14030021); cartridge cases
4: Item 2NCPD16 (14030018); 6R bullet
5: Item 4NCPD1 (14030020); cartridge case
6: Items 6NCPD(21, 24, 25) (14030022); 6R bullet jacket & bullets
7: Item 8NCPD1 (14030023); 5R bullet
8: Item 1NCPD7 (14030024); 6R pistol SWD type
9: Items 1NCPD1, 2NCPD2, 3NCPD3, 4NPCD4, 5NCPD1 (13121401); cartridge cases
10: Item 6NCPD2 (13121401); cartridge cases
11: Item 8NCPD4 (13121401); 5R bullet fragment
12: Item 1NCPD1 (14070710); 6R pistol
13: Item 1NCPD8 (14070710); 6R bullet
14: Items 1NCPD(2B3, 2B4) (14070710); 6R bullets

+: Previously compared; see previous reports
X: No comparison

Examiner ___ Date SEP 03 2014

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Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
1NCPD1 (13090409)	9mm Luger	5R	2NCPD(1, 3, 4), 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6, 5NCPD7, 6NCPD8 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-16, 23) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD4A 2NCPD3 2NCPD4A 3NCPD5 4NCPD1	Elim Elim Elim Elim Elim

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
1NCPD1 (13090409) continued	9mm Luger	5R	5NCPD1, 5NCPD2 (14030021) 6NCPD(1-20, 24-29) (14030022) 8NCPD1 (14030023) 1NCPD6 (14030024)	6NCPD2 8NCPD1	Elim N/N

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD1 (13090409)	9mm Luger	N/A	2NCPD3, 2NCPD4, 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD3, 2NCPD4, 7NCPD2, 7NCPD5 4NCPD1	ID Elim

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD1 (13090409) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	5NCPD1 1NCPD7T1	ID Elim

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD3 (13090409)	9mm Luger	N/A	2NCPD1, 2NCPD4, 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD1, 2NCPD4	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD3 (13090409) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	N/A	N/A

Reviewed by IFL Firearms Supervisor
Approved by IFL Quality Director

Effective Date 2-28-14
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Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD4 (13090409)	9mm Luger	N/A	2NCPD1, 2NCPD3, 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD3, 7NCPD2, 7NCPD5 2NCPD3	ID ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD4 (13090409) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	5NCPD2 1NCPD1T2	ID ELIM

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
7NCPD2 (13090409)	9mm Luger	N/A	2NCPD1, 2NCPD3, 2NCPD4, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD1, 2NCPD4	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
7NCPD2 (13090409) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	N/A	N/A

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
7NCPD5 (13090409)	9mm Luger	N/A	2NCPD1, 2NCPD3, 2NCPD4, 7NCPD2 (13090409) 1NCPD1, 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD1, 2NCPD4	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
7NCPD5 (13090409) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	N/A	N/A

APR 2 1 2014

14030018

Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
1NCPD1 (13090555)	9mm Luger	N/A	2NCPD1, 2NCPD3,2NCPD4, 7NCPD2, 7NCPD5 (13090409) 2NCPD(2, 3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD3	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
1NCPD1 (13090555) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	1NCPD7T1	ELIM

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD2 (13090555)	9mm Luger	N/A	2NCPD(1, 3, 4), 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(3, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD3	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD2 (13090555) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	5NCPD2	ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD3 (13090555)	9mm Luger	N/A	2NCPD(1, 3, 4), 7NCPD2, 7NCPD5 (13090409) 1NCPD1, 2NCPD(2, 5), 3NCPD4, 4NCPD6 (13090555) 2NCPD(1A, 2, 3A, 4A, 5-12) (14030018) 3NCPD(4, 5, 7-9, 12-14) (14030019) 4NCPD1 (14030020)	2NCPD4 1NCPD1, 2NCPD(3, 5), 3NCPD4, 4NCPD6, 5NCPD7, 6NCPD8	ID ID

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result
2NCPD3 (13090555) continued	9mm Luger	N/A	5NCPD1, 5NPCD2 (14030021) 6NCPD(1-19) (14030022) 1NCPD7, 1NCPD6 (14030024) 1NCPD1 (13090409)	5NCPD2 1NCPD1T2	ID ELIM

Reviewed by IFL Firearms Supervisor
Approved by IFL Quality Director

Effective Date 2-28-14
WS 700.11

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EXHIBIT F

CAR 1407 Firearms Case Audit

Scope

The firearms section reported 234 cases in 2013. Since it was determined that the potential to miss a comparison was unlikely in a case with less than 12 items, all cases with 12 or more items were audited; 23 cases in total.

The case folders were audited to determine;

1. If all comparisons, including inconclusive results, were documented in the case file and clearly discussed in the report
2. If evidence was compared to all potential sources
3. If case documentation and reporting language was clear and consistent

Summary of Findings

1. There were instances when a comparison was not documented in the case file or was not clearly discussed in report.
    a. One instance (13010416) when an inconclusive bullet comparison (N/N) was not supported by case notes or photographs. It should be noted that current IFL policy does not require an N/N conclusion to be supported by photographs.
    b. One instance (13070161) when a damaged bullet's caliber and General Rifling Characteristics (GRC) could not be identified. However, the bullet was N/N to one rifle and excluded from a second rifle. With no GRC or photographs, the exclusion conclusion is not documented. While IFL policy does not require photographs, it does require that the reason for the exclusion be documented. This could have been achieved by recording the GRC or taking a photograph.

2. There was one instance when evidence was not compared to all potential sources.
    a. 13020340 – Only one bullet from two groups of bullets was compared with an N/N result. All bullets should have been compared to see if a conclusive result could be obtained.

3. There were instances when case documentation or reporting language was deemed insufficient or confusing.
    a. One instance (13020486) when a bullet was not explicitly excluded from a gun. The case notes do not include GRC of gun or other bullets matched to the gun.
        i. The examiner matched the bullet to another gun, from another case, thereby eliminating it from the other bullets and gun. While this was reported in the supplemental report, it was not clear in the original report. The examination of both cases happened simultaneously.
    b. There were several instances when exclusions based on GRC were not explicitly stated in the report. The items GRC's were identified and they were different, but the fact that the two items could not have been associated was not clear. There were also several cases where the exclusion <u>was</u> explicitly stated.

Other

One case (1211302) language in "Results" did not match item description. Specifically, "Bullet Fragment" was the description in the "Evidence List", but "Bullet" was used in the "Results".

Several cases where "9mm" and "9 mm" were used interchangeably

Language in reports is not fully standardized.

Conclusions and Recommendations

Based on this audit, it is this examiner's conclusions that the work product of the firearm section is sound; however there are several areas that must be improved to prevent a future quality problem.

1. Language used in reports is not standardized. The firearm section does use pre-scripted language but it is neither standardized nor controlled. For example, the following is the language used to identify a cartridge case(s) and bullets.

   Bullets – ***"There are sufficient individual characteristics present to conclude that they…."***

   Cartridge Cases – ***"There are sufficient individual markings present to identify them…."***

   These differences may appear minor, but should be standardized and consistent.

   Furthermore, the firearms section uses a "cut-and-paste" method to transfer language to the electronic report, rather than the controlled Phrase Express language utilized by other sections of the lab. "Cut-and-paste" report writing can lead to transcription errors.

   It is this examiner's recommendation that the firearm section's accepted language be re-designed and standardized to reduce/eliminate ambiguity. It is also this examiner's recommendation that the language be transferred to a controlled source, such as Phrase Express or a suitable process that can reduce/eliminate "cut-and-paste" errors.

2. It is this examiner's recommendations that IFL policy should be changed to require objective documentation of eliminations (based on individual characteristics) and N/N. This has already been implemented with the "***Inconclusive/Elimination Verification Worksheet***".

3. It is this examiner's opinion that IFL verification policy be reviewed. If not already specifically required, verifications of exclusions based on individual characteristics and N/N should be required.

4. It is this examiner's opinion that exclusions based on GRC should be explicitly stated in the report.

5. It is this examiner's opinion that the ***Permutation Chart*** should be used on all firearm cases that involve more than 12 items with multiple guns of the same caliber.

[redacted]

- 12 CC's – all matched to each other
- 9 CC's – all matched to each other, excluded from CC's above
  - *Photos clearly show that two sets are excluded*
  - *Report clearly eliminates two sets from each other*
- One bullet – GRC cannot be ascertained

[redacted]

- 8 CC's – all matched to each other
- 5 bullets – all matched to each other
- 2 fragments – no value

[redacted]

- 9 CC's – all matched to each other
- 3 bullets – all matched to each other

[redacted]

- 3 bullets – all matched to each other
- 10 CC's - all matched to each other
- 3 cartridges

[redacted]

- 13 CC's – all matched to each other
- 1 bullet

1203061

- This was a consulting case that was cancelled before examination was completed

1211302

- 1 Rifle
- 1 CC – matched to rifle
- 2 bullet fragments – cannot determine GRC. N/N to each other
- 3 bullets – N/N to each other, eliminated from rifle
  - *Elimination evident in photos*
- This has a corrected report – victim was incorrectly ID'd as suspect
- Item descriptions do not match results, i.e. "bullet fragments" vs. "bullets"

13010290 – Case has a supplement – compared to 13010289

- 2 bullets (25 caliber) – matched to each other
- 2 bullets (38/357 caliber) – N/N to each other
- 7 bullets (22 caliber) – N/N to each other

  - *Class characteristics on these 7 could not be determined. This explains N/N as is not uncommon with 22's.*
- 2 CC's (22) – N/N to each other

13010416

- 3 firearms (9mm L, 38 SPL, 9 mm)
- 2 CC's (38 SPL) – matched to 38 SPL revolver
- 4 bullets (38 SPL)– matched to 38 SPL revolver
- 12 CC's (9mm L) – matched to one 9mm pistol
- 6 bullets (9mm) – matched to one 9mm pistol
- 2 bullet/bullet jacket fragments – N/N to the 3 firearms
- 5 bullet fragments – no value
- "Revolver" misspelled. "9mm" and "9 mm" used.

13010463

- 9 CC's (9mm L) – all matched to each other, excluded from submitted firearm
- 9 bullets (9mm) – all matched to each other, excluded from submitted firearm
- 1 Firearm (9mm L)
- Two Fragments – no value
- 1 CC (7.62 x 39) – nothing to compare to

13010527

- 1 Revolver (357 Mag)
- 1 Pistol (9mm L Glock)
- 6 CC's (357 Mag) – matched to revolver
- 3 bullets – matched to revolver
- 7 CC's (9 mm L) – matched to pistol
- 2 bullets (9 mm POLY) – N/N to each other and N/N to pistol. Polygonal Rifling

13020340

- 15 CC's (9mm L) – matched to each other
- 2 CC's (Test fires from previous exam) – excluded based on class characteristics
- 4 bullets (38/357/9) – matched to each other
- 3 bullets (9mm) – matched to each other
- One bullet from the 4 bullet set was compared to one bullet from the 3 bullet set, with an N/N result
- These 7 bullets should have been inter-compared to confirm N/N result
- Report does not explicitly describe N/N
- 1 fragment – no value

Supplemental

- Same as first report
- This was a retest of a [redacted] case. Their results were similar

13020486 – [redacted].

- 1 Firearm (9mm L)
- 3 CC's (9mm L) – matched to 9mm L gun
- 3 Bullets (9mm L) – matched to 9mm L gun
- 1 Bullets (9/38/357) – excluded from gun (GRC)
- 1 Bullet (38/357) – not explicitly excluded from 9mm L gun in original report
  - Notes do not include GRC of 9mm L gun or 3 bullets matched to gun
  - Bullet was positively associated with another firearm, on another case, and was reported properly in supplemental report
  - Examiner did work original report and supplemental report simultaneously

13020488 – [redacted]

- 4 Firearms (one 9mm L, 3 Glock 45 ACP)
- 5 CC's (9 mm L) – matched to a gun
- 10 Bullets (9 mm L) – matched to a gun
- 4 CC's (45 ACP) – matched to a gun
- 1 Bullet (45) – matched to a gun, N/N to other 45 ACP bullets
- 11 CC's (45 ACP) – matched to a gun
- 14 CC's (45 ACP) – matched to a gun
- 1 Bullet (45 ACP) – matched to a gun, N/N to other 45 ACP bullets
- 15 Bullets (45 ACP) – N/N to each other, N/N to guns

13030398

- 8 CC's (9mm L) – matched to each other
- 7 CC's (10mm) – matched to each other
- 4 Bullets (9mm) – matched to each other
- 1 Bullet (10/40)

13040348

- 10 CC's (40 S/W) – matched to each other
- 6 Bullets (10/40) – N/N to each other
- 1 Bullet Fragments (2) – N/N to first six bullets
- 2 CC's (9 mm L) – eliminated to each other, supported by photo
- 2 CC's (380 Auto) – matched to each other
- There are no photos of item 20 being compared to either 3 or 22. However, notes do indicate it was. 19 was matched to 20 and 19 was compared and eliminated from 3 and 22, based on class characteristics

13040349

- 8 CC's (9mm L) – matched to each other
- 1 Bullet (9mm)
- 1 Bullet Jacket fragment – N/N

13040349 – Supplemental

- 1 additional CC (9mm L) – excluded from first 8 on class characteristics
- Supported with photo

13070161

- 1 Rifle (22 LR/L/S)
- 1 Rifle (22 LR/L/S)
- 5 CC's (22 L/LR) – matched to 1st rifle
- 2 Bullets (22) – N/N to 1st rifle
- 1 Bullet (Item 40)
  - Caliber not ID'd, GRC not ID'd (damaged)
  - N/N to 1st rifle
  - This bullet, along with other two bullets were eliminated from 2nd rifle
  - Reason(s) for exclusion and N/N were not documented on the worksheet
- 5 Bullets that are too damaged.

13070579

- 1 Pistol (380 auto)
- 3 CC's (380 Auto)– matched to pistol
- 3 CC's (380 auto) – matched to each other, eliminated from pistol
  - This is substantiated in notes
- 1 Bullet (380) – different GRC than pistol. The exclusion to the pistol is explicit in report

13100350

- 3 shotshells (12 GA) – matched to each other
- 2 Wads (12 GA) – N/N to each other
- 1 slug, 2 fragments – no value for comparison
- 1 Wad – no value for comparison or gauge determination

13100810

- 5 bullets (25) – all matched to each other
- 7 CC's (25 auto) – all matched to each other

13121170

- 14 CC's (40 s/w) – all matched to each other
- 3 Bullets (10/40) – N/N to each other

EXHIBIT G

INTEGRATED FORENSIC LABORATORIES
CORRECTIVE ACTION REPORT (CAR)

CAR identification #: 1407 **CAR arose from:** Client Review from Report

Personnel involved: Paul Slocum, Ron Fazio

Case file #: 13080642

Manual Reference: Firearms Manual 3.3.17 and 6.5.8.

Brief description of occurrence:

Firearms examiner, P. Slocum, was presented with a case that involved 6 firearms, 31 cartridge cases, 10 bullets, bullet fragments and test fires. Of the 6 firearms, 5 were of the same make, model and caliber (40). Of the 31 cartridge cases, 25 were 40 caliber. Using a preliminary microscopic examination, he was able to group the cartridge cases by comparing a manufacturing anomaly in the head stamp – the bunter mark (considered a class characteristic). Using this detail, the cartridge cases were separated into 5 groups. The individual cartridge cases within each group were then compared microscopically for individual characteristics. The cartridge cases within each group were determined to have been fired from a single firearm. The groups were then compared to test fired cartridge cases from the five firearms. Four of the five groups of cartridge cases were identified as being fired from one of the five firearms. The fifth group of cartridge cases was not consistent as being fired from the fifth firearm. Because the cartridge cases had been grouped with class characteristics, "group 5" cartridge cases were not compared to firearms 1-4 and were (erroneously) reported as not being fired from any of the 5 firearms.

The case was technically reviewed by another qualified firearms examiner, R. Fazio, but the oversight of not comparing the excluded cartridge cases to firearms 1-5 was missed. Since they were reported as exclusions, no verification was made.

The original report was issued and [redacted] of the [redacted] Police Department called to express his concern about the excluded set of cartridge cases. P. Slocum assured [redacted] that all possible comparisons had been made. It was subsequently determined that this was not the case. P. Slocum reviewed the case file and recognized the omission. He re-opened the evidence to compare the items that he had omitted in the initial examination.

The examiner did not take appropriate action by:

1. Not comparing excluded cartridge cases to all possible firearms
2. Reporting that the excluded cartridge cases were compared to all possible firearms when they were not
3. Not acknowledging the concern of the client and immediately relaying that concern to the Laboratory Director and Quality Director
4. Not communicating to the client that the issue would be thoroughly investigated and the client be kept abreast of the progress of the investigation

Subsequent examination by the examiner P. Slocum and verification by R. Fazio did confirm that the excluded set of cartridge cases was, in fact, fired from one of the submitted firearms. The differences in

the bunter marks allowed grouping of like cartridge cases, but the individual characteristics of the excluded cartridge cases should have been compared to each firearm.

Corrective Action to be taken:

Case File:
The affected cartridge cases will be reexamined by another examiner to verify the findings from 13080642. Due 2/26/14

Report:
A corrected report needs to be prepared, reviewed and issued to the client. Due 2/26/14

SOP:
The firearms manual 3.3.17 states that "Other tests and examinations may also be used at the discretion of the examiner/technician." Also, "6.5.8 Examine the bullet(s) and/or cartridge case(s) to determine if they have the same class characteristics as the submitted firearm."
The examination approach based on segregation of class characteristics will be added to the SOP. The SOP needs to have language that specifically states that eliminations should be compared to all possible matches of the same caliber cartridge cases or caliber family (e.g. 9 mm & .380) from other firearms associated with that case file.
The firearms reporting language needs to be reviewed and standardized.
The new language needs to be incorporated in reports via Phrase Express.
The use of a Permutations Worksheet will be developed for the inclusion in all comparative science casework to prevent this type of omission from occurring again. See attached forms. Due 2/28/14
The SOP should be changed to require objective documentation of eliminations (based on individual characteristics) and "neither/nor" results. "Objective documentation" is typically photomicrographs, but other methods may be used.
Exclusions based on GRC need to be explicitly stated in the notes and report.

All IFL Staff:
A class will be delivered to all IFL employees on appropriate client response and measures to be taken when a client expresses a concern over a case. The appropriate action should include informing the Laboratory and Quality Directors as soon as possible, reexamination of the case file and if necessary reopening and reexamining the evidence. Due 3/10/14

Case File Review:
The IFL General Manager will audit all firearms case work conducted in the last 12 months. The audit will be designed to determine if a similar situation could have occurred. If a similar situation is found, the case will be further investigated by the Laboratory and Quality Directors.

Per Client request, IFL Examiner Slocum will not be utilized in any capacity to examine [redacted] ballistic evidence until further notice. This includes examination, reporting, technical or administrative reviews, and testimony.

All [redacted] cases examined and/or reported by Examiner Slocum, including those in progress, will be retested by IFL using other examiner(s). [redacted] will provide a priority order list in which it is

seeking to have the cases in question retested. All costs associated with this re-testing will be borne by IFL.

Name of person to resolve: Paul Slocum
Ron Fazio
Nate Stevens
Aliece Watts **Due Date:** 3-25-14

Signature of Quality Director: **Date:**

Root Cause Analysis:

A root cause analysis was performed to try to identify underlying issues and to develop a plan to prevent its recurrence.

Equipment was found to have no influence in this occurrence.

Policies: The use of bunter marks to group cartridge cases was not specifically addressed in the firearms manual. However, Firearms Manual 3.3.17 states that "Other tests and examinations may also be used at the discretion of the examiner/technician." This allows the examiner the flexibility to work a case when faced with forensic evidence that might be atypical. P. Slocum used these manufacturing marks to sort the 31 cartridge cases into more manageable groups in order to efficiently examine the cartridge cases. The error occurred when he erroneously believed that these class characteristics precluded the individual characteristics from matching. After review, no breach of policy was found.

Procedures: Routine examination of firearms components involves class characteristics and individual characteristics. To eliminate components based on class characteristics is appropriate; for example, 9 mm cartridge case cannot come from the same gun as a 45 caliber cartridge case. However, the class characteristics in this case were manufacturing marks and were not made by a weapon. In examining this case, P. Slocum excluded the "group 5" cartridge cases based on the class characteristics. No procedure existed that required all exclusions to be compared to all possible sources.

The firearms examiners select the order of the cases that will be worked with input from the client. There is no "first in/first out" policy. Cases are routinely submitted in groups of 20 or more from various clients. The client had called a few times in January, 2014, to inquire on the status of this case. No unusual pressure was put on the analyst by management.

Preparation for and subsequent findings remediation for the ASCLD/LAB audit in October, 2013, produced a lull in casework output. Clients were notified of the situation and understood. This case was very complex and the analysis was ongoing from November until February. Many events were occurring simultaneously, but nothing specific was found to have caused the error.

People: This case was a complicated case with numerous items of evidence. P. Slocum's microscopic comparison of the cartridge cases is not in question; he just neglected to compare the "group 5" to other

possible guns. When questioned by the agency, he initially stood behind his report because it had been technically reviewed. But, the question prompted him to review the case where he noted his error.

The investigation into this incident has provided documentation that this was an isolated incident.

Corrective Action taken:

1. The cartridge cases were re-examined by R. Fazio and the results verified that the "group 5" cartridge cases were fired from one of the submitted firearms.
2. The corrected report has been issued.
3. The verbiage that specifically authorizes the use of class characteristics has been added to the Firearms Manual. (FAM 6.5.8)
4. The verbiage that specifically states that eliminations must be compared to all possible submitted firearms of the same caliber or caliber family has been added to the Firearms Manual. (FAM 6.5.9)
5. A "Permutation Worksheet" (WS700.11) has been created to document all possible comparisons and to aid in the case review.
6. A "Verification Worksheet" (WS700.12) has been created to aid in the technical review of comparisons.
7. A class on appropriate response to client concerns was held on 3-10-14 for all employees of IFL.
8. The IFL General Manager has audited all firearms case work conducted in the last 12 months. No findings of concern were noted. See attached Firearms Audit Report.
9. P. Slocum is currently not working on [redacted] firearms cases until further notice from [redacted].
10. The 39 cases from [redacted] that have been reported are being re-worked by other qualified examiner(s).
11. An analysis of the firearms section to improve the workflow and process is being conducted.

Confirmation Corrective Action taken (Signature) **Date:**

Documentation Attached: Corrected Report, Permutation Chart (WS700.11), Inconclusive/Elimination Verification Work Sheet (WS700.12), Quality Meeting Agenda (3-10-14), Firearms Case Audit Report, Article "Bunter Marks, What Do They Mean?" AFTE Journal (Vol. 29, No. 1, Winter 1997).

Located in File: 13080642

EXHIBIT H

Permutation Review Worksheet

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Item	Caliber	Class	Possible Comparisons	Comparisons Made	Result

Inconclusive/Elimination Verification Work Sheet

Item	Result	To Item	Opinion
	N/N		
	Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N		
	Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N		
	Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N		
	Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

Item	Result	To Item	Opinion
	N/N		
	Elim		

Examiner ________________ Date ________________ Verified ________________ Date ________________

EXHIBIT I

Note for Exhibit I

The Commission sent its draft of this final report to the Texas Association of Firearm and Tool Mark Examiners for comments related to the report's recommendations. The Association's members provided informal comments as shown in Exhibit I.

Subject: Re: IFL Firearms report comments
Date: Thursday, November 5, 2015 at 1:27:01 PM Central Standard Time
From: Leigh Tomlin <leigh@fsc.texas.gov>
To: Crumley, Ron <Ron.Crumley@dps.texas.gov>

From: "Crumley, Ron" <Ron.Crumley@dps.texas.gov>
Date: Friday, October 23, 2015 at 8:43 AM
To: Leigh Tomlin <leigh@fsc.texas.gov>

Ms. Tomlin,

I forwarded the attached IFL Firearms Draft Report to Firearms Examiners throughout Texas. First I will offer my comments, and then will include additional comments received from other FA examiners on the stated Recommendations.

Recommendation 1: The basis for analytical conclusions reached in forensic casework must be supported by clear and comprehensive case notes.

I agree, and I believe all ASCLD-LAB accredited labs should already be adhering to this standard.

Recommendation 2: Technical reviewers of forensic casework must have the ability to recognize when an examiner's basis for conclusions (including exclusions and inconclusive results) is deficient, and take the necessary action to remedy the deficiency.

I agree with this statement, but I would recommend that a technical review not be the only review that is done on the case. I believe that the best way and first step to prevent instances of incorrect results is the implementation of a thorough and rigorous verification program where the actual evidence is re-examined by a second examiner to determine if the original conclusions were correct, and not just a technical review of case notes. The verification review process has proven to be very beneficial within the DPS system and is a vital part of our Quality Assurance process.

Recommendation 3: All retroactive audits of casework in any area of forensic science should be performed by parties other that *(should be than?)*the original examiner and technical reviewer.

I agree.

Recommendation 4: Forensic laboratories in Texas should explore resource-efficient methods for implementing blind verification in pattern-matching disciplines such as firearms/tool mark examination and implement those methods as soon as practicable.

I agree that forensic laboratories should actively explore methods to combat cognitive bias in case reviews. This is a discussion that is going on throughout the nation, and should continue to be explored for a path forward (see below for some additional recommendations on this subject). However, I think there are some more obvious solutions that could be implemented that would have easily caught the error. I believe that a thorough verification process that examines all comparisons on the microscope, not only ID's, but also Eliminations and Inconclusives, would have identified this error, and should be implemented as a good first step toward combating the kind of error made in this case.

Comments received from Texas Firearm and Toolmark Examiners:

I think too often when a mistake happens, the knee jerk reaction is to invent additional rules (gun control, workplace safety accidents, etc.) when more rules are not necessarily the answer.

Bottom line is that I think this mistake was an error due to trying to be as efficient as possible, not necessarily a microscopic competency/training issue. Granted there were some very poor assumptions at the outset and a review process that again is optimized for efficiency, not necessarily getting the most accurate results. I think the 100% verification is the happy medium between a purely technical review and blind verification.

Thanks for letting our voice be heard.

In our role as professional forensic scientists, we are constantly trying to evolve our processes for making error free analysis and reporting. It is and has always been just that important.
Additionally, based upon an evolved and historical perspective in this regard, (including blind re-works /verifications) the path of 100% peer to peer verifications has been the greater tool for success in our experience of achieving that outcome for the FA/TM community.

I don't disagree with most of the established recommendations in the document, but I feel there are standards in place already to prevent what occurred which were not followed.

I would phrase Recommendation 4 as the following instead, so as not to pigeon-hole ourselves into blind verification if it is determined that that particular method of preventing cognitive bias is not necessary or practical:

RECOMMENDATION 4: Forensic laboratories in Texas should explore resource-efficient methods for ~~implementing blind verification~~ **preventing cognitive bias** in pattern-matching disciplines such as firearms/tool mark examination and implement those methods as soon as practicable.

I would caution that while the AFTE range of conclusions does include three subcategories under inconclusive, it is common practice not to state these subcategories in the report, as doing so may do more harm than good. If a jury reads "agreement of all class characteristics but insufficient agreement of individual characteristics" many will come to the conclusion "Oh, it's a match, he just can't say that". As such, an inconclusive effectively becomes an identification. I've always been of the stance that on the report We Do Not Lean. If it's an identification, say so. If it's an elimination, say so. If you don't know, just say you don't know and Do Not Bias the Jury one way or the other. I'm fine with it being in the notes to better document what an examiner is seeing, but I would highly recommend against it ending up in a report.

Cognitive bias is a concern that must be addressed. I've listened to Dr. Dror speak concerning it, and even he admits that while an ever present threat, it cannot be said to always be occurring. There are much more reasonable and practical ways of addressing cognitive bias (sequential unmasking for one) which are more readily put into place in crime labs than blind verifications. There is a national OSAC on human factors and I feel it is more prudent to see what the national recommendations are before Texas goes with its own. Truly

blind verifications would require three examiners per lab (an examiner, a technical reviewer, and a verifier), which is not feasible at present. Let's not put the cart before the horse and let's see what the national standards, as requested by the 2009 NAS report, are before we go making more regional ones which is the very problem outlined in said report.

Ultimately this case comes down to a lack of attentiveness on behalf of the examiner as well as the technical reviewer. Let's keep that in focus. There are standards in place to prevent this from occurring and they were not enforced.

#1 The examiner used manufacturing marks for grouping. If you want to group cartridge cases together, that's okay, but that does not eliminate your need to actually compare them. This was the first, and primary error by the original examiner.

#2 The basis for exclusions was not documented in the notes. You are already required to document the basis for both identifications and eliminations to a degree that a second examiner, in the absence of the evidence, can understand how you arrived at the conclusions you did. This was not done in this case. Lack of attentiveness on behalf of the examiner and of the technical reviewer.

#3 The technical reviewer signed off on the technical review because he was "familiar with the case". That is not a verification, that is a technical review of the documents. Verification involves physical comparison of the evidence. Had he done an actual verification, he would not have signed off on a non-supported elimination.

Ultimately, there is an error rate for the analysis we do. There always will be. There is an error rate for all forensic disciplines (DNA, Drugs, Trace, Tox, LP, all of them). What this means, by definition, is that errors can and will happen no matter what precautions are taken. It's a fact that cannot be eliminated. When they occur, they should certainly be investigated, but that does not necessarily mean that standards must change every time. There is a rush by everyone to "Fix the Problem". But you cannot begin to do that without first accepting that errors will inevitably occur no matter what steps are done. All we can do is attempt to minimize them as much as possible.

That said, in this case, I feel the error made should not have happened based on already established standards.

My key issue with this document is the use of the term "blind." The fact is that in this case, 100% verification was not performed, at least in some ways I hope not. I know that IFL typically only verifies identifications. Cognitive bias is the unintentional migration to a certain conclusion. I think there are a lot of factors that put the errors in this case well outside the envelope of cognitive bias. The examiner made an erroneous assumption that officers shoot from one box of ammo. This is not cognitive bias, it merely reflects a lack of training, experience, and/or attention to the work at hand.

1. The examiner should have realized that you can have multiple bunter marks in the same box and that the same

bunter defect can be found in multiple boxes. This is independent of any sharing of boxes of ammunition, magazines, or individual cartridges that may have occurred by LE officers within the same agency.

2. Cartridge cases of similar caliber should be grouped according to class characteristics imparted by the firearm, not a class characteristic of the ammunition itself. This is basic deductive logic.

It is not clear in the report, what level of verification was performed, but it is almost assuredly not a 100% verification. If so, there is a more fundamental issue related to examiner competence. We need to draw a distinction that verification is the answer to missteps by the examiner. Blind verification is the answer when the verification itself is bad.

The lapses in documentation and lax level of scrutiny in the technical review are all adequately addressed by others and/or the report. I am fine with the recommendations if they just back off from the word "blind." A robust verification process with actual review of the evidence would have gone a long way in preventing this action.

I also disagree with the apparent lack of gravity placed on the case because they did not "involve misidentifications."

Like others have stated, this is a human endeavor with human decisions and is prone to all of the frailties and whims of the human psyche. I am not proud of this, but I have made legitimate errors that were caught in verification. I have done the same for others. I have no doubt that I can take any of my cases to anyone in the DPS system and get a critical look.

In my opinion, it all boils down to a weak Technical Peer Review Process established by the organization and administered by the peer. It is my understanding that the Peer Reviewer followed the system in place (for the comparison portion of the review) which relieves him of culpability to that portion of the error. However, the Peer Reviewer does have culpability in the fact that he did not challenge or question the lack of documentation in the notes for the errored grouping of cartridge cases.

Firearm and Toolmark Sections need to have a stronger review system in place that requires Identifications, Eliminations (for non-gross differences) and Inconclusive results to be documented through photographs, clear and concise notes and by a peer review of 100% of the evidence. The IFL system of review provided a technical review of the notes with an eyes-on comparison of Identifications only. This error could have been prevented by a stronger review system.

All comparison work warrants being verified ESPECIALLY in a high volume lab where the examiner is working 234 cases in a 12 month period. (My understanding is at the time of this incident the co-worker was in training and preparing the cases but not performing the comparison work herself.) Cases where the conclusion is “Inconclusive”, regardless of the number of items (who & why was “12 items or more” selected for the audit?) should be VERIFIED by a PEER in the same manner that Identifications and/or Eliminations are verified in order to have the strongest Peer Review System a laboratory can offer. It takes more time certainly but it insures highest quality of work product for the customer.

Certainly, there appears to be is a systemic issue with poor documentation in the case notes as reflected in the other case files that were reviewed. Had the re-testing of the 55 cases and auditing of the 23 cases been conducted by someone outside the IFL Firearm Section/IFL Laboratory my bet is the findings would have been “worse” than that which is being reported. This examiner would be well served with additional training and exposure to case work conducted in other facilities so that his frame of reference for thorough case examination and notes is expanded.

My team and I have reviewed the draft report and the four recommendations.

We endorse the first three recommendations and have practiced them for years here.

Regarding the fourth, blind verifications will be difficult to conduct in our lab because we require that both the primary and second examiner agree not only in the same area but also on the same markings in order to report out an identification. In other words, If I examine a bullet and observe striae from the top to the bottom of land impression #1 and say ID, and then you say ID based on striae at the base of land impression #3, we both reach the same conclusion, but in different areas of the bullet. Now...suppose I examine what you looked at in land impression #3 and say inconclusive and you look at what I observed in land impression #1 and say inconclusive. What do you do now???

Also, what if I make an ID on two cartridge cases based on striae I observe on the primer to the right of the firing pin impression. When I examine the chamber marks, however, I reach inconclusive (let's say I do this first). You, as the second examiner, examine the primer and you say inconclusive, but you say that you see an ID on chamber? Now what?

At some point, the two examiners will need to get together to discuss their results and the location on the fired evidence where they are basing their results. At this point, blind is out the window.

The interesting thing here with the IFL case is that the draft report never mentions a second analyst. Did a second, qualified examiner examine the evidence items and reach a conclusion on them? The report does not even imply this. Instead, it seems that their practice is to have only one examiner and a tech reviewer who does not examine the evidence. If this is so, then how would blind verification help IFL? Blind verification assumes that there is another examiner analyzing the evidence.

The approach that I am proposing in our lab is to approach the entire bias issue using base rate studies. Dr. Dror (based on his publications) seems to support this position as well. This seems to be a reasonable surrogate to blind verifications and is much easier to implement. In the event that we (my lab) figures out a workable solution for blind verifications, I envision on using it in only a certain percentage of casework, not 100%.

From: Leigh Tomlin [mailto:leigh@fsc.texas.gov]
Sent: Tuesday, October 13, 2015 8:41 AM
To: Crumley, Ron
Subject: RE: IFL Firearms report comments

Mr. Crumley,

Lynn asked me to send you the attached report and request any comment on its recommendations on behalf of the Texas Association of Firearms and Tool marks Examiners. Let me know if you have any questions for us.

Thank you,

Leigh

Leigh M. Tomlin
Texas Forensic Science Commission
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