



Quality Division Use Only

Quality Tracking #:	2021-032	Classification:	Corrective Action
Non-Conformance Level:	Class I	Section:	Firearms
Date of Discovery:	06/07/21	Date of Incident:	10/09/20

Forensic Case Number(s), if applicable:	Agency Case Number(s), if applicable:
See Table 1 and Appendix B for lists of affected cases	See Table 1 and Appendix B for lists of affected cases

Description of Non-conformance:
HFSC identified an occurrence where two sets of NIBIN test fire bullets were switched and therefore packaged into the wrong cases by a former HFSC NIBIN technician.

Additional Information/Follow-Up:
Test fired cartridges and bullets (or "test fires") are typically created when a NIBIN technician loads a firearm with stock ammunition and discharges the firearm into a water tank at HFSC. The fired cartridge cases are retrieved after each firearm is discharged. The bullets, which are captured in the water tank, are usually collected after a series of firearms are discharged. Prior to test firing, NIBIN technicians inscribe each cartridge case and each bullet with the Forensic Case Number (FCN) and item number. Additionally, NIBIN technicians mark their bullets and cartridge cases with permanent marker. Because bullets are collected in batches while cartridge cases are collected after each firearm is test fired, the risk of switching bullets is greater than the risk of switching cartridge cases.

In June 2021, while working a request for comparison of a bullet in case 2020-07247 to test fire item 001-01 in case 2020-13771, a firearms examiner noted the test fires created by the NIBIN technician were not inscribed properly, and the test fired bullets in the package were clearly not fired in the submitted firearm (the firearm was a 40 S&W while the bullets were 9mm Luger). The firearms examiner notified the section supervisor. The firearms examiner then created her own set of test fires to conduct the comparison in the request.

The firearms supervisor notified the firearms manager. They reviewed the NIBIN case record for case 2020-13771 and it was determined that the NIBIN technician created the test fires on 10/9/2020. The supervisor recalled the other test fires created by the NIBIN technician on that day from the property room and examined them for inscribed markings and for class characteristics. Another case where test fires were created by the NIBIN technician (item 001-01 in case 2020-13760) was observed to contain 9mm Luger cartridge cases and 40 S&W bullets. The submitted firearm in this case is a 9mm Luger. These are the most likely candidates for the switched bullets from case 2020-13771 as they also were not engraved. However, since the bullets and cartridge cases were not labeled in accordance with the Firearms section standard operating procedure, the information could not be confirmed utilizing existing quality control measures.



Summary of Root Cause Analysis:

Note: Incidents are documented for tracking purposes and trend analysis. Root Cause Analysis is not required for incidents.

Upon discovery of the missing/illegible inscriptions the firearms manager surveyed all staff to find out if they had observed any similar instances and the only instances reported were concerning this NIBIN technician. Therefore this does not appear to be a systemic issue, rather the root cause appears to be personnel-related. However, because the NIBIN technician involved is no longer employed at HFSC he was not available for interview into this matter.

A test fire audit was done and demonstrated that upon initial authorization for casework all items were legibly inscribed, and all items were properly marked. This supports that the Firearms training program was effective however out of an abundance of caution the ability to inscribe ammunition legibly has been specifically added to the training program and incorporated into the competency test evaluation.

The firearms section originally extended their test fire audit to try and determine if there was a specific time frame in which the missing/illegible inscriptions became common for the technician; however, the decision was later made that resources would be better spent auditing previous comparison casework as the time frame or the cause for the shift was likely not going to be readily distinguishable. In addition, staff will prevent the use of this technician's test fires to every extent possible and disclose this quality corrective action in any instance when this technician's test fires must be used.

HFSC has also shared the details of this disclosure with the Harris County District Attorney's Office.

Moving forward, the firearms section will incorporate a visual inspection of test fires and confirm for legible inscriptions during their 2023 postmortem reviews. Postmortem reviews are performed bi-annually on a statistically significant number of cases in each section that have already been finalized and reported as a means of determining the effectiveness of HFSC's review processes. Incorporation into the postmortem reviews will better position the firearms section to detect an issue of this nature if one were to occur in the future. An additional visual inspection of test fires to confirm for legible inscriptions will also be incorporated into future internal audits of the firearms section. Firearms staff has also been made aware of this issue and will let management know if they encounter any similar issues during routine casework. Upon closure of this quality corrective action, all current staff will document their review of this report. A review of this quality corrective action report will also be incorporated into the firearms training program and new employees will be required to document their review prior to their authorization to perform casework.



Actions Taken:

Test Fire Audit

The test fire bullet switch prompted an initial audit of the NIBIN technician’s casework within a two-week window of this occurrence. The audit yielded the discovery of a third case with two discrepancies (case 2020-13806). One item in the case (item 003-01) was found to only have two test fire bullets, where the expectation was to have three. A second item in the case (item 002-01) was also found to only have two test fire bullets and one of the test fire bullets does not appear to have been packaged into the appropriate case. The audit of the NIBIN technician’s test fires also showed that he was not consistently inscribing cartridges and bullets with the case and item numbers, and when he did, the inscriptions were not always legible. Additionally, it was observed that the technician did not always mark his test fired evidence with a permanent marker. The audit was then expanded to try and determine if there was a time frame in which these issues arose. Test fire evidence was audited from the period of time after the NIBIN technician was initially signed off for independent case work in February 2018. No switched cartridges or bullets were found, all items were inscribed, all inscriptions were legible, and all were properly marked. A further review of a sampling of cases from both March 2019 and September 2019 confirmed the use of appropriate labeling; however, the September audit revealed another instance of bullets swapped between two cases (2020-13760 and 2020-13771). See Table 1 for a summary of the issues found during the test fire audit.

Table 1 – Issues Identified in the test fire audit

FCN	ACN	Summary
2019-14574	111738519	Bullets were switched with bullets from FCN 2019-14566
2019-14566	007146019	Bullets were switched with bullets from FCN 2019-14574
2020-13806	134077020	Item 003-01 was found to have two test fire bullets; the expectation was to have three. Item 002-01 was found to have two test fire bullets, one of which does not appear to have been packaged in the correct case. The original test fires were labeled “do not use” and new test fires were created.
2020-13771	133801120	Bullets were switched with bullets from FCN 2020-13760.
2020-13760	133821020	Bullets were switched with bullets from FCN 2020-13771.
2020-13825	134348120	New test fires were created out of an abundance of caution. The original test fires were created on the same day as those from FCN 2020-13760 and involved the same caliber of firearm.
2020-13821	134275620	New test fires were created out of an abundance of caution. The original test fires were created on the same day as those from FCN 2020-13760 and involved the same type of firearm

FCN = Forensic Case Number; ACN = Agency Case Number

In lieu of continuing to expand the audit to a broader timeframe, the firearms section decided to restrict the use of the technician’s test fires in all future comparison requests. Given the circumstances, HFSC has determined this is the most prudent course of action. If an examiner encounters a case in which the technician’s test fires must be utilized (e.g., in cases where the firearm is no longer available), HFSC will notify the stakeholder about this quality event and any concerns regarding the test fires prior to proceeding. In addition, examiners will use discretion,



noting whether the test fires are appropriately labeled and void of any discrepancies in the expected class characteristics. All subsequent comparisons involving the technician's test fires will reference Quality Corrective Action Report #2021-032.

Case Work Audit

The firearms section also queried cases where a firearms request had been made and test fires were created by the technician. One hundred and thirty-five requests were identified. A review of these case records determined that the NIBIN technician's test fires were used as part of a firearms comparison in 46 of the 135 requests. The case records for the 46 identified requests (which corresponds to 45 cases; one case having 2 requests) were reviewed by section management to determine the level of risk associated with utilizing the NIBIN technician's test fires as part of the examination. Cases were grouped into high, moderate, or low risk categories based on the type of conclusions, the extent to which that conclusion relied on the NIBIN technicians test fired evidence, and whether the conclusions were based on test fired cartridge cases or bullets.

Group 1 – High Risk: Identifications using the technician's test fired bullets and cartridge cases

- Two requests for firearm comparisons involving 3 cases were identified in this risk group.
- Actions:
 - In one request, test fires had already been created by a firearms examiner. In the other request, new test fires were created.
 - Each case record was reviewed to determine which comparisons involved the technician's test fires.
 - Rework was performed. Any comparison initially completed using the technician's test fires were completed again using test fires created by a firearms examiner (newly created or otherwise). The requests were not reworked in their entirety.
- Results:
 - No issues were identified during the re-work of the original reported results in either request.

Group 2 – Moderate Risk: Identifications using the technician's test fired cartridge cases

- Twenty-four requests involving 42 cases meeting this criterion were identified (case 2018-19832 had 2 requests involving the same test fires).
- Three of these requests (2020-05576, 2019-10199 and 2020-17916) also involved low-risk comparisons (1 cartridge case comparison that was inconclusive and 2 cartridge case comparisons that were eliminations based on class characteristics). These cases are only listed the Group 2 Moderate Risk table even though they also contained low-risk comparisons.
- Actions:
 - Each case record was reviewed to determine if the examiner made their own set of test fires. Examiners had made test fires in 3 requests.
 - For requests where the examiner did not make their own test fires, HFSC recalled the firearm from HPD and created a new set of test fires.
 - Test fired cartridge cases created by the examiner or newly created were compared to the technician's test fired cartridge cases. Test fired bullets were not compared since those were not involved in the request comparisons.
- Results:



- No issues were identified during the comparisons between the technician's test fires and the newly created or examiner-created test fires.

Group 3 – Low Risk: Eliminations based on class characteristics or reported inconclusive results where the examiner made their own set of test fired cartridge cases

- Twenty requests involving 29 cases meeting this criterion were identified.
- Actions:
 - For any request where test fires had not been made by the examiner, new test fires were created when the firearm was available.
 - Three firearms were not available for retest; all 3 of these requests/cases involved eliminations.
- Results:
 - Upon researching these cases HFSC determined test fires had already been created in 12 of these cases. New test fires were made in 5 of these cases and the firearm was no longer available in 3 cases.

At HFSC, NIBIN (the National Integrated Ballistics Information Network) entries are created using fired cartridge cases and not bullet evidence. Therefore, the risk to NIBIN entries because of this quality event is minimal. When new test fires were created as an action taken to address this nonconformance, new NIBIN entries were created as a precaution and to verify that the technician had indeed been creating NIBIN entries correctly. While a few minor administrative errors were identified, no technical issues were identified with the technician's NIBIN entries.

Section Manager: Donna Eudaley

Date: 08/04/22

Division Director: Amy Castillo

Date: 08/04/22

Incidents or Corrective Actions that involve the Biology/DNA section are reviewed by the Technical Leader and CODIS Administrator.

Technical Leader: N/A

Date: N/A

CODIS Administrator: N/A

Date: N/A

Quality Director: Erika Ziemak

Date Closed: 08/04/22



Appendix A

Definitions

Test fires: A set of bullets and cartridge cases fired from a particular firearm, typically using stock ammunition, for the purpose of entering fired cartridge cases into NIBIN and for future use in firearms comparison examinations if requested. HFSC treats test fires as evidence.

Comparison: A microscopic comparison of fired evidence and/or test fires in the same case.

Cross comparison: A microscopic comparison of fired evidence and/or test fired between 2 different cases.

Class characteristics: characteristics observed on fired evidence and/or test fires that are from the design of the firearm, such as land and groove width and number, caliber, direction of twist, firing pin shape, etc.

The following are typical conclusion statements associated with firearms comparisons:

Identification*: A sufficient correspondence of individual characteristics will lead the examiner to the conclusion that both items (evidence and tests) originated from the same source.

Inconclusive: An insufficient correspondence of individual and/or class characteristics will lead the examiner to the conclusion that no identification or elimination could be made with respect to the items examined.

Elimination: A disagreement of class characteristics will lead the examiner to the conclusion that the items did not originate from the same source. In some instances, it may be possible to support a finding of elimination even though the class characteristics are similar when there is marked disagreement of individual characteristics.

*The identification of cartridge case/bullet toolmarks is made to the practical, not absolute, exclusion of all other firearms. This is because it is not possible to examine all firearms in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between toolmarks means that the likelihood that another firearm could have made the questioned toolmarks is so remote as to be considered a practical impossibility.



Appendix B

Agency Case Number (ACN) and Forensic Case Number (FCN) by risk groups

High Risk – NIBIN Technician’s test fires used to identify bullets and cartridge cases

ACN	FCN	Comparison to original Results	Cross Comparison to another case?
010626321	2021-19196	No issues identified	FCN 2020-14379/ACN 139593720
006164421	2021-18729	No issues identified	No

Moderate Risk – NIBIN Technician’s test used to identify cartridge cases

ACN	FCN	New Test Fires Created?	Comments
172787720	2020-17916	Yes – in response to this nonconformance	No issues identified
140947120	2020-14530	Yes	No issues identified
134198520	2020-13893	No – examiner created their own test fires	No issues identified
118797720	2020-12138	Yes	No issues identified
101326320	2020-10379	Yes	No issues identified
096813920	2020-09943	Yes	No issues identified
094144720	2020-09761	Yes	No issues identified
079234520	2020-08226	Yes	No issues identified
018701120	2020-01949	Yes	No issues identified
008076020	2020-00874	Yes	No issues identified
054949120	2020-05576	No – examiner created their own test fires	No issues identified
142415019	2019-18428	Yes	No issues identified
145296419	2019-17947	Yes	No issues identified
072736019	2019-10199	Yes	No issues identified
023564819	2019-05128	Yes	No issues identified
154184018	2018-19832*	No – examiner created their own test fires	No issues identified
113702918	2018-13418	Yes	No issues identified
108889818	2018-13411	Yes	No issues identified
096125318	2018-11267	Yes	No issues identified
038036918	2018-05090	Yes	No issues identified
030748818	2018-04117	Yes	No issues identified



157328217	2017-23330	Yes	No issues identified
150062417	2017-22304	Yes	No issues identified

Moderate risk table does not include cross-reference cases; *2018-19832 had 2 requests

Low Risk – NIBIN Technician test fires used for elimination based on class or inconclusive comparisons

ACN	FCN	New Test Fires Created?	Comments
115383420	2020-11824	No – examiner created their own test fires	Inconclusive/bullet
099449520	2020-10261	Yes	Elimination/bullet
071164220	2020-07322	Yes	Elimination/bullet
081731319	2019-11131	Yes	Elimination/cartridge
015519921	2021-19722	Firearm not available	Elimination/bullet
135799220	2020-13952	Firearm not available	Elimination/cartridge
115383420	2020-11824	Yes	Elimination/cartridge
143474919	2019-17826	Firearm not available	Elimination/bullet
131317319	2019-16581	Yes	Elimination/cartridge
083373620	2020-08628	No – examiner created their own test fires	Elimination/bullet
141617019	2019-18424	No – examiner created their own test fires	Elimination/bullet
121917119	2019-15760	No – examiner created their own test fires	Elimination/bullet
116845919	2019-15090	No – examiner created their own test fires	Elimination/bullet
107974119	2019-14087	No – examiner created their own test fires	Elimination/bullet
100015519	2019-13195	No – examiner created their own test fires	Elimination/bullet
026992719	2019-05312	No – examiner created their own test fires	Elimination/bullet
022883219	2019-04987	No – examiner created their own test fires	Elimination/bullet
061149118	2018-07367	No – examiner created their own test fires	Elimination/bullet
001599519	2019-00253	No – examiner created their own test fires	Elimination/bullet
002258018	2018-00568	No – examiner created their own test fires	Elimination/bullet
035351518	2018-04504	No – examiner created their own test fires	Elimination/bullet

Low risk table does not include cross-reference cases