Houston Forensic Science Center

INTEROFFICE MEMO

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From: Erika Ziemak, Assistant Quality Director Erika Ziemak Digitally signed by Erika Ziemak Date: 2019.08.15 07:28:18 -05'00'

Date: August 15, 2019

Re: 2019 Internal Audit Report

The 2019 HFSC internal audit included all ANAB accredited disciplines: Multimedia, Latent Prints, Toxicology, Seized Drugs, Firearms, Biology and the Crime Scene Unit. This internal audit was split into two different sessions to audit sections that had previously relocated to the 500 Jefferson building separately from the other sections still pending relocation.

The first internal audit session was conducted on June 17th through June 21st. The audited sections were Multimedia, Latent Prints and the Crime Scene Unit. The audit scope for these sections either focused on the timeframe since their last internal audit or, in the case of the Crime Scene Unit, the timeframe since the section was granted accreditation status.

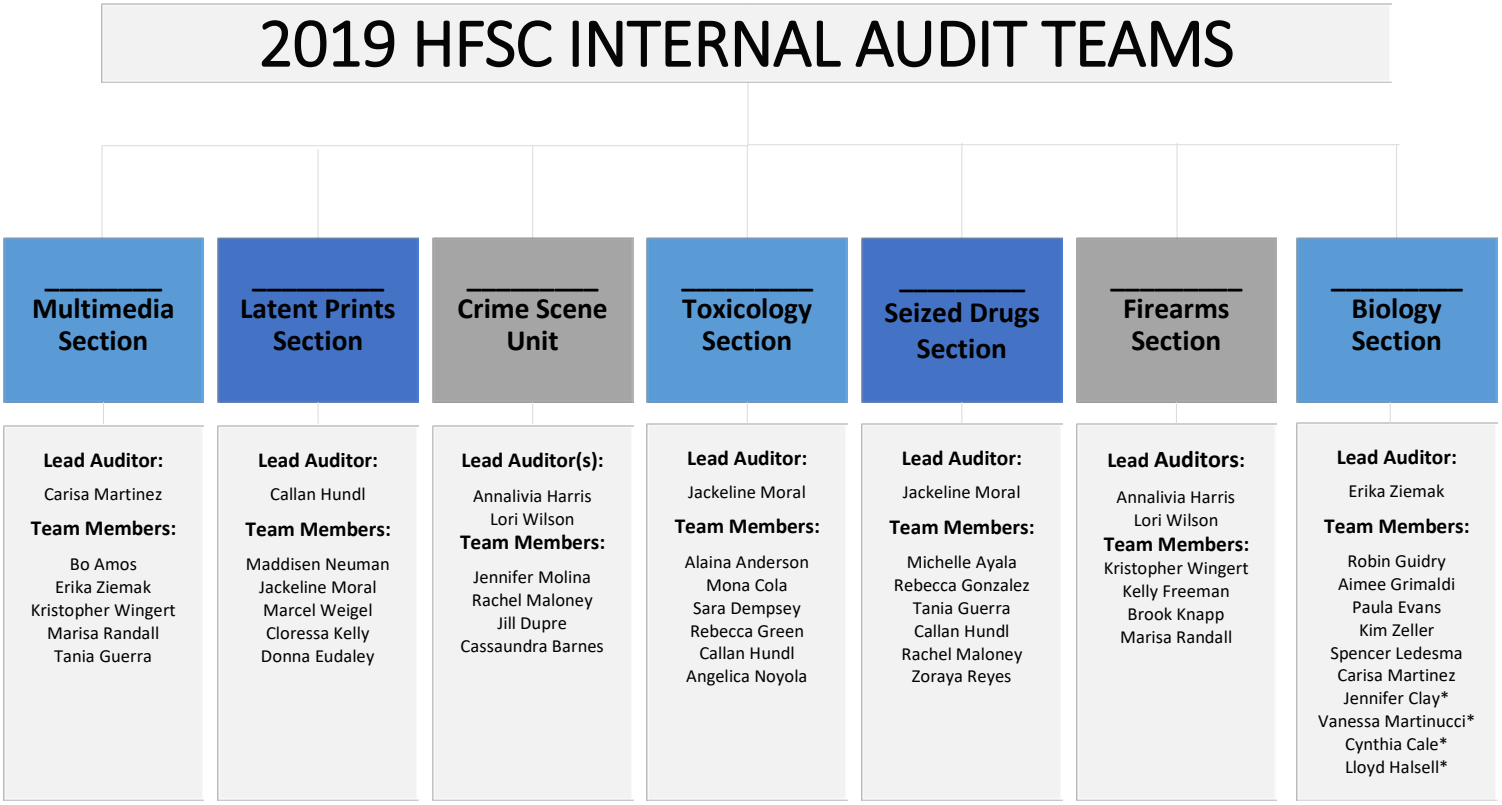
Multimedia	Latent Prints	Crime Scene Unit
February 2018 - May 2019	February 2018 - May 2019	August 2018 - May 2019

The second internal audit phase was conducted on July 15th through July 19th. The sections that were audited included Toxicology, Seized Drugs, Firearms and Forensic Biology. The audit scope for these sections focused on the timeframe since their last internal audit.

Toxicology	Seized Drugs	Firearms	Forensic Biology
April 2018 - May 2019	January 2018 - May 2019	January 2018 - May 2019	March 2018 - May 2019

The purpose of these audits was to verify compliance with the HFSC Quality Manual, sectional standard operating procedures, the ISO/IEC 17025:2017 standard, and the ANAB supplemental requirements. In addition, the Forensic Biology section was also verified for compliance with the Quality Assurance Standards for DNA Testing Laboratories, effective September 2011.

The 2019 internal audit team included a combination of Quality Division personnel and representative technical staff members from all disciplines. The representative technical staff members all participated in a 2-hour internal auditor training that was conducted by the Quality Division. This training was conducted to meet Quality Manual requirement 8.8.2 that states all internal audit participants are required to have either in-house or external audit training. In addition to this training, several of the audit team members have previously participated in Forensic Technical Assessor Training provided by ANAB.



In the above graphic, the * denotes a technical staff member who solely participated in case file reviews.

The following sections of this report contain nonconformances, observations, and opportunities for improvement organized by technical section. Opportunities for improvement are suggestions given by the audit team to improve the quality management system as it pertains to each technical section. Nonconformances will be tracked through Qualtrax and assigned a quality report number to document the corrective actions taken to address them. Qualtrax workflows are not needed for the listed observations and opportunities for improvement.

Multimedia Section

Nonconformances

No nonconformances were identified for Multimedia section during this audit.

Observations

The following observations were noted during this audit:

1. A CSI had access to the Multimedia section and vault. As soon as this was discovered, the section management was informed and a report of personnel with access to the Multimedia section and vault was requested. It was identified that when the CSI "access permissions" were created he was added to the Multimedia section and vault groups by mistake. The CSI access was removed immediately. This was addressed before the internal audit process was concluded.
2. On case 2017-08803, the technical reviewer uploaded comments referring to an item as "Item 18" instead if Item 9. There is no Item 18 in the case.
3. On case 2019-09231 the word "where" was used instead of were on the report.

Opportunities for Improvement

The following opportunities for improvement were noted during this audit:

1. On March 2019, the Digital Forensics Laboratory and the Forensic Multimedia Unit became the Multimedia section. Since they were two sections, the documentation process was different, and it would be helpful for the section to have consistency in the documentation process to streamline the location of all documentation.
2. The use of the newest version of a software/hardware is not required for casework; it would be beneficial to add language to the SOP explaining why this is allowed and when the newest version will be required.
3. It is recommended to define a time frame to conduct the performance check after analysts are informed of updates and approval releases of software/hardware to avoid the use of them before they are performance checked.

Latent Prints Section

Nonconformances

The following nonconformances were found for the Latent Prints section:

FINDING #1	
Requirement:	Equipment Maintenance and Performance Checks SOP clause 1.2.9.2: Balances are calibrated annually by an ISO/IEC 17025 accredited calibration laboratory. Weights are verified on these balances annually and a log is kept of the results.
Finding:	The secondary weights used to performance check the Latent Print Processing balances were not verified in 2018.

FINDING #2	
Requirement:	Quality Manual clause 7.5.1.5: It should be clear from the case record who performed all stages of analysis/examination and the date each stage was performed.
Finding:	The date each stage of analysis was performed was not recorded for latent print comparison cases. The current DUI in JusticeTrax only records the date the worksheet was completed and the date latent prints of value were searched in AFIS. It does not provide a field to document the date the examiner determined latents to be “No Value”, “not AFIS Quality” and “AFIS Quality”.

FINDING #3	
Requirement:	Quality Manual clause 7.8.1: The assigned technical staff member is responsible for the accuracy and completeness of the test report. These reports contain the conclusions and opinions that address the purpose for which analytical work is undertaken and should be formatted to minimize the possibility of misunderstanding or misuse. Quality Manual clause 7.8.1.2: Results are communicated accurately, clearly, unambiguously and objectively to stakeholders in the form of a report.
Finding:	The Latent Print Processing report for case 2017-20481 did not contain the results of the analysis.

Observations

The following observation was noted during this audit:

1. A former latent print examiner transitioned to a latent print processor position in April 2018. Through this transition, this individual was authorized to perform latent print processing techniques; however, his authorization memo did not document (list) that he is authorized to perform technical reviews for latent print processing. The processor has been technically reviewing processing casework after his authorization memo was issued and signed. Even though the processor’s authorization memo did not document that he was signed off to perform technical reviews, he has been competent to perform technical reviews and therefore there is no concern with technical reviews he has conducted. Before the end of the audit, the Manager drafted an authorization memo to document that this processor is authorized to perform technical reviews.

Opportunities for Improvement

The following opportunities for improvement were noted during this audit:

1. The comparison worksheet has two fields in the reagents section, “Daily QC Yes” and “Daily QC N/A”. It is not clear what information is being documented in these two fields.

2. At the end of latent print processing reports it states, “Digital images of the possible latents will be retained digitally”. This DVD is given its own item number, but the item is not listed on the report and its existence is not disclosed to the stakeholder.
3. The Latent Print Processing worksheet does not document the substrate of the item being processed, therefore, it is not clear which sequential processing technique they used. This information may be helpful to the reviewer and for future reference if the processor is called to testify about the case.
4. The canned report language leads to grammatical errors, unnecessary commas, subject/verb disagreement, etc.
5. In the Latent Print Comparison worksheet, when the case is not a PAA, the field “ACCS accurate to latent(s):” is filled out as “No”.

Crime Scene Unit

Nonconformances

The following nonconformances were found for the Crime Scene Unit:

FINDING #1	
Requirement:	Quality Manual issued 7/5/2018, clause 4.2.2.1: Top management will ensure that all staff members annually review the Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists or equivalent document. Equivalent documents may be published or approved by professional organizations such as the American Society of Crime Laboratory Directors, the American Board of Criminalistics, or the American Society for Quality. In addition to the review of these documents, HFSC may provide additional ethics training to all staff members. All staff members will follow the HFSC Code of Ethics.
Finding:	There was no documentation showing two CSIs completed ethics training in 2018.

FINDING #2	
Requirement:	HFSC Health and Safety Manual clause 14.1: Nothing is stored closer than 18 inches from the ceiling if the room or area is protected by a fire suppression system (sprinklers).
Finding:	In temporary basement storage room B145, the minimum distance to the ceiling was not maintained.

FINDING #3	
Requirement:	Quality Manual clause 6.2.5: Sectional training programs include documented competency requirements for each discipline and/or subdiscipline within that section. Quality Manual clause 6.2.6:

	HFSC authorizes technical staff to perform laboratory activities, including but not limited to: a. method development, modification, verification and validation. b. testing, processing, sampling, creating test items, giving opinions, interpretations, statements of conformity, and operating equipment and instruments used in casework. c. reporting, reviewing and authorizing results. Authorization memos are issued by section management and approved by the Quality Division. Authorization is considered granted on the date a Quality Division representative signs the memo. The trainee acknowledges understanding of their competencies and authorization to perform specified duties by signing or initialing the memo. Authorization memos are maintained in Qualtrax. Before technical staff can begin casework, they must be authorized by HFSC and receive notification of their licensure by TFSC, if licensure is required for that discipline.
Finding:	Prior to being authorized, an individual conducted casework related to FCN 2018-19163.

FINDING #4	
Requirement:	Quality Manual issued on 12/15/2017, clause 5.2.1.2: If applicable, technical staff members will undergo training in the presentation of evidence in court. This will include mock courtroom testimony. Non-analytical staff members and those who do not analyze evidence associated with active cases are not required to undergo mock trial training. The mock trial does not have to be conducted before the technical staff member begins casework. However, whenever possible, the mock trial will be conducted before the technical staff member testifies in court for the first time.
Finding:	A CSI was authorized to perform independent case work in November of 2018, but his competency test did not include mock court.

FINDING #5	
Requirement:	Quality Manual clause 7.7.1.i: The administrative review includes: • review of the test report for spelling and grammatical accuracy. • review of all administrative records to ensure that the assigned case number is on each page. • review of all examination records to ensure that the unique case identifier and technical staff member initials or signature are on each page.
Finding:	During the 2019 internal audit case file review process, errors were noted in reports that should have been found during the case record review process. At the time of the 2019 CSU internal audit there was an open nonconformance dating from the 2018 CSU internal audit related to the same issue (2018-IA-41). The 2019 nonconformance related to an ineffective review process will be tracked through 2018-IA-41.

FINDING #6	
Requirement:	Quality Manual clause 7.4.1: All evidence items are handled while in the care, collection, custody, and control of HFSC in a way that protects the integrity of the evidence and prevents loss, contamination, or deleterious change. Crime Scene Unit SOP issued on 10/22/2018, clause 4.1.1: Prior to collection, all physical evidence located at a crime scene shall be documented appropriately with notes and photographs, and sketches and video when required.
Finding:	During an evidence audit conducted as part of the 2019 internal audit of CSU, it was discovered that locker 106 was being used to secure an item recovered from a CSU vehicle. The item's origin had not been determined and was being investigated by CSU management. After the audit it was decided that the item would be analyzed by HFSC's Seized Drugs section to determine if it contained a controlled substance. A workflow was initiated by the Quality Division and the Quality Tracking Number (2019-040) was used as a unique identifier for the agency case number. The analysis revealed that the item contained possible Cannabis L. Sativa but could not distinguish it from Hemp. This nonconformance will be tracked using 2019-040.

Observations

The following observations were noted during this audit:

1. Several case packets reviewed during the audit contained reports with no report date. After discussing the issue with staff, the audit team realized the official dated reports are maintained in LIMS. However, the draft reports without dates are not identified as draft reports and it is not clear if CSIs print reports directly from LIMS if/when they are needed (*e.g.* for court purposes).
2. After interviews, it was not clear if CSI case packets are meant to stand alone or be considered in conjunction with case packets from other CSI related to the same case. If they are stand alone, then each packet must contain all the necessary documentation to allow the CSIs to testify in court. If they are not intended to stand alone, an all-inclusive report may be beneficial to consolidate all this information.
3. The "Offense" and "Offense Date" fields in CSU report headers were left blank in some reports (*i.e.* when requests were generated in JusticeTrax LIMS the information for these fields was not entered/related to the request). HFSC report header information was approved by the CEO and COO and is used companywide unless there are reasons to change them. If they need to be changed, a JusticeTrax Request workflow should be submitted. Report header fields should not be left blank.
4. First aid kits in vehicles should be re-stocked or replaced. CSU could work with the safety committee to ensure that vehicles contain first aid kits stocked appropriately.
5. Inventoried vehicles did not have phenolphthalein and black powder SDSs.
6. There are no shower/locker facilities available to clean-up after scene processing.
7. There is no land line phone in the basement CSU work area and cell service is limited.

8. Case files contain unsecured sticky notes and DVDs in unsecured DVD holders. There is a risk that unsecured items within case files could be lost.

Opportunities for Improvement

The following opportunities for improvement were noted during this audit:

1. Based on interviews, CSIs are given directives via word of mouth and/or email. CSIs are expected to follow these directives, but the directives are not added to or included in the SOP. (See quality manual clause 8.3.2 Document Approval, Issue and Review.)
2. Unique identifiers on measuring devices should be more visible.
3. Employee payroll numbers should not be used on reports.

Toxicology Section

Nonconformances

No nonconformances were identified for the Toxicology section during this internal audit.

Observations

The following observations were noted during this audit:

1. It is recommended that in instances when initials are not added to documentation at the time of their review, such as GC-MS tunes, the analyst add a comment depicting the date that the review was completed. This will prevent misinterpretations as to when this type of data was reviewed.
2. Pipettes 5581 and 5621 were performance checked after purchase and were brought into service on March 2018 prior to being externally calibrated. These pipettes were calibrated in April 2018 but were never used in casework since the drug confirmation analytical process was still being validated.

Opportunities for Improvement

The following opportunities for improvement were noted during this audit:

1. It is recommended to label the fume hood containing expired reagents as such to prevent the potential use of these reagents.
2. On the Forensic Toxicology SharePoint site, it was observed that there are editable Microsoft Word documents available for the Training Manual_v3.3_Eff TBD and the Analytical Manual_v3.3_Eff TBD. It is recommended to lock these documents, so they cannot be edited by people other than the Section Manager and Quality.
3. It is recommended to revise and include a field to document the batch and/or case number reviewed in the second page for the Alcohol Batch Review Checklist (LAB-70), Drug Analysis Case File Review Checklist (LAB-74), Immunoassay Batch Review Checklist (LAB-75), Drug GC-MS SIM

Batch Review Checklist (LAB-73), and Drug GC-MS Full Scan Batch Review Checklist (LAB-77). However, all the aforementioned forms within the 45 cases reviewed during the internal audit had the associated batch and/or case number handwritten by the analyst.

4. It is recommended to include the batch name on printouts for the method used to analyze alcohol cases. The batch name is not written on the printed method; however, from the date, analyst's initials and instrument, this batch information is retrievable.
5. It is recommended that the section implements a documentation system to record instances when the TECAN instruments are not used in casework. The monthly maintenance for the Tecan-1 instrument was not completed during the months of April and May 2018 because no casework was performed. Even though the intent of this maintenance is to be completed prior to casework, the documentation that the instrument was not used will prevent the misunderstanding that maintenance was not completed.

Seized Drugs Section

Nonconformances

The following nonconformances were found for the Seized Drugs section:

FINDING #1	
Requirement:	Seized Drugs SOP clause 12.3.2.3: Aliquots for frequently used reagents at an analyst's work area will be replaced each month from the stock reagent bottle after it has been quality checked. These containers will be labeled with the date of reagent preparation and the date of the most recent quality test. It is the analyst's responsibility to document replacement of his/her aliquots. Quality Manual clause 6.4.3.1: Reagents prepared in-house are labeled with the identity of the reagent, concentration (if applicable), date of preparation or lot number, and, as applicable, storage requirements.
Finding:	Two aliquot bottles of frequently used reagents were not labeled correctly. These aliquot bottles did not reflect the current "date of preparation" for the corresponding stock reagent. However, the date that all quality tests were carried out for both the previous and newer stock solutions were documented on the aliquot labels.

FINDING #2	
Requirement:	Quality Manual clause 6.4.7.1 d: In addition to the annual balance calibration, sectional personnel complete a balance performance check at least monthly.
Finding:	The identity of the section personnel completing the monthly performance check for balance MT#11 was not documented.

Observations

The following observations were noted during this audit:

1. With the upcoming incorporation of OSAC Registry standard E2329 into the Seized Drugs processes, the examination sheet should be updated to include macroscopic testing and the documentation of its results. If the section continues to use this analytical technique, this would align with the required identification scheme for unknown botanical material described in this standard.
2. Case 2018-05121 did not record the completion of the required negative reagent control in the examination sheet. This was the only instance observed from the 93 cases reviewed during this internal audit.
3. The report for case 2018-03737 had a grammatical error where it described an item of evidence as “pant substance” instead of “plant substance”. This was the only instance observed from the 93 cases reviewed during this internal audit.

Opportunities for Improvement

The following opportunity for improvement was noted during this audit:

1. It is recommended that the Seized Drugs section implements a consistent documentation system for instances when the aliquots of frequently used reagents stored at the analyst’s work benches are not used.

Firearms Section

Nonconformances

The following nonconformances were found for the Firearms section:

FINDING #1	
Requirement:	Firearms SOP clause 24.2.2: Record the chain of custody transactions in the LIMS asset manager.
Finding:	Two reference collection firearms were not located where indicated by Porter Lee LIMS asset manager. These firearms were located during the audit in possession of individuals, but the chain of custody had not been logged (H076 & L097).

FINDING #2	
Requirement:	Quality Manual clause 7.8.2.1. f: identification of the method used (required on report).
Finding:	Reports do not list the method used (i.e. examination of fired evidence by comparison microscopy; trigger pull weight determined using a trigger pull gauge).

FINDING #3

Requirement:	Quality Manual clause 8.4.2: Records will not be shredded before the scanned version has been compared to the original to ensure all pages were scanned and are legible. HFSC Record Retention Policy clause 2.3: This policy applies to all records used or generated in the course of HFSC's operation. This includes original records, reproductions, and reproductions with any alteration", and the HFSC Record Retention Schedule Record Series Number 3-014 Personnel Records [training] Date of separation + 75 years.
Finding:	A NIBIN technician scanned all his training records, uploaded them to Qualtrax, and then shredded the original training records prior to separation of employment at HFSC. There is no documentation that the scanned records were verified prior to the originals being shredded.

Observations

The following observation was noted during this audit:

1. IBHT hit confirmation reports contain a hard-coded message that states, "If you desire that the items of evidence in these cases be microscopically examined by a Firearms Examiner, please submit a request for testing via the Houston Forensic Science Center's Laboratory Information Management System (LIMS). If you do not have access to LIMS, please contact HFSC for access or for assistance in submitting a request at 1-844-473-6742 or via email at triage@houtonforensicescience.org." The phone number listed is no longer in use and the email link contains spelling errors. Approximately 145 reports were issued with this comment.

Opportunities for Improvement

The following opportunity for improvement was noted during this audit:

1. Review ALL reference collection library firearms before and after the move to Jefferson. Assure ALL serial numbers, models, and other necessary identifying information are correct in the log as well as on the blue tags (several firearms checked during the audit had incorrect serial numbers, model number listed as serial number, etc.).

Forensic Biology Section

Nonconformances

The following nonconformances were found for the Forensic Biology section:

FINDING #1	
Requirement:	ISO 17025:2017 clause 7.4.1: The laboratory shall have a procedure for the transportation, receipt, handling, protection, storage, retention, and disposal or return of test or calibration items,

	including all provisions necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer.
Finding:	2019-06698 items 6.1 and 6.2 were electronically located on shelf B-RT-06 however the items were not physically there. 2019-06679 items 1 and 5 were electronically located on shelf B-RT-5 but were not physically there. 2018-08048 item 50.7 was electronically located in a staff member's custody but was not physically there. 2012-04957 item 1.2.1 was electronically located on shelf B-RT-04 however the item was not physically there.

FINDING #2	
Requirement:	Quality Manual clause 7.8.1: The release of technical results prior to issuance of the report must be documented in the report. The report must include a description of the information that was released.
Finding:	In cases 2019-08646 and 2019-08600, information was released to the investigator due to extraordinary circumstances. The release was noted in the case record but not in the report.

FINDING #3	
Requirement:	Quality Manual issued 7/5/2018, clause 4.2.2.1: Top management will ensure that all staff members annually review the Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists or equivalent document. Equivalent documents may be published or approved by professional organizations such as the American Society of Crime Laboratory Directors, the American Board of Criminalistics, or the American Society for Quality. In addition to the review of these documents, HFSC may provide additional ethics training to all staff members. All staff members will follow the HFSC Code of Ethics.
Finding:	There was no documentation showing three staff members completed ethics training in 2018.

FINDING #4	
Requirement:	Biology SOP clause 3.2.6.3: The acceptable range for each balance is +/- 0.001 g. Biology SOP clause 3.2.10.6.5: If a result is outside of the acceptable range after performing the actions above, then the balance shall be immediately taken out of service with "out of service" signage until maintenance and/or calibration are performed.
Finding:	Performance check weight for May 2019 was 0.098g. The acceptable range is +/- 0.001g.

FINDING #5	
Requirement:	Quality Manual clause 6.2.5:

	Sectional training programs include documented competency requirements for each discipline and/or subdiscipline within that section. Quality Manual clause 6.2.6: HFSC authorizes technical staff to perform laboratory activities, including but not limited to: a. method development, modification, verification and validation. b. testing, processing, sampling, creating test items, giving opinions, interpretations, statements of conformity, and operating equipment and instruments used in casework. c. reporting, reviewing and authorizing results. Authorization memos are issued by section management and approved by the Quality Division. Authorization is considered granted on the date a Quality Division representative signs the memo. The trainee acknowledges understanding of their competencies and authorization to perform specified duties by signing or initialing the memo. Authorization memos are maintained in Qualtrax. Before technical staff can begin casework, they must be authorized by HFSC and receive notification of their licensure by TFSC, if licensure is required for that discipline.
Finding:	The authorization memos of two staff members did not include their ability to issue screening reports.

FINDING #6	
Requirement:	Quality Manual clause 6.2.3.1: Competency will include: • a practical examination that covers the spectrum of anticipated work to be performed.
Finding:	Two staff members did not have a DNA analysis/report writing competency test as part of their training program.

Observations

The following observations were noted during this audit:

1. The DNA Maintenance SOP (effective date January 4, 2019) clause 2.6.4.5.1 states in part “At a minimum, the performance check shall consist of a run using eight known sources of DNA (one for each pipette head) and a reagent blank control.” The Forensic Biology section’s practice is to run eight total samples using two different known sources of DNA.
2. The DNA Maintenance SOP (effective date January 4, 2019) does not include language as to the performance check expectations of the temperature verification kit after it is returned from its annual off-site calibration.
3. The worklist ID is listed on the Extraction Checklist in order to identify which worksheets are being included in a verification, but the worklist ID is no longer listed on the Prepfiler Worksheet. Therefore, there is no way to tie the two documents together without LIMS access.

4. Administrative changes (such as adding analyst initials to examination documentation) are required in ten of the sixty-eight case files reviewed as part of this audit.
5. The OUTT reports vary as to which items are listed on the report; some reports list all samples and others only list those which progressed to DNA analysis.
6. It is unclear if QIAcube weekly tasks are required when the equipment is not in use in a given week.
7. On days where there are multiple EZ1 runs, there is inconsistency between staff members as to how they document "before" and "after" run maintenance.
8. In August 2018, one casework run on the Post-Amp TECAN did not have "before" or "after" maintenance performed. One training run on TECAN A did not have an "after" run performed documented on the run log.

Opportunities for Improvement

The following opportunities for improvement were noted during this audit:

1. Training evaluations are completed by trainees. The training coordinator uses this feedback to continuously improve the training program; however, the feedback on the evaluations should be provided to the trainers in order to promote consistency in the training program.
2. It is recommended that the "Date Training Completed" line on the training checklists be omitted because it is not being completed consistently. Training is considered to be complete on the date when the authorization memo is signed by a Quality Division representative.
3. The quality report number and nonconformance information should be included on all affected worksheets.
4. On the case review checklists, it is the section's practice is to include the page range for exam documentation however, in instances where pages have been inserted (i.e. page 17A and 17B) the total number of pages is no longer being documented.