

**Looking Back to Move Forward:**

**The Houston Police Department Crime  
Laboratory's Implementation of the  
Independent Investigator's 2007  
Recommendations**

**Prepared for**

**The Houston Forensic Science Local Government  
Corporation**

**The  
Bromwich  
Group**

901 New York Avenue, NW  
Washington, D.C.  
[www.bromwichgroup.com](http://www.bromwichgroup.com)

**January 29, 2014**



## Table of Contents

Introduction and Background.....	1
Staffing of Review .....	2
Methodology.....	2
a. Interviews.....	2
b. Case File Reviews.....	3
c. Assessment and Conclusions .....	3
d. Cooperation .....	4
e. Circulation of Draft Report.....	4
Implementation Assessment of 2007 Recommendations.....	4
a. Management and Staffing of the Crime Lab.....	4
i. Funding and Staffing.....	4
ii. Quality Assurance.....	5
iii. Information Systems.....	7
iv. Relationships with Users .....	9
v. Strategic Vision.....	11
b. DNA/Biology Section .....	14
i. Technical Reviews.....	14
ii. Forensic Case Management.....	17
iii. Validation Studies .....	18
iv. Training .....	19
v. Refinement of the Biology Section’s SOPs.....	20

c. Trace Evidence.....	21
d. Controlled Substances.....	23
i. Technical Reviews.....	23
ii. Supervision .....	24
iii. Documentation.....	25
iv. Security .....	26
v. Retention of Evidence.....	27
vi. Retention Times for Standards.....	28
vii. Case Turnaround Times and Backlog.....	28
e. Firearms.....	30
i. Technical and Administrative Reviews.....	30
ii. Caseload and Backlog .....	30
iii. Serial Number Restoration .....	32
iv. Inefficient Use of Examiners.....	33
v. Professional Development.....	33
vi. Facilities Improvements .....	33
vii. Refinements to the Current SOPs .....	34
f. Toxicology.....	35
g. Questioned Documents.....	37
h. Evidence Handling and Storage.....	38
Conclusion .....	43

Appendix 1 - Recommendations from the Independent Investigation, 2007

Appendix 2 - HPD Crime Lab Tracking document for Implementation of Recommendations

## Introduction and Background

In June 2007, the Independent Investigator for the Houston Police Department Crime Laboratory and Property Room (“Independent Investigator”) issued his sixth and final report (“2007 Final Report”) (<http://www.hpdlabinvestigation.org/reports/070613report.pdf>). The final report concluded one of the most comprehensive reviews of a forensic lab ever undertaken. Following his comprehensive review of the various areas of forensic science in which HPD Crime Lab (“Crime Lab”) conducted analyses, issued reports, and provided testimony, the Independent Investigator provided a broad set of recommendations for improvements in the operation of the Crime Lab. Those recommendations—identical to those contained in the Final Report—addressed overall Crime Lab management issues and matters specific to particular sections of the Crime Lab. In August 2007, the full set of recommendations was published as a separate report (<http://www.hpdlabinvestigation.org/reports/recommendations.pdf>).

In early 2012, Houston Mayor Annise Parker<sup>1</sup> proposed removing the Crime Lab from the Houston Police Department (HPD) and placing it under the management of an independent entity.<sup>2</sup> In May 2012, Mayor Parker recommended that the Houston City Council appoint a nine-member board of directors for the Houston Forensic Science Local Government Corporation (“HFSLGC”), to be chaired by former Texas State Representative Scott Hochberg. In June 2012, the Houston City Council ratified the mayor’s recommendations. The role of the HFSLGC is to assume responsibility for the forensic analysis functions that had historically been handled by the HPD Crime Lab, as well as other functions related to forensic services that have been located in HPD’s Identification Division. These functions include latent prints, the crime scene unit, and several others.<sup>3</sup>

In March 2013, several months after it had commenced its operations and held various public hearings, the HFSLGC approved retaining The Bromwich Group to conduct a review of the HPD Crime Lab. Supported by a grant from the Laura and John Arnold Foundation, the HFSLGC formally retained The Bromwich Group in late August 2013. As set forth in the engagement letter, the scope of the review was to assess the HPD Crime Lab’s implementation of the Independent Investigator’s 2007 recommendations relating to forensic analysis; it did not extend to a review of the HPD Property Room, which had been included in the scope of the Independent Investigator’s investigation.

---

<sup>1</sup> While serving as Houston’s Comptroller from 2005 to 2007, Mayor Parker had served as a member of the Stakeholders Committee that selected and oversaw the work of the Independent Investigator.

<sup>2</sup> This proposal was consistent with the recommendation contained in the groundbreaking 2009 report of the National Research Council of the National Academies, *Strengthening Forensic Science in the United States: A Path Forward*, pp. 183-184.

<sup>3</sup> The other functions include the Automated Fingerprint Identification System (“AFIS”), the Digital Forensics Unit, the Disposition Unit, Forensic Audio-Video, and the Polygraph Unit.

## **I. Staffing of Review**

The review team was led by Michael R. Bromwich, who had served as the Independent Investigator from 2005 to 2007. It also included two prominent and distinguished forensic scientists – Douglas M. Lucas, D. Sc., and Barry A.J. Fisher, M.S., M.B.A. Mr. Lucas had been one of the senior forensic scientists involved in the original HPD Crime Lab investigation from 2005-2007 and headed the Centre of Forensic Sciences, a highly-regarded crime lab in Ontario, Canada, for close to 30 years. Mr. Fisher was the director of the Los Angeles County Sheriff's Office Crime Lab for more than 20 years, and a well-respected member of the forensic science community. The team also included John C. Raffetto, an attorney with Goodwin Procter LLP.

## **II. Methodology**

The team began its work almost immediately upon its engagement. From late August through late October, the team conducted in-person interviews of key Crime Lab managers as well as telephonic interviews of HPD and Crime Lab personnel; reviewed various documents provided by the Crime Lab, including a tracking log created to document its implementation of the recommendations; and reviewed a limited number of case files for each of the years 2006-2013 in all of the forensic science disciplines actively practiced in the HPD Crime Lab in 2013. In addition, once our on-site work was completed, we conducted telephonic follow-up interviews with various Crime Lab supervisors in late November and early December to clarify certain issues.

### **a. Interviews**

Our initial background interviews in late August were conducted with Irma Rios, the Director of the Crime Lab since October 20, 2003; Executive Assistant Chief Timothy Oettmeier, who has been involved in Crime Lab-related issues for over a decade and who for many years played a significant role in articulating the rationale for migrating the Crime Lab's functions from HPD to an independent entity; and Daniel Garner, the newly-named President and Chief Executive Officer of the HFSLGC.<sup>4</sup>

During our initial trip to Houston in late September, we conducted in-person interviews with managers of the Crime Lab who had played significant roles in overseeing the implementation of the recommendations contained in the Final Report. These interviews included Ms. Rios; William Arnold, the de facto Deputy Director of the Crime Lab; Robin Guidry, Manager of the DNA Section; Michael Manes, Criminalist Lab Manager, Toxicology; James Miller, Criminalist Lab Manager, Controlled Substances; Darrell Stein, Criminalist Lab Manager, Firearms; and Lori Wilson Criminalist Lab Manager, Quality Assurance. Of these Crime Lab managers, with the

---

<sup>4</sup> Dr. Garner's selection was announced in August 2013 after an extensive nationwide search. <http://www.houstontx.gov/mayor/press/20130814.html>

exception of Ms. Rios, all had become senior managers after the Final Report was issued in 2007. In addition, Mr. Arnold, Ms. Guidry, Mr. Manes, and Ms. Wilson had joined the Crime Lab since 2007, while Mr. Miller and Mr. Stein had previously been in the Crime Lab but had become senior managers subsequent to the 2007 Final Report. In addition to the principal interviews, we had various follow-up discussions and conversations with these members of the Crime Lab as questions arose during the course of our review.

b. Case File Reviews

In late October, Messrs. Lucas, Fisher and Raffetto returned to Houston to conduct a review of case files for the years 2006-2013 for each of the areas of forensic science in which the Crime Lab currently conducts forensic analysis – biology (DNA), controlled substances, firearms, and toxicology.<sup>5</sup> We requested that six case files for each of these sections be provided for each of the years during this period. For the case file review, we received the materials we requested in a timely and efficient way. In addition, Crime Lab personnel responded promptly to questions we had during our case file review.

c. Assessment and Conclusions

Our assessment and conclusions of the Crime Lab's implementation of the 2007 recommendations, which constitutes the bulk of this report, are based on a synthesis of the different aspects of our review – interviews, document review, and case file reviews. Because the Crime Lab had developed a system for tracking the implementation of the 2007 recommendations, faithfully based on those recommendations, our ability to track the trajectory and completeness of implementation was made substantially easier than if we had to reconstruct and assess it from scratch. However, the responsibility for maintaining and updating the tracking system passed through various hands in the Crime Lab over the past six years. This meant that some of the entries were incomplete and others were contradictory. As a result, the interviews of Crime Lab managers and our review of documents and case files were vital to understanding the path of implementation for various recommendations.

---

<sup>5</sup> At the time of the Independent Investigation, the Crime Lab had a small Trace Evidence section that conducted examinations involving human and animal hair, fibers and fabrics, synthetics, paints, soils, glass and building materials, and a Questioned Documents Section with a single examiner. The Trace Evidence section and the Questioned Documents Sections were both eliminated in 2010. Currently, all evidence in HPD cases that require trace evidence and questioned documents analysis are sent to Department of Public Safety (DPS) Labs or various private forensic laboratories. We address the status of Trace Evidence and Questioned Documents issues later in this report.

d. Cooperation

From the beginning of our review and throughout the course of our work, we enjoyed complete cooperation from everyone we encountered – including Dr. Garner and Ms. Rios, the Crime Lab’s senior managers, and everyone else in the Crime Lab we had occasion to deal with. We were advised that there was considerable concern and apprehension surrounding our review, and it would not have been surprising if we had encountered some resistance and lack of responsiveness. However, that did not occur. Indeed, Dr. Garner, Ms. Rios and the senior managers in the Crime Lab were models of professionalism and responsiveness throughout the course of our work.

e. Circulation of Draft Report

We provided a draft of our report to Mr. Hochberg on December 24, 2013, for transmission to Ms. Rios and her staff for comment. We solicited comments on any factual errors contained in the draft. We received a set of comments and suggested corrections from Ms. Rios on January 23, 2014, along with some additional materials supporting some of the suggested corrections. We reviewed the suggested changes carefully and made some of the changes that were requested but not others.

**III. Implementation Assessment of 2007 Recommendations**

This section of the review reports in detail on the Crime Lab’s implementation of the recommendations contained in the 2007 Final Report. It is organized according to the structure and sequence of the original recommendations, Final Report, pp. 249-330, which is also consistent with the way the Crime Lab tracked implementation of the recommendations. For ease of reference, we set forth in full the substance of each 2007 recommendation, although not its supporting rationale, and then our assessment of its implementation.<sup>6</sup>

a. Management and Staffing of the Crime Lab

This set of recommendations addressed the need for the Crime Lab to have adequate funding, staffing, and management systems to fulfill its mission.

i. Funding and Staffing

**Recommendation #1:** *Hire (or promote internally) at least one additional experienced controlled substances analyst who can assist with the supervision of the Controlled Substances Section, and hire at least one additional controlled substances line analyst.*

---

<sup>6</sup> The supporting rationale appears in full in the Final Report. <http://www.hpdlabinvestigation.org/reports/070613report.pdf>. It also appears in the separate Summary of Recommendations. <http://www.hpdlabinvestigation.org/reports/recommendations.pdf>.



The Crime Lab has fully implemented this recommendation. According to Mr. Miller, the Controlled Substances section manager, the section currently has 19 staff positions, 17 of which are filled. This includes five employees added within the past year, including one who has forensic analytic experience. Mr. Miller described for us the difficulties of hiring experienced controlled substances analysts in current competitive market conditions, which makes the task of supplementing the section's personnel with experienced analysts, as recommended, more formidable.

**Recommendation #2:** *Hire (or train) two qualified and experienced firearms examiners.*

The Crime Lab has fully implemented this recommendation. As of 2007, the Firearms section had only six positions. However, as of October 2013, the section has ten filled positions – five fully trained examiners, two examiners who have undergone one year of training, two additional examiners who are about to begin training, and an evidence technician. The increase in Firearms Section personnel has been gradual, and the Section became fully staffed for the first time in early 2010.

**Recommendation #3:** *Hire at least two additional inventory management clerks to work in Central Evidence Receiving ("CER"), which receives, processes, and stores drug evidence for the Crime Lab. HPD and the Crime Lab also should consider whether salary adjustments for CER staff would be appropriate in light of the difficulty staffing these positions due to the nature of the work – handling significant volumes of drug evidence – and the associated environmental issues.*

The Crime Lab is no longer responsible for Central Evidence Receiving ("CER") – it was transferred to the HPD Property Room in August 2013. However, we were advised that prior to CER's transfer, these recommendations had been met. Persistent difficulties in filling staff positions were overcome, in part, through increasing salaries for CER personnel. According to Crime Lab officials, the most significant historical problems in CER, including problematic evidence intake procedures and a large backlog of evidence that was not inventoried, were substantially addressed prior to CER's transfer. One of the chief reasons for the improvements in CER was the Crime Lab's adoption of a Laboratory Management Information System ("LIMS") and the Property Room's Evidence Management System ("EMS"), which together substantially eased the burdens on CER and improved its efficiency in processing evidence.

ii. Quality Assurance

**Recommendation #4:** *Develop a defined methodology for the selection of cases from each of the sections of the Crime Lab to be periodically reviewed by the QA/QC staff. The methodology should be designed to include samples of the work performed by every analyst and examiner in the Crime Lab. The QA/QC Manager, in consultation with section leaders, should develop a checklist of issues to be covered in each case review and complete the checklist for each case*

*reviewed. The QA/QC staff should prepare a report for section leaders and the Crime Lab Director summarizing the results of each review, identifying specific technical and administrative issues that should be addressed, and identifying any trends or lab-wide issues that are apparent as a result of the reviews.*

The Crime Lab has implemented this recommendation. The QA/QC issue checklist was developed in 2008 and continues to be used by QA/QC staff in its work.

**Recommendation #5:** *In addition to reviews of paper files, the random case inspection process should include the periodic selection of a small number of cases from each section to be re-analyzed or re-examined by a forensic scientist other than the original staff member who worked on the case.*

This recommendation has not been substantially implemented. Early in 2013, one section of the Lab—Controlled Substances—began conducting random re-analyses of cases. Although reexamination of case files and items of evidence happens from time to time—for example, when an analyst is unavailable to testify and another analyst must be substituted—the other sections of the Lab do not currently have systems for conducting random re-examinations. The reasons appear to be lack of adequate staffing and time. We recommend that the Crime Lab redouble its efforts to conduct such random QA/QC re-examinations.

**Recommendation #6:** *The QA/QC manager should prepare a monthly written report for the Crime Lab Director that summarizes all QA/QC activity for the previous month, identifies any quality assurance-related incidents, discusses any observed declining or improving trends in performance, and contains recommendations regarding areas for improvement or issues that the lab should address.*

This recommendation has been implemented. The QA/QC manager and staff prepare monthly reports for the Crime Lab Director, which include QA incidents, a description of performance trends, updates on responses to prior recommendations, reports on audits and inspections, among other elements.

**Recommendation #7:** *In addition to the incident log and files currently maintained by the QA/QC Manager, the QA/QC Section should develop a spreadsheet database that tracks each quality-related incident that occurs in the Crime Lab (including the date of the incident, its nature, and involved personnel) the staff members assigned to address the incident; the redemption efforts, if any, that were taken; and the date on which the incident is deemed resolved. The QA/QC manager should include the current incident tracking spreadsheet with the monthly reports provided to the Lab Director.*

This recommendation has been implemented, although the implementation could be improved. The Crime Lab tracks quality-related incidents through corrective and preventative actions reports, which are more time-consuming than using the LIMS system. Apparently, the Lab is currently unable to perform these functions through

LIMS. We suggest that additional efforts be made to track quality-related incidents through LIMS.

### iii. Information Systems

The Independent Investigator's Final Report noted that both HPD and the Crime Lab had long understood the urgent need to substantially upgrade information systems related to case management and evidence tracking.

The evidence tracking, case management, and laboratory reporting systems currently in use by the Crime Lab are archaic and very poorly suited to the information systems needs of a forensic laboratory. These are all problems of which HPD is aware, and plans are currently underway to provide the Crime Lab with a modern laboratory information management system ("LIMS"), which will be integrated with a Department-wide records management system ("RMS") that is in the relatively early stages of development.

Final Report at p. 18. After some delays in the contracting process, LIMS was initially installed in the Crime Lab in December 2009. All sections in the Crime Lab now use it. The Controlled Substances section was the last section to adopt LIMS, and it did so in April 2010. During the course of our review, we found that LIMS has had an enormous positive impact on the daily operations of the Crime Lab and is viewed by Crime Lab personnel as the key to many of the Lab's improvements, including improvements in efficiency. Our review of LIMS, and the way it is used and relied on by Crime Lab personnel, confirms this view.

**Recommendation #8:** *The LIMS should apply to all sections and be integrated into the Department-wide RMS to provide a unified system for tracking the location and status of evidence on which forensic analysis may be performed. This integration must not compromise the effectiveness of the system for the Crime Lab.*

This recommendation has been implemented. LIMS is used in all sections of the Crime Lab and is integrated into HPD's Record Management System (RMS). It is able to communicate with many of the older information systems in use throughout HPD, including its Mideo video database, the Evidence Management System (EMS), and OLO, the legacy case tracking system used by HPD.

**Recommendation #9:** *The LIMS should manage and track evidence items, as well as monitor work flow in each of the sections and Lab-wide.*

This recommendation has been implemented. LIMS has been fully integrated with the Evidence Management System (EMS) and has led to streamlining the handling of evidence. Crime Lab personnel assert that the integration among LIMS, EMS, and

the OLO systems has provided a stable platform to monitor case status and to generate useful data about work performed in the Crime Lab. We saw nothing to cast doubt on that assertion. In addition, LIMS allows authorized personnel from HPD and the Harris County District Attorney's Office to obtain case-status information directly, thus limiting the burdens imposed on Crime Lab personnel to respond to such requests, and allows them to make such requests directly to the Lab through Web Pre-log, the outward-facing component of LIMS.

**Recommendation #10:** *The LIMS should provide the Crime Lab with the ability to track cases based on the type of analysis performed on the evidence, as opposed to the current system that is based on UCR codes assigned by investigators based on the underlying offense. The LIMS should support the QA/QC program in efficiently selecting cases for random inspection.*

The Lab has implemented the first part of the recommendation, relating to the LIMS system tracking evidence on an individual evidence request rather than offense basis. The QA/QC staff does perform a random selection of cases for QA/QC review, and uses LIMS for this purpose but, as noted in Recommendation #5 above, does not perform such re-examinations.

**Recommendation #11:** *The LIMS, in combination with the Crime Lab's other information systems, should provide Lab managers with reports and information necessary to evaluate the Lab's performance, including case turn-around times by section, the number and types of tests conducted by Lab analysts, court appearances, subpoenas and court orders received by the Crime Lab, time spent by Crime Lab staff on activities other than casework, and analysts' training and performance.*

The capabilities of LIMS largely satisfy this recommendation. LIMS allows managers to evaluate performance, turnaround time, and the numbers and types of analysis being conducted. Tracking court appearances is more difficult and requires some manipulation of the data. Needless to say, the utility of LIMS and the reliability of its data, are functions of the quality and completeness of the data that is provided to it.

**Recommendation #12:** *Reports issued by the DNA Section should include a statement that an allelic table has been prepared and is incorporated as part of the Crime Lab report. This allelic table should be provided to all users of the Crime Lab report, including investigators, prosecutors, representatives of a suspect or defendant, and the court.*

The Crime Lab has not only implemented this recommendation; it has exceeded it. Allelic charts are now inserted directly in the Biology Section's reports rather than being maintained separately and incorporated by reference. There are costs to preparing reports this way because manually typing in the alleles is time-consuming, but this method provides the information in a manner that is superior to providing it in a separate document. In addition, future modifications to LIMS will permit the

automatic inclusion of allelic tables and thus replace the current process that requires cumbersome manual entry.

**Recommendation #13:** *Crime Lab staff should stay in regular contact with investigators via telephone and email communications to apprise them of the status of cases submitted for analysis. Notice via telephone or email should be provided to investigators when a report has been entered into OLO.*

This recommendation has been implemented. Lab personnel remain in contact with investigators by telephone and email when necessary. In addition, LIMS automatically generates emails to investigators when the Crime Lab issues a final report. In general, LIMS and other elements used by the Crime Lab, including the external portal of LIMS called Web Pre-log, provide points of contact between Lab personnel and stakeholders, including investigators and prosecutors, that may reduce the need for telephonic and email communication. We saw substantial evidence that these are being used on a regular basis.

**Recommendation #14:** *The Crime lab should have analysts prepare printed draft reports on their desktop computers prior to entering the report into OLO. These draft reports should be administratively and technically reviewed, and any resultant changes to a report should be made before the report is entered into OLO.*

The goal of this recommendation has been achieved through alternative means. The risks that underlay this recommendation—that investigators would rely on Crime Lab reports before those reports had been administratively and technically reviewed—have been eliminated because reports are no longer available to investigators or others prior to the completion of these reviews. Once the technical and administrative reviews have been completed, the lab report is emailed to investigators. In addition, investigators can sign on to Web Pre-log to download lab reports.

#### iv. Relationships with Users

**Recommendation #15:** *Provide training to new police recruits at the HPD training academy about the Crime Lab, forensic science, and understanding the Lab's reports.*

This recommendation has been implemented at a very basic level, but more training can and should be provided. The Lab documented that its personnel provided instruction in 2008 and 2009 to new recruits on various matters relating to the work of the Crime Lab, but the level of training for new recruits diminished thereafter. Lab personnel admitted that training had become less frequent over the past several years. Lab management should increase its efforts to provide such training.

**Recommendation #16:** *Provide similar training periodically to officers and investigators through HPD's in-service training program.*

This recommendation has been implemented at a very basic level, but like the training of new recruits, the provision of in-service training to officers and investigators about the work of the Crime Lab has lagged. The surge of such training apparently did not extend beyond approximately 2009; Crime Lab personnel admitted that such training has not been provided on a regular basis over the past few years. Such training is necessary for police officers to be aware of the services the Crime Lab can offer, and the assistance that Lab analysis can provide in convicting the guilty and exonerating the innocent.<sup>7</sup>

**Recommendation #17:** *Hold meetings with executive command staff and senior officers in the investigative and patrol commands to promote the services offered by the Crime Lab and to obtain feedback regarding the Lab's performance.*

This recommendation has been implemented. Members of Crime Lab management meet with members of the HPD command staff on a regular basis, including monthly meetings in which Director Rios participates. According to Crime Lab managers, Director Rios provides feedback from these meetings to her senior managers at her monthly managers' meetings.

**Recommendation #18:** *Although it is generally not necessary for Crime lab personnel to be regularly involved in processing crime scenes, analysts should, as part of their continuing training, periodically observe crime scenes so that they understand the methods used by HPD investigators to collect evidence that may be submitted for forensic analysis.*

This recommendation has not been consistently implemented – the Lab allows staff to participate in ride-alongs, but staff members are not required to participate. At various times over the past six years, members of the Firearms and Toxicology sections have gone to crime scenes to observe them. More recently, in 2012, members of the Biology Section were encouraged to observe crime scenes and to participate in ride-alongs. The purpose of having Crime Lab staff attend crime scenes is less to provide guidance than to deepen their understanding of the methods of criminal investigators. We recommend that the Crime Lab make greater efforts to encourage staff to attend crime scenes from time to time to enrich their understanding of the evidence collection process.

**Recommendation #19:** *Trace evidence examiners should regularly consult with investigators about potential trace evidence to be recovered from crime scenes.*

The Crime Lab's documentation suggests that trace evidence examiners followed this recommendation until the Trace Section was dissolved in December 2010. The Crime Lab therefore no longer conducts trace evidence analysis on items such as human

---

<sup>7</sup> We discuss later in this report the elimination of the Trace Evidence and Questioned Documents units. The best way to ensure that historically underutilized capabilities, such as Trace and Questioned Documents, are properly utilized is to provide instruction to officers on the services that personnel in such units can provide.

and animal hair, fibers and fabrics, synthetics, paints, soils, glass and building materials, although trace evidence is sometimes collected for preservation and potential future use. However, our review suggested that on those occasions when trace evidence is collected and the collection is noted in the report, there is no description of the evidence, nor is there information on the specific location where the evidence was obtained. It is therefore difficult or impossible for the investigator to assess whether there might be value in requesting further examination. If a police investigator or prosecutor requests trace analysis, it is outsourced to another lab.

**Recommendation #20:** *Crime Lab analysts should be involved in training programs for prosecutors regarding forensic science and understanding the results generated by the Lab, particularly, but not exclusively, in the area of DNA analysis. HPD and the Crime Lab should consider offering to provide similar training to members of the criminal defense bar.*

This recommendation has been implemented at a basic level, but we would urge that more time and attention be given to developing and providing such training to both prosecutors and defense lawyers. The Crime Lab provided us with specific instances in which, for example, Director Rios attended a Bar Association function to speak about the Crime Lab, but there appear to have been more instances in which outsiders – including prosecutors and judges – trained Crime Lab personnel rather than the reverse. We think that the Crime Lab and its managers have much to teach prosecutors, defense lawyers, and judges about the work that the Lab does. We would encourage a greater commitment to implementing this recommendation through stepped-up engagement with other participants in the criminal justice system.

#### v. Strategic Vision

The 2007 Final Report urged that the Crime Lab undertake a process to develop a broad strategic plan for the Crime Lab, “which is updated annually [and] that includes goals and objectives, as well as action plans to achieve them. Crime Lab personnel should be assigned specific responsibilities for advancing the articulated goals and objectives.” Final Report, p. 254. In our review, we found that despite the enormous amount of work that it has done and the major improvements it has made, the Crime Lab has not engaged in strategic planning in the manner envisioned in this set of recommendations. The proxy that the Crime Lab has used for a strategic plan is its annual budget formulation and development process. Although the strategic planning process cannot be divorced from budget realities, the two are not the same. Our overall observation on these recommendations is that the Crime Lab should make the effort to develop a comprehensive strategic plan. The recommendations below relate to the contents of the Crime Lab’s strategic plan. Because no such plan exists, we address whether the specific elements have been addressed outside the context of a strategic plan.

**Recommendation #21:** *The Crime Lab should include in its strategic plan recruiting analysts and examiners.*

Although the Crime Lab does not have a strategic plan, its management considers various strategic planning issues – including recruitment and retention of personnel – during the annual budgeting process. Crime Lab managers claim to have made substantial efforts to recruit analysts and examiners. That claim is supported by the fact that the DNA/Biology, controlled substances and firearms sections have added significant numbers of analysts and examiners to their staffs since 2007.

**Recommendation #22:** *The Crime Lab should include in its strategic plan increasing its profile in national and regional forensic science and professional organizations.*

As noted, the Crime Lab does not have a strategic plan, even though its management considers various strategic planning issues during the annual budgeting process. More specifically as to this recommendation, Crime Lab personnel identified positions that it holds on a small number of national and statewide organizations, including the American Society of Crime Lab Directors (“ASCLD”), the National Integrated Ballistic Information Network (“NIBIN”), and the Texas Breath Test Accreditation Committee. Holding such positions is important, but it does not fully meet the recommendation, which envisioned broader efforts than those undertaken by the Crime Lab so far. We encourage the Crime Lab to make additional efforts to meet this recommendation.

**Recommendation #23:** *The Crime Lab should include in its strategic plan promoting and expanding the existing services it provides.*

As noted, the Crime Lab does not have a strategic plan. Although the Crime Labs has expanded the toxicology services it provides through its 2012 acquisition of the Sam Houston State University Regional Crime Lab, it has not generally expanded the services it provides. Indeed, since the 2007 Final Report, it has eliminated its Trace Unit and its Questioned Documents unit. In addition, it has eliminated certain services provided by other sections, e.g., toolmarks and muzzle distance to target determinations in the Firearms Section. We view these as important components of a full service forensic laboratory. The 2007 Final Report noted with concern the underutilization of the Crime Lab’s sole but extremely competent Questioned Documents examiner: “We continue to be concerned by the relatively small workload of the Questioned Documents Section in a city as large as Houston, and we believe that there is tremendous potential for the Section if utilization can be increased.” Final Report, p. 310. We understand that budgetary pressures and continued underutilization are likely the principal reasons for elimination of the Crime Lab’s in-house Trace and Questioned Documents capabilities, but we think these are unfortunate developments. We hope that as the Crime Lab goes through its current



transition, the HFSLGC seriously explores rebuilding Trace Evidence and Questioned Documents capabilities.

**Recommendation #24:** *The Crime Lab should include in its strategic plan evaluating new technology, equipment, and forensic science analytical techniques.*

Although the Crime Lab does not have a strategic plan, we saw substantial evidence that its managers actively evaluate new technology, equipment, and analytical techniques. In fact, our initial visit to the Crime Lab in September overlapped with a scheduled demonstration of so-called “Rapid DNA” technology that promises swifter analytic results than the equipment currently in use. In general, our observations confirmed that the Crime Lab contains modern and sophisticated tools and technology, and that managers actively evaluate the acquisition of new equipment and the use of advanced technologies.

**Recommendation #25:** *The Crime Lab should include in its strategic plan making improvements in the areas of security, health and safety, biohazards, and contamination.*

Although the Crime Lab does not have a strategic plan, we saw evidence that it has focused on many of these issues. For example, the physical separation of the Controlled Substances and Toxicology Sections in August 2012 has substantially reduced the risk of contamination of toxicology samples from microscopic particles of controlled substances, e.g., cocaine. The Crime Lab does not have sufficient space for all of its personnel and for the sensitive work it does, but its managers have made good use of the available space, and have paid careful attention to many of the issues highlighted in this recommendation, especially health and safety, and contamination.

**Recommendation #26:** *The Crime Lab should include in its strategic plan identifying improvements the Crime Lab can make to manage caseload, process evidence, and transfer evidence (particularly drug evidence) not needed for analysis out of the Crime lab.*

Although the Crime Lab does not have a strategic plan, it has made enormous substantive improvements on these issues. The LIMS system has enabled the Crime Lab’s managers to manage and track the caseload of its examiners, and generate real-time data on the status of evidence testing and analysis. The aspects of this recommendation that involve processing and transferring evidence relate to Central Evidence Receiving, which is now part of the Property Room and no longer part of the Crime Lab. Before it was transferred to the Property Room, the Crime Lab made substantial efforts to improve CER’s effectiveness and efficiency.

**Recommendation #27:** *The Crime Lab should include in its strategic plan integrating the Firearms and Questioned documents Sections into the Crime Lab.*

Although the Crime Lab does not have a strategic plan, it has fully integrated the Firearms Section. It has done so through a combination of focused management and the integration inherent in moving the Firearms Section's full adoption of LIMS. As noted above, the Questioned Documents Section no longer exists in the Crime Lab; it was closed in December 2010.

b. DNA/Biology Section

The 2007 Final Report documented at great length the enormous problems in the Crime Lab's former DNA Section. The cases reviewed during that investigation showed an error rate and set of practices that are unacceptable in any forensic laboratory.

The Crime Lab's historical DNA casework reflects a wide range of serious problems ranging from poor documentation to serious analytical and interpretive errors that resulted in highly questionable results being reported by the Lab. The profound weaknesses and flawed practices that were prevalent in the Crime Lab's DNA work include the absence of a quality assurance program, inadequately trained analysts, poor analytical technique, incorrect interpretations of data, the characterizing of results as "inconclusive" when that was not the case, and the lack of meaningful and competent technical reviews.

Final Report, pp. 4-5. Based on our review, the Biology Section (which includes all the DNA Section's former functions) has been completely transformed and is now under strong and competent leadership. Our interviews of Robin Guidry, Section Manager, showed her to be an experienced, top-flight forensic scientist who has remade the Biology Section and improved it immeasurably.

i. Technical Reviews

The Final Report contained a set of recommendations for HPD and the Crime Lab designed to upgrade the quality of work being conducted in the DNA/Biology Section. The initial set of recommendations was addressed to the need to hire an external consultant to help the Section with its approach to certain analytical and process issues, including case analysis, body fluid identification, result interpretation, and report writing. Final Report, p. 279.

**Recommendation #28:** *The outside consultant should have a minimum of 10 years' experience as the technical leader of an accredited forensic DNA laboratory and in the performance of technical reviews of forensic DNA casework.*

This recommendation was implemented. After the Final Report was published, in December 2007, HPD made solicitations to three well-known private companies

operating in the field – Reliagene, Orchid, and Identigene – but none of the potential vendors met the specified qualifications. Subsequently, the Lab prepared an RFP and solicited additional bids. In December 2008, Dr. Robin Cotton and Dr. Charlotte Word were hired as outside consultants. Both Drs. Cotton and Word met the requirements of 10 years' experience as the technical leader of an accredited DNA lab and 10 years of performing technical review of DNA casework. Dr. Word continued to provide consulting services through 2010.

**Recommendation #29:** *The outside consultant, who should be retained by HPD for a period of at least two years, should report directly to the Biology Section's Criminalist Manager.*

This recommendation was implemented. As described above, the Crime Lab hired Dr. Cotton and Dr. Word as outside consultants and, during 2007 and 2008, they reported directly to the Lab's Technical Manager, who was originally Dr. Vanessa Nelson and subsequently Dr. Laura Gahn. Our review of the work performed by Dr. Word suggests that she provided consulting services to the Crime Lab from February 2008 through May 2010.

**Recommendation #30:** *The outside consultant should perform the technical reviews of all of the cases reported by the Crime Lab that involve forensic DNA analysis.*

This recommendation was implemented, according to the Crime Lab, despite obstacles presented by the rules governing CODIS (the Combined DNA Index System). The FBI manages CODIS and is responsible for establishing the ground rules for its use by state and local crime labs, including the FBI's Quality Assurance Standards for DNA Testing Laboratories. At the time the Crime Lab began implementing this recommendation, its managers learned that CODIS specifically forbade the use of contract personnel, including outside consultants, to perform technical reviews. According to the Crime Lab, it was unable to obtain FBI approval for any outside vendor or consultant to serve this role. Instead, internal Crime Lab staff performed technical reviews to meet the Quality Assurance Standards, and Drs. Cotton and Word provided a second level of technical review. The rules limiting technical reviews to employees of the Crime Lab were relaxed, but this was after Drs. Cotton and Word had completed their work in 2010. We were unable to confirm that the outside consultants reviewed *all* the cases reported by the Crime Lab, but our review of the consultants' reports reflects that at a minimum they reviewed a large number.

**Recommendation #31:** *The outside consultant should mentor the Biology Section's supervisors in the technical review process.*

The evidence on whether this recommendation was implemented is mixed. The initial response of the Crime Lab was that Biology Section supervisors had substantial experience in DNA analysis, thus suggesting that such mentoring was unnecessary. Subsequent written entries on the Crime Lab's tracking sheet suggest that Dr. Word

provided such technical review training and mentoring in 2009. Our review of communications between Dr. Word and the Lab's DNA analysts show substantial mentoring by Dr. Word, as do her suggestions for changes to the SOPs and the section's training manual

**Recommendation #32:** *The outside consultant should assist the Biology Section's supervisors in mentoring staff on technical issues related to DNA analysis and in performing technical and administrative reviews.*

This recommendation was implemented. The Lab's tracking document reflects some confusion on the meaning of the recommendation, which was addressed to the role the consultant should play in assisting supervisors to mentor staff on technical issues and in performing both technical and administrative reviews. In response, the Crime Lab provided a lengthy list of training sessions provided by the DNA Section's Technical Leader, as well as other training attended by Section members between 2008 and 2012. Although such training is extremely valuable, it does not address this recommendation, which focused on the three-sided relationship among the consultant, section supervisors, and line analysts. However, our review of written communication between Dr. Word and the Crime Lab's analysts reflect mentoring on technical issues, as well as on the performance of technical and administrative reviews.

**Recommendation #33:** *The outside consultant should assist the Biology Section in performing and analyzing the validation studies recommended below.*

This recommendation was fully implemented. Dr. Word prepared memos on the subject of validation studies that were distributed to members of the Biology Section during the time she worked with the Biology Section from 2008 to 2010. She also gave a lecture to the section on validation studies.

**Recommendation #34:** *The outside consultant should work with Biology Section managers to improve the clarity and precision of the DNA reports issued by the Crime Lab. A significant step in improving the comprehensibility of the Crime Lab's DNA reports would be to include a typewritten allelic table with all reports.*

This recommendation was implemented. The consultant worked with Biology Section supervisors and analysts to improve the precision and clarity of the Crime Lab's DNA reports. Our review of the Crime Lab's DNA Reports, as well as our review of external audits of the Section, confirms that the clarity and precision of DNA reports have substantially improved. In addition, we reviewed the comments provided by Dr. Word to section analysts as part of her case reviews, a number of which contained suggestions related to clarity and precision in report writing.

**Recommendation #35:** *The outside consultant should review the Biology Section's training program, the Crime Lab's QA/QC program as it relates to the Biology Section, and the Biology Section's Standard Operating Procedures ("SOPs").*

This recommendation was implemented. According to Director Rios, the outside consultants reviewed the identified elements for the Biology Section. Our review of the work performed by Dr. Word demonstrated that she provided comments and suggestions on the section's QA/QC manual, its training manual, and on the section's SOPs.

**Recommendation #36:** *The outside consultant should ensure that DNA reports are not entered into the OLO system until after both the technical and administrative reviews of the case have been completed.*

This recommendation was implemented after the 2007 Final Report, and its principles were incorporated in the Section's Standard Operating Procedures in early 2008. The concern reflected in the 2007 Final Report was that Biology Section reports were made available to investigators and prosecutors before the reports had been appropriately reviewed, thus creating the risk that investigators and prosecutors would be provided with inaccurate or incomplete results. Once LIMS was brought online in late 2009, its protocols prevented draft reports from being issued until they had undergone both technical and administrative reviews.

#### ii. Forensic Case Management

**Recommendation #37:** *We recommend that the Biology Section case manager focus on establishing the priority of cases and managing case assignments.*

This recommendation has been fully implemented. The Biology Section assigns priorities to its cases in the following priority order: 1) pending court cases, 2) homicides, 3) cases involving potential serial offenders, 4) sexual assaults with suspects, 5) sexual assaults without suspects, and 6) burglaries. Our discussions with Ms. Guidry and the Biology Section case manager, Courtney Head, reflect that case management is working smoothly. In addition to the oversight over case management that they provide, LIMS provides substantial assistance in ensuring adherence to the Section's case management priorities.

**Recommendation #38:** *We recommend that the Biology Section case manager focus on tracking the status of each case submitted to the Biology Section.*

This recommendation has been fully implemented. The Biology Section case manager tracks the status of each case submitted to the Section. Following the issuance of the 2007 Final Report, the Section tracked case status by using Excel and GroupWise Calendar. The introduction of LIMS in 2009 has allowed the case manager to track status on a continuing basis.

**Recommendation #39:** *We recommend that the Biology Section case manager focus on reviewing all information, including submission forms and investigative reports, related to cases submitted to the Crime Lab with the assigned analysts in order to develop a forensic case strategy to ensure that all forensic evidence (including reference standards) is obtained by the Lab and fully exploited.*

This recommendation has been largely implemented. We spoke to Ms. Guidry and Ms. Courtney Head, the section's case manager, about case management issues and also had an opportunity to review documents that reflected communication between analysts and the case manager. Our discussions with Ms. Head showed that she considers case strategy to ensure that available forensic evidence is used appropriately.

**Recommendation #40:** *We recommend that the Biology Section case manager focus on coordinating interactions among Biology Section analysts, investigators, and prosecutors.*

This recommendation has been implemented. Our interviews and review of documents reflect that the Section case manager promotes substantial interaction among Crime Lab analysts, investigators, and prosecutors. That is one of the principal functions of the case manager, and she appears to be actively involved in facilitating these contacts and connections.

**Recommendation #41:** *We recommend that the Biology Section case manager focus on assisting analysts in obtaining information and reference standards from investigators.*

This recommendation has been implemented. In our review of Biology Section case files, we noted that Section analysts have greatly improved in obtaining information and reference standards from investigators. This goes hand-in-hand with what appear to be substantially improved relationships with investigators and prosecutors.

**Recommendation #42:** *We recommend the Biology Section case manager focus on reviewing the results obtained by DNA analysts to determine whether additional testing of available evidence samples should be performed in order to develop potentially probative information.*

This recommendation has been implemented. Biology Section checklists require both the DNA analyst and technical reviewer to consider whether additional testing of evidence is necessary or appropriate in light of the results that have been generated and the evidence that remains available for testing. The Section has continued to modify and revise its checklists to include references to the possibility of using specific additional analytic techniques.

### iii. Validation Studies

**Recommendation #43:** *Staff members performing validation studies should prepare an experiment plan and a final analytical report, both of which should be reviewed and approved by the*

*Biology Section's technical leader, the outside consultant that we recommend be retained, and the Crime Lab's QA/QC Manager.*

This recommendation has been implemented. Initially, there was some resistance within the Biology Section to developing an experiment plan,<sup>8</sup> but at some point after 2008 the Crime Lab's validation reports were modified to include an experiment plan. According to Ms. Guidry, all validations are included in the Lab's external audits.

**Recommendation #44:** *The Biology Section should perform an extensive validation study to assess whether any changes to the DNA analysis software's current stutter filter settings would be appropriate at each locus tested.*

This recommendation was tied to a specific type of DNA analysis kit that the section was using at the time the work underlying the 2007 Final Report was performed. The Biology Section has changed the kits it uses for DNA analysis. Our review of DNA Section's case files suggests that the problems that prompted this recommendation have been resolved, in part because of the contributions made by external consultants through early 2010.

**Recommendation #45:** *Additional validation experiments should be conducted on the various DNA extraction methods used by the Biology Section to ascertain the optimal extraction method for common sample types submitted to the Crime Lab for analysis.*

This recommendation has been implemented. Validation studies have been conducted on each of the extraction methods employed by the Crime Lab. Before being used in casework, each method was shown to provide optimal results on lower level DNA samples, as compared to methods previously used.

#### iv. Training

**Recommendation #46:** *We recommend that the Biology Section's training program include focused training in statistics, including the principles underlying random match probabilities, the calculation of frequency estimates, and the presentation of statistical data in laboratory reports and during testimony.*

This recommendation has been implemented. Dr. Word and Dr. George Carmody, a highly respected DNA statistician provided training in statistics in the year following the

---

<sup>8</sup> The Lab's original response to the recommendation stated, in part: "...the lab does not believe it is necessary to prepare a formal experiment plan." This expression of opposition to the recommendations in the 2007 Final Report, especially those addressed to the DNA/Biology Section, is not an isolated instance. In response to many of the Final Report's recommendations about the DNA/Biology Section, the initial response reflected a degree of unresponsiveness that is particularly surprising in light of the massive historical problems experienced in the section. Over time, judging by the comments collected in the Crime Lab's tracking sheet, the interviews we conducted, and the documents we reviewed, this resistance was replaced by a broader acceptance of the recommendations and the determination to implement them. We credit much of that change in tone and improvement in responsiveness to Ms. Guidry.

2007 Final Report. In addition, all DNA analysts and technicians attended various external training on statistics issues in 2011.

**Recommendation #47:** *We recommend that the Biology Section staff receive focused training on forensic serology techniques, including screening for semen and identification of spermatozoa.*

This recommendation has been implemented. Although the Crime Lab's tracking sheet is ambiguous about when and how this training was provided, Ms. Guidry advised us that the focused training was provided in 2008. In 2012, the portions of the Biology Section Training Manual dealing with forensic serology techniques were revised to require greater mentorship of trainees in serological procedures. Additionally, over the past year, the Biology Section completed validation of a method for detecting male DNA that replaces conventional serological techniques and is less dependent on the individual analyst's experience.

v. Refinement of the Biology Section's SOPs

**Recommendation #48:** *The SOPs should include separate forms for administrative and technical reviews.*

This recommendation has been implemented in substance if not in form. The Biology Section performs both technical and administrative reviews and records the results in LIMS. Both reviews are part of the same form in LIMS, but they are separate parts of the electronic document. The technical and administrative reviews involve separate sign-off procedures. As a result, we consider this recommendation to have been successfully implemented.

**Recommendation #49:** *The SOPs should include testing procedures to characterize possible saliva stains.*

This recommendation has not been implemented. Apparently, the Crime Lab does not receive many requests for possible saliva stains, and it outsources the requests it does receive. On the other hand, if it were better equipped to deal with saliva evidence, and investigators and prosecutors learned of that capability, the Crime Lab might well receive additional requests. We recommend that the Crime Lab develop testing procedures as originally recommended.

**Recommendation #50:** *The SOPs should specify an exact target amount of input DNA for the amplification reactions (e.g. 1 ng of DNA), as opposed to allowing for a broad range of input DNA, which may result in unnecessarily low rfu values or missing loci. Also, the SOPs should include an automated method to calculate the appropriate dilutions used to obtain the exact amount of target DNA needed for amplification.*

This recommendation has been implemented. The Lab SOPs establish an automated method for determining the target amount of DNA for particular



analyses. Although this method still relies on a range, as opposed to an exact target amount, that range is based on validation data.

**Recommendation #51:** *The SOPs should be expanded to contain more detailed information and guidance regarding the use and calculation of frequency estimates.*

This recommendation has been implemented. The Lab has overhauled its SOPs since the publication of the 2007 Final Report, and it continues to update its SOPs as technology advances. The Lab's current SOPs include guidelines for selecting appropriate statistical approaches for various types of analysis and include protocols for parentage and Y-STR analysis.

c. Trace Evidence

Recommendations #52-#58 in the 2007 Final Report addressed the Trace Evidence Section of the Crime Lab. The recommendations were as follows.

**Recommendation #52:** *Affirmative steps should be taken by examiners to contact investigators to request known or elimination samples whenever possible.*

**Recommendation #53:** *Disagreement exists in the forensic community regarding the utility of microscopic hair comparisons in light of existing DNA technologies. Although some forensic experts continue to find significant value in microscopic hair comparisons, we believe the Crime lab should begin focusing some of its efforts on other types of trace evidence examinations. (i.e. paint and glass analysis).*

**Recommendation #54:** *For the foreseeable future, the Trace Evidence Section should continue to outsource the technical reviews of its cases to a highly qualified outside expert, even after the second examiner is qualified. Both of the Crime Lab's current trace examiners are newly trained and inexperienced as fully qualified trace evidence examiners. These examiners cannot be expected to perform high level technical reviews at this stage, and they would not be able to provide each other with the technical guidance and mentoring that they should each receive as they continue to develop as trace evidence experts.*

**Recommendation #55:** *Trace evidence SOPs should be revised and expanded so that they function as a stand-alone resource and do not require reference to other manuals. The SOPS should be revised to include specific examples of good reporting language.*

**Recommendation #56:** *The Crime Lab should also ensure that equipment required to perform specific examinations reference in the SOPS is actually available in the Lab.*

**Recommendation #57:** *Because the characteristics of hair can change dramatically after approximately six to nine months, SOPs should be revised to reflect a six-to-nine month (if possible) outer limit for the collection of known samples, rather than the current five-year standard.*

**Recommendation #58:** *Serial number restorations and gunshot residue (muzzle-to-target distance) testing should be performed by Firearms Section examiners, as was traditionally done in the Crime Lab. Performing serial number restorations in the Firearms Section reduces unnecessary handoffs and transportation of firearms between sections. If equipment, space, and personnel in the Firearms Section are inadequate for this task, the Crime Lab should make the necessary physical improvements and additions to that Section's facility and staff as soon as possible. The expertise required for trace evidence and firearms examinations differs, and the two sections are better served if examiners focus on maintaining proficiency in their own areas of expertise. Although chemicals are used for both serial number restorations and gunshot residue examinations, it is not necessary to have a chemistry background to perform these examinations.*

These recommendations are being grouped together because in December 2010, the Trace Evidence Section of the Crime Lab was disbanded. Beginning at that time, in cases in which trace evidence analysis would be useful, the Crime Lab began advising investigators, Assistant District Attorneys, and defense counsel of the trace evidence analytical capabilities of other laboratories.

We have several comments to make about the trace evidence issue. First, it appears that during the time the Trace Evidence Section was continuing to function, some work had gone forward to implement the recommendations of the 2007 Final Report. For example, as recommended, the Trace Evidence Section continued to outsource the technical reviews of its analytical work to an outside expert (**Recommendation #54**), and the Crime Lab made sure that if specific pieces of equipment were referred to in the Section's Standard Operating Procedures, that equipment was available in the Crime Lab (**Recommendation #56**). In addition, as recommended, serial number restorations and gunshot residue testing were transferred to the Firearms Section as of the first quarter of 2008 (**Recommendation #58**).<sup>9</sup>

Second, our review suggests that the Crime Lab's reports do not adequately describe trace evidence that has been collected at crime scenes. Even if the Crime Lab is not currently performing trace evidence analysis and is outsourcing it to other laboratories, it remains extremely important for Crime Lab reports to identify trace evidence that is collected that may be amenable to analysis. In the absence of the documentation of such information, investigators, Assistant District Attorneys, and defense counsel will remain unaware of potential evidence that might either tend to inculcate or exculpate a suspect. Indeed, with the analytic function being outsourced, it may become even more important for careful and thorough documentation of potential trace evidence to be preserved and provided to participants in the criminal justice system.

Third, and most importantly, we recommend that the Crime Lab reconsider its decision to eliminate its trace evidence function. This is a policy decision for the HFSLGC

---

<sup>9</sup> After being transferred to the Firearms Section, distance to target determinations are no longer being conducted. We will address this issue more fully below.

to make, but we are concerned that since the 2007 Final Report, both the trace evidence and questioned documents capabilities have been eliminated. In our view, this elimination of important forensic capabilities is inconsistent with maintaining a full-service forensic laboratory. We will have more to say about this issue later in this report.

#### d. Controlled Substances

In general, we were extremely impressed with the changes that have been implemented in the Controlled Substances section, both in response to the 2007 Final Report recommendations and proactively, and with the competence and professionalism of James Miller, the senior manager of the section. We found the documentation regarding implementation of the recommendations to be complete and informative.

##### i. Technical Reviews

**Recommendation #59:** *We recommend that the Crime Lab change its policy and practices so that technical reviews occur no later than two days after the analysis is completed and prior to the issuance of an oral or written report.*

This recommendation has been substantially implemented. The 2007 Final Report expressed serious concerns about the length of time it took in certain Controlled Substances cases for technical reviews to take place, sometimes “weeks or months after the analyses were completed and the reports were issued.” Final Report, p. 292. The Controlled Substances section SOPs were revised in 2012, and technical reviews are now required prior to the issuance of oral or written reports. According to Mr. Miller, the Controlled Substances Section supervisor, technical reviews are consistently taking place within five days of the generation of a draft report, and the time between the analyst’s receipt of a case file and the final reviews is nine days on average. In addition, with the implementation of LIMS, the risk that draft reports will be available to investigators or prosecutors prior to the completion of the technical review has been eliminated. As a result, even though technical reviews are not occurring in the two-day window that was prescribed by the recommendation, we conclude that the recommendation has been substantially implemented.

**Recommendation #60:** *We recommend that any secondary reviews done in the section be conducted in a timely fashion.*

This recommendation has been substantially implemented, although the absence of documentation prevents us from reaching any conclusions on timeliness. At the time of the Final Report, the Controlled Substances Section was in the process of instituting a review system for randomly selected cases in addition to mandatory administrative and technical reviews. The current secondary review system appears to have evolved since 2007. At present, such reviews take place as part of the quality assurance process – for

new hires, five cases per month are given secondary reviews; for more experienced analysts, one case per month is given a secondary review. In addition, a re-examination takes place in those instances when the assigned analyst is not available to make a scheduled court date and a second analyst must be substituted. We were not provided with any data on how frequently this type of secondary review takes place.

**Recommendation #61:** *We recommend that the Controlled Substances Section allow all analysts to perform administrative reviews of other analysts' reports. However, the technical review process and any secondary review process should be limited to the most experienced analysts and supervisors in the Section.*

This recommendation has been substantially implemented. All analysts are allowed to perform administrative reviews, and the Section permits even junior analysts to perform technical reviews. As explained to us, this is because analysts must have completed a training program that includes senior staff review of at least 100 of the analyst's case files before they are permitted to perform technical reviews. As a practical matter, that means that it generally takes approximately four months before an analyst is eligible to conduct technical reviews. As for secondary reviews, the Section's approach to such reviews is described in connection with **Recommendation #60** above. Although the accelerated timetable for allowing analysts to conduct technical reviews is a departure from the recommendation, we conclude that the Section has created sufficient safeguards to ensure that technical reviews are performed by analysts with adequate experience.

## ii. Supervision

Recommendations #62-#64 in the 2007 Final Report addressed supervisory responsibilities within the Controlled Substances Section. These recommendations were as follows.

**Recommendation #62:** *We recommend that no single supervisor in the controlled substance section be responsible for overseeing the work of more than ten analysts.*

**Recommendation #63:** *The Crime Lab should take the necessary steps to fill the vacant Criminalist Specialist position.*

**Recommendation #64:** *The Crime Lab should hire at least one additional experienced supervisor for the Controlled Substances Section.*

These recommendations have been implemented. The background of these recommendations is that at the time of the 2007 Final Report, there was only one supervisor in the Controlled Substances Section, and he supervised both Controlled Substances and Toxicology. A second supervisory position in Controlled Substances was vacant. In addition, in 2007, several Controlled Substances analysts were new to

the Crime Lab, which meant they required significant individual supervision. The recommendations were the product of the finding that the supervisor did not have adequate time to supervise all the analysts in the Controlled Substances Section. Final Report, p. 294.

The Crime Lab responded appropriately to the supervisory issues identified in the 2007 Final Report. In 2008, the vacant supervisory Criminalist Specialist position was filled, and the scope of supervisory control was diminished consistent with the recommendation. At present, there are three supervisors in the Controlled Substances Section who collectively supervise 17 analysts. One supervisor oversees seven analysts, and each of the other two supervisors, including the head of the section, oversees five analysts.

**Recommendation #65:** *We recommend that the Controlled Substances Section establish another tier in its hierarchy of analysts in order to distinguish less experienced analysts from more experienced analysts who are capable of handling certain supervisory tasks, such as training and conducting technical reviews.*

This recommendation has not been implemented but our evaluation of the Controlled Substances Section persuades us that the recommendation no longer needs to be implemented. Although there are pay differentials for criminalists depending on their years of experience, the Section has not adopted the tiered system that would more strongly differentiate between criminalists. We were advised that the human resources department within HPD would not allow it. Because of the clear and significant improvements made in the operation and supervision of the Controlled Substances Section since the 2007 Final Report, we do not believe the creation of an additional tier of analysts is necessary to achieve the goals of adequate supervision and accurate analysis.

### iii. Documentation

**Recommendation #66:** *To reduce the difficulty that currently exists when correlating items listed on an officer's submission form with the items examined by analysts and listed on the lab report, we recommend that a consistent item designation system be developed and that the unique item identifiers be documented on the Section's submission forms, worksheets, analytical testing documents, and supplemental reports.*

This recommendation has been largely implemented. Prior to the implementation of LIMS, the problems that made this recommendation necessary had not been resolved – the process of reconciling what an officer claimed to have provided to the Crime Lab, the items that the Lab had a record of receiving, and the items listed on the OLO report continued to be a significant problem. The problem has been largely solved in three ways. First, the method of receiving narcotics evidence through CER has been standardized so that all intake documentation has a consistent format. This has dramatically reduced

discrepancies. Second, the use of LIMS has resulted in a unique identifier being assigned to each piece of evidence examined by an analyst. Third, we observed that following the introduction of LIMS, the descriptions of evidence supplied by police officers improved noticeably. The existing gap in the system is that no unique identifier is given to each piece of evidence at intake. However, it our understanding that the new Records Management System (RMS), which will be implemented in the Spring of 2014, should fill that gap.

**Recommendation #67:** *We recommend that the Section's SOPS be modified so that descriptions of any discrepancies between information on the evidence submission form and the evidence actually submitted are documented on the analysts' worksheets rather than on the submission forms.*

**Recommendation #68:** *We suggest that any discrepancies be brought to the attention of both a controlled substance section supervisor and an HPD Narcotics supervisor, each of whom would also document the discrepancies. The supervisor would then have the information needed to identify any problematic patterns indicating that evidence is being lost or stolen instead of just being accidentally miscounted or inaccurately recorded.*

These recommendations have been implemented. The Controlled Substances Section SOP was modified in 2008. Section 02 of the SOP, entitled "Evidence Handling," requires that such discrepancies be documented on the analysts' worksheets. Our review of the case files showed that such discrepancies are in fact recorded on analysts' worksheets. As for the reporting of discrepancies to supervisors outlined in Recommendation #67, that also appears to be followed. Mr. Miller advised us of two instances of evidence discrepancies that have been reported since 2007. Both of these instances led to internal affairs investigations.

#### iv. Security

The 2007 Final Report recommended that the Crime Lab evaluate a set of measures that would enhance security and lower the risk of security problems created by the Lab's handling of large quantities of controlled substances. In the case of these four recommendations, the Final Report merely suggested that the Crime Lab "consider" one or more of the suggested measures rather than employing the stronger language of the other recommendations. These recommendations were as follows.

**Recommendation #69:** *Consider implementing a procedure where random sampling tests are used to determine whether a stored controlled substance has been replaced or diluted, indicating that a portion has been stolen and replaced with a filler substances.*

**Recommendation #70:** *Consider installing electronic devices to track those entering and exiting rooms holding controlled substances.*

**Recommendation #71:** *Consider putting in place a random urine testing program for employees.*

**Recommendation #72:** *Consider implementing a blind testing program in which known, non-evidentiary samples are submitted to CER for analysis by the Controlled Substances Section as if they were evidence related to an investigation in order to evaluate the Crime Lab's processes for handling evidence as well as the proficiency and integrity of the Lab's controlled substance staff.*

The Crime Lab has considered these security-related recommendations and has implemented some of them. Random sampling tests (**Recommendation #69**) have not been conducted for the purpose of determining the integrity of stored controlled substances, although retesting and reanalysis occurs as a matter of course when an analyst must substitute for a colleague in a court proceeding. In addition, as part of the Crime Lab's quality assurance program, the Controlled Substances Section has recently begun reanalysis in randomly selected cases.

The Crime Lab has installed electronic devices—a badge scanner—to monitor personnel who enter and exit rooms that hold controlled substances (**Recommendation #70**). In addition, the Crime Lab has had sixteen cameras installed for security purposes in rooms where controlled substances are stored. The Crime Lab has in place, and has had in place for some time, a random urine testing program (**Recommendation #71**). The Lab does not have a blind testing program because it believes such programs are difficult and time-consuming (**Recommendation #72**). It was not clear to us that blind testing had been given any careful consideration in recent years. We believe it would be reasonable for the Controlled Substances Section, in conjunction with HPD's Narcotics Unit, to give further consideration to instituting such a program.

#### v. Retention of Evidence

The 2007 Final Report noted the substantial historical problems and security risks in the Controlled Substances Section caused by the common practice of Section analysts holding onto evidence well past the time they had completed their analysis. Although the Final Report noted that the problem had become less severe as of 2007, it nevertheless needed to be addressed. Final Report, p. 293.

**Recommendation #73:** *We recommend that a requirement be established that, absent a well-documented reason, evidence must be returned within one week after the analyst has completed testing.*

**Recommendation #74:** *We recommend the time between retrieval of evidence by an analyst and the analyst's return of the evidence should be less than one month.*

These recommendations have been implemented. The Controlled Substances Section SOPs, revised as to this issue in 2009, require the return of evidence within five working days of the time an analyst completes testing. The SOP does not require the return of such evidence within five working days in all circumstances, but an analyst who retains evidence for a longer period must provide a reason for doing so. The

Section's SOP also requires that controlled substances evidence be returned within a month of its initial receipt in the absence of a documented reason. To confirm that these requirements are being followed, section managers perform monthly evidence checks to determine the evidence in the custody of each analyst and how long the analyst has had the evidence. In addition, on a less frequent and less regular basis, Quality Assurance staff performs a similar check.

vi. Retention Times for Standards

**Recommendation #75:** *We recommend that the Section ensure that the retention times for drug standards should be verified more frequently and updated on a master list.*

This recommendation has been implemented. The master list of drug standards is updated on an annual basis, and as additional standards is adopted and implemented. As part of the quality assurance process, the Lab validates and re-analyzes the drug standards. These known drug standards are run on the Lab's analytical instruments.

**Recommendation #76:** *We recommend that the Section ensure that for drugs encountered less frequently in the Crime Lab, analysts should run the standards within the same time frame that the evidence sample is tested, and a copy of the standard run should be retained in the case file.*

This recommendation has been implemented. It was incorporated into the Section's SOP in 2008. The Crime Lab runs standards for controlled substances that are seen less frequently on an as-needed basis. If no standard is available, the Crime Lab either provides a "no controlled substance" report or delays issuing its report until a standard can be obtained. The frequency of substances that lack standards has increased in recent years because of the growing availability of synthetic drugs.

vii. Case Turnaround Times and Backlog

**Recommendation #77:** *We recommend that the controlled Substances Section change its current procedure under which analysts are assigned a specific number of cases (usually six to eight) per day. Analysts should be able and encouraged to work more cases whenever it is practical to do so.*

This recommendation has been implemented. The 2007 Final Report described a practice in which a specific number of cases would be assigned to each Controlled Substances analyst per day, with little or no flexibility to provide additional cases for those analysts who completed their cases. In some cases, an analyst would finish his daily allotment of cases within a few hours but could not obtain additional cases until the following day. To address this problem, section supervisors have additional case files they can promptly assign to analysts who have completed analysis on the cases



assigned to them. This system has eliminated the inefficiency and downtime that previously existed in the Section.

**Recommendation #78:** *To encourage analysts to complete a greater number of cases, the Lab could establish a yearly case expectation number. The quantity of cases that an analyst works per year, along with the quality of the work done by the analyst, could be considered in an annual performance evaluation.*

This recommendation has been implemented. The Crime Lab's annual employee assessments use as one factor among others the number of cases analyzed and the quality of the analysis. As part of the annual performance evaluation process, section managers discuss both quantitative and qualitative expectations with analysts.

**Recommendation #79:** *We recommend that the section develop a plan to reduce its turnaround times and backlog. One suggestion would be for the Crime Lab to eliminate from its backlog older cases that either have already been adjudicated or will never go to court, such as found property and no-suspect cases.*

This recommendation has been implemented. Various steps have produced a reduction in turnaround times and a reduction in the Controlled Substances Section backlog. First, additional analysts have been hired both on a temporary and permanent basis. Second, better coordination with the courts has allowed the Section to establish priorities for its casework analysis. Third, the Crime Lab has stopped performing analysis in cases involving found property and cases without suspects. These items are flagged for destruction, unless the District Attorney's Office or an investigator requests that analysis be conducted. Analysts do conduct either preliminary screenings or full analyses in cases involving guilty pleas to ensure that a crime has been committed. In our review of the Controlled Substances Unit's cases, we noted a considerable number of cases that would seem to be low priority - e.g., residue and narcotics paraphernalia cases. If turnaround times and backlogs re-emerge as significant issue, we would recommend reconsidering performing analysis in such cases.

**Recommendation #80:** *The Crime Lab should seek to establish a policy regarding this issue so that these cases are automatically culled out and do not become a part of any future backlog.*

This recommendation has been implemented. Cases submitted for destruction are generally destroyed without analysis and therefore no longer become part of the backlog. LIMS has helped identify those cases that do not require testing. As the Crime Lab pointed out, its ability to reduce the controlled substances backlog is limited by the constraints imposed by investigators and prosecutors, such as the requirement that some testing in guilty plea cases be conducted. However, it appears that the Crime Lab has adopted policies that have reduced the controlled substances backlog.

**Recommendation #81:** *We suggest that the Crime lab seek guidance from other drug laboratories concerning backlog reduction methods.*

This recommendation has been implemented. In deciding on the series of steps that would make the greatest contributions to reducing the controlled substances backlog, the Crime Lab consulted other crime labs. It continues to consult with other labs and to gain insight on backlog reduction by attending programs and reviewing web-based material devoted to backlog reduction.

e. Firearms

i. Technical and Administrative Reviews

**Recommendation #82:** *The section should develop and use separate checklists for technical and administrative reviews to ensure that the reviews are uniform and thorough. The technical and administrative review forms should require the reviewers to confirm that each step in the review process has been performed.*

This recommendation has been effectively implemented. At the outset, the Firearms Section expressed reluctance to rely on checklists. As of November 2007, no checklists were used, in part because of concern that a checklist would discourage examiners from using their discretion. Although that is a legitimate concern, checklists can go hand-in-hand with the use of discretion – one does not preclude the other. When the Firearms Section adopted LIMS in December 2009, it began using a checklist system for technical reviews and administrative reviews. As noted above (**Recommendation # 48**), even though the reviews are combined on a single electronic form, it distinguishes between technical and administrative reviews by having separate columns for each. In addition, each review has its own sign-off procedure.

ii. Caseload and Backlog

**Recommendation #83:** *The firearms section should consider contracting with retired examiners to assist with casework.*

**Recommendation #84:** *Retired examiners could also help train the new firearms examiners in-house at HPD in order to allow current firearms examiners to concentrate on casework.*

These recommendations have been implemented in substance. In the six years since the 2007 Final Report, trained firearms examiners have been hired on a contract basis on two occasions, once in 2010 and once in 2012, to conduct training and perform examinations within the Section. Over time, the backlog has been substantially reduced, from a high of 1,000 items to the current level of 450 items. The Section's experience is that the backlog grows during times when new examiners are being trained. The Section is currently considering hiring a retired firearms examiner to

conduct training, which would leave examiners free to do casework and continue reducing the backlog.

**Recommendation #85:** *HPD also should explore coordinating the training of new firearms examiners through partnerships with Harris County, the DPS, and Pasadena (Texas) Police Department.*

This recommendation has been implemented. The Firearms Section has coordinated training with the Harris County Sheriff's Office Firearms Lab on numerous occasions over the past six years. The Firearms Section manager explained that the Department of Public Safety Lab in Austin is too far away, and the Pasadena Police Department does not have a full-time firearms examiner.

**Recommendation #86:** *The firearms section should also continue exploring the possibility of sending some cases to the DPS, the FBI, and the Bureau of Alcohol, Tobacco, Firearms and Explosives ("ATF") until the backlog is substantially reduced.*

This recommendation has not been implemented. According to Darrell Stein, the Manager of the Firearms Section, the Section made inquiries immediately after the 2007 Final Report with DPS, the FBI, and ATF but learned that these forensic labs were unable to provide assistance because they had backlogs of their own. We are not aware whether subsequent inquiries were made, especially at times when the Firearms Section backlog was greater than it is currently. We suggest that the Firearms Section be willing to make similar inquiries in the future if the Section's backlog increases further.

**Recommendation #87:** *HPD, in coordination with the District Attorney's Office, should develop a system to assign priority to cases requiring firearms examination based on those cases that are pending in court. The system should be designed to notify the Firearms Section as soon as possible when a case requiring examination is assigned a court date.*

This recommendation has been implemented. Initially, the Crime Lab established an email account for use by the Harris County District Attorney's Office. The email account was established to notify Firearms Section personnel of upcoming court cases, which would help the Section establish caseload priorities. The implementation of LIMS has further improved communication and the establishing of priorities. The District Attorney's Office can make requests for analysis on the external portal of LIMS called Web Pre-log, including requests for priority analysis based on case status. The request triggers an automatic email to the Firearms Section manager, who, in turn, emails the examiner assigning the case. LIMS send periodic notifications to prompt timely completion of the analysis, which can be supplemented by additional prompts created in LIMS.

**Recommendation #88:** *The firearms section should consider suspending the entry of information regarding revolvers into IBIS, as fired cartridge casings from these firearms have only limited information for search purposes.*

This recommendation has been implemented. Even at the time of the 2007 Final Report, test-fired bullets were entered into IBIS (Integrated Ballistics Identification System) on a request-only basis. Over time, it became clear that revolver data was not helping to solve crimes. As a result, the Crime Lab stopped performing analysis on revolvers and the current version of IBIS does not capture images of fired bullets.

**Recommendation #89:** *Where appropriate, the Section should restrict the examination of firearms evidence in suicide cases and minimize examinations in cases where no charges have been, or are likely to be filed.*

This recommendation has been implemented. Firearms evidence in suicide cases is not analyzed unless specifically requested, which is rare. In addition, the Firearms Section has moved to a system in which it works cases only on request. Under the previous system, firearms were dropped off at the Lab without any guidance as to their absolute or relative importance. As a result, the Lab worked such cases without knowing whether the analysis was significant to the investigator.

### iii. Serial Number Restoration<sup>10</sup>

**Recommendation #90:** *We recommend a temporary transfer of some of the work involved in muzzle-to-target distance determinations to the trace Evidence Section. Firearms examiners could carry out the necessary test firing into cloth test panels and send the panels to the Trace Evidence Section for subsequent Griess and sodium rhodizonate testing and other chemical development work.*

This recommendation has not been implemented. According to Darrell Stein, Manager of the Firearms Section, the volume of muzzle-to-target distance determinations has never been large. As a result, dividing the work between the Firearms and Trace Sections would not have substantially assisted in reducing the backlog in the Firearms Section. With the disbanding of the Trace section in December 2010, the recommended division of labor is moot.

We learned during the course of review that muzzle-to-target distance determinations are no longer conducted by the Firearms Section. When we asked for the reason, we were advised that there were not enough requests for muzzle-to-target distance determinations to maintain the proficiency of the examiners who specialized in that type of analysis. We contacted the firearms specialist who was involved in the original Independent Investigation, Edward Hueske to get an opinion on the value of muzzle-to-target determinations. Mr. Hueske advised us that muzzle-to-target determinations are extremely important, especially

---

<sup>10</sup> Despite the title of this section, the recommendation discussed below does not deal with Serial Number Restoration. The 2007 Final Report noted that the Trace Section, rather than the Firearms Section, was handling Serial Number Restoration, suggested that such restoration be handled by Firearms, and further suggested that some aspects of muzzle-to-target distance determinations, the subject of Recommendation #89, be transferred to Trace. To preserve the direct correspondence between the section titles of this review and the 2007 Final Report, we have not altered any of the section or subsection titles.

in officer-involved shootings. He further advised us that he was not aware of any other major forensic laboratory in the country that did not conduct such examinations. We recommend that the Crime Lab reconsider its decision not to perform muzzle-to-target distance determinations.

#### iv. Inefficient Use of Examiners

**Recommendation #91:** *The responsibilities of the current clerical person in the section should be expanded or an additional clerk should be hired in the firearms section to reduce the amount of clerical work handled by examiners.*

**Recommendation #92:** *An evidence technician should be responsible for receiving and inventorying evidence from the Property Room and for returning evidence to the Property Room.*

These recommendations have been implemented. The recommendations were based on the 2007 Final Report's findings that the firearms examiners in an understaffed Firearms section were frequently distracted by telephone calls on non-technical matters, issues relating to evidence intake, and other clerical responsibilities. That has changed. The clerk-typist employed in the Firearms Section has been directed to answer all non-technical questions, instead of forwarding them on to examiners, and the Section has an evidence technician who handles evidence intake. Because of these steps, the administrative responsibilities that previously burdened Firearms Section examiners are no longer a significant distraction.

#### v. Professional Development

**Recommendation #93:** *Each firearms examiner should be provided sufficient time, opportunity, and funding to maintain at least one professional membership and to attend at least one professional meeting or training seminar annually.*

This recommendation has been partially implemented. Training funds have been available for examiners since 2007, and each Firearms section examiner has completed at least one course of professional training. However, the Crime Lab does not provide funding to support at least one professional membership for each examiner even though the section manager acknowledged the importance of such memberships. We recommend that the Crime Lab provide funding for such memberships.

#### vi. Facilities Improvements

**Recommendation #94:** *Acquire weapons for reference purposes and storage cabinets to contain them, although we recognize that space for such storage cabinets is a major concern. If the Property Room takes over all firearms evidence receipt and long-term evidence storage, as we recommend, adequate space could be made available in the firearms vault.*

This recommendation has been implemented. As suggested in the 2007 Final Report, the Property Room has taken over firearms evidence receipt and long-term evidence storage, which has created more space for reference standards to be maintained in the Firearms Section. The number of reference firearms has grown substantially since 2007, with a large set of additions to the collection in 2009. The number of reference firearms is approximately 1,000, an increase of more than 50% since 2007. We encourage the Lab to continue to increase the number of its reference firearms.

**Recommendation #95:** *The comparison microscopy equipment should be moved into the larger existing cubicles to maximize the use of space. Alternatively, partitions should be placed in the current microscopy area to isolate the microscopes.*

This recommendation has been implemented. The workspace has been remodeled to include multiple partitioned areas containing microscopes. The available space for examiners and their equipment has been expanded but there remains a need for additional space for the Firearms Section. Given its limitations, the existing space seems to be configured as well as possible.

**Recommendation #96:** *Install a stainless steel sink of an appropriate size in the Firearms Section as soon as possible, and provide rubber aprons and gloves for washing evidence.*

This recommendation has been implemented. At the time of the Independent Investigation, Firearms section examiners were forced to deal with bloody weapons and ammunition components that are frequently submitted to the Firearms Section without adequate equipment to clean such evidence. Examiners had a single small sink that had been installed only after they made numerous complaints regarding the lack of adequate facilities for cleaning bloody evidence. In February 2010, a stainless steel sink more suitable to cleaning bloody evidence was installed.

#### vii. Refinements to the Current SOPs

**Recommendation #97:** *We recommend refinements to . . . garment and vehicle examination forms.*

**Recommendation #98:** *We recommend refinements to . . . digital imaging.*

**Recommendation #99:** *We recommend refinements to the . . . documentation of trace evidence identified on firearms evidence.*

**Recommendation #100:** *We recommend refinements to . . . the physical examination and classifications of tools.*

**Recommendation #101:** *We recommend refinements to the . . . Modified Griess – Direct Application Technique (DAT) test.*

This set of recommendations deals with relatively modest suggested changes to the Firearms Sections protocols as they existed in 2007, which the Final Report recognized as consistent with generally accepted standards for forensic laboratories. The Lab has implemented the refinement to garment and vehicle examination forms (**Recommendation #97**). Even though this recommendation was relevant largely to distance determinations, which the Crime Lab no longer conducts, the case files we reviewed reflected the use of refined garment and vehicle examination forms.

The Lab has implemented the recommendation relating to digital imaging (**Recommendation #98**). The Crime Lab's tracking sheet reflects some confusion about the recommendation; many of the responses stressed the fact the Firearms section examiners do not go to crime scenes. However, the recommendation related principally to the merits of using digital photography to document firearms that come into the section. We recommend that digital photography be used more extensively to document firearms evidence. Our review of current case files reflects appropriate use of images to document significant evidence.

The Lab has not implemented the recommendation relating to documenting trace evidence (**Recommendation #99**). Although the Trace Section was disbanded in 2010, it is important for potential trace evidence be described with sufficient precision and detail so that investigators, prosecutors, and defense counsel can be aware of the potential to acquire additional evidence. We recommend that examiners provide more detailed and precise descriptions of trace evidence.

The Lab has not implemented the recommendation relating to physical examination and classification of tools (**Recommendation #100**). The Firearms section no longer conducts toolmark analysis because of a sustained decline in requests for such analysis; it sends any requests for toolmark analysis to the Harris County or DPS labs. We recommend that the Crime Lab reconsider its decision not to perform toolmark analysis.

The Lab has not implemented the recommendation related to the Modified Griess DAT test (**Recommendation #101**) because it no longer conducts muzzle-to-target distance determinations. As we suggested above, we recommend that the Crime Lab reconsider its decision to no longer perform such analysis.

f. Toxicology

**Recommendation #102:** *The current configuration of the Crime Lab, and the Toxicology Section's proximity to the Controlled Substances Section work area, would create ongoing risks of contamination caused by materials handled in the Controlled Substances Section work area. If the range of analyses provided by the Toxicology Section is expanded, the tests must be performed in a location as far removed from the Controlled Substances Section as possible.*

This recommendation has been implemented. The Controlled Substances and Toxicology sections are now physically separated and have been since August 2012. With this physical separation, the risks of contamination have been substantially diminished. The range of toxicology services has been significantly expanded with the September 2012 absorption of the forensic toxicology capabilities from the Sam Houston State University Regional Crime Lab (SHSU-RCL). We were advised that various steps are taken in the Crime Lab to check for contamination and that recent tests have confirmed the absence of any evidence of contamination.

**Recommendation #103:** *An expanded analysis program should be led by a very experienced forensic toxicologist, preferably one who has completed a relevant doctoral program.*

This recommendation has been partially implemented and the Crime Lab has made significant efforts to fully implement it. With the absorption of the SHSU-RCL program, the services provided by the Toxicology Section have been substantially expanded. The Section hired an analyst with a PhD but the analyst left the Lab at the end of 2012 and no suitable replacement has yet been found. The current head of the program, Michael Manes, is an experienced toxicologist. Four of the former SHSU-RCL employees now in the Crime Lab's Toxicology Section have Masters' degrees.

**Recommendation #104:** *We understand that Crime Lab managers are already considering using commercially prepared calibration solutions, and we encourage them to do so.*

This recommendation has been partially implemented and the Crime Lab has made efforts for full implementation. We were advised that commercially prepared calibration solutions do not have all the components required by the new Toxicology Section protocol for alcohol analysis. As a result, the Section has used some commercially prepared solutions as well as certain calibrators and controls that are prepared internally. More specifically, the Toxicology Section performs a multi-component analysis that requires a six-point calibration curve, but most commercial vendors market controls and calibrators only sufficient to create a "three-point curve." Because the Toxicology Section requires additional controls and calibrators that are not commercially available, some controls and calibrators must be prepared internally.

**Recommendation #105:** *The Crime Lab should resume participation in an external forensic alcohol proficiency testing program for Toxicology Section analysts.*

This recommendation has been implemented. The Toxicology Section analysts participate in a proficiency testing program conducted under the auspices of the College of American Pathologists (CAP) and Collaborative Testing Services, Inc. In addition, the Section does proficiency testing of samples prepared internally.



#### g. Questioned Documents

**Recommendation #106:** *HPD should adopt a policy requiring that all potential questioned document evidence be submitted to the Questioned Documents Section for examination. Questioned document evidence should be defined to include all robbery notes, suicide notes, drug tally sheets, gambling tip sheets, bomb threats, threatening letters, and a wide variety of documents in fraud cases.*

**Recommendation #107:** *The Crime Lab should provide training sessions on recognizing document evidence for all crime scene technicians, department units, and training schools. These sessions should cover all of the types of evidence described above, as well as writings that appear on building surfaces.*

**Recommendation #108:** *The Questioned Documents Examiner should contact other forensic document units and examiners in other law enforcement agencies to determine how they disseminate information about the capabilities of their units throughout their agencies. Attending at least one national meeting and one regional meeting of forensic document examiners each year would facilitate this process. Such meetings also provide professional development and training opportunities that are especially important in a one-person, underutilized operation.*

The 2007 Final Report provided an extremely positive assessment of the Crime Lab's sole Questioned Documents examiner. The main concern articulated in the Final Report was that he was underutilized.

We continue to be concerned about the underutilization of the Questioned Documents Section. HPD has failed to take advantage of the high quality work performed by its questioned documents examiner, even after the Section's untapped potential was highlighted in our Fourth Report, which was released on January 4, 2006.

Final Report, p. 309. As the recommendations reflect, the concerns embodied in the recommendations had nothing to do with the quality of the work performed but instead were designed to encourage the Crime Lab and HPD to make better use of the examiner's talents and increase his contributions. Although the Crime Lab's tracking sheet reflect some activity to implement some of these recommendations during the period 2007 through early 2009, the Questioned Documents section was closed in 2010 after its only examiner was reassigned within HPD.

We have the same view of the disbanding of the Questioned Documents Section as we do of the disbanding of the Trace section: these are capabilities that a major forensic laboratory should have in order to be a full service Crime Lab serving a customer as large as HPD. We recommend that the HFSLGC give full consideration to rebuilding the capabilities that no longer exist in Questioned Documents.

#### h. Evidence Handling and Storage<sup>11</sup>

**Recommendation #109:** *HPD should develop standard evidence procedures specifically for all types of forensic evidence and require that evidence be submitted to one central location, rather than to the several units that are currently used (including the Property Room, CER, the Firearms Section, and the Questioned Document Section).*

**Recommendation #110:** *All long-term storage of forensic evidence should occur in one location, rather than the multiple locations currently used in the Harris County criminal justice system.*

**Recommendation #111:** *A new evidence tracking system must be implemented that includes complete seamless integration with all of the existing evidence tracking systems. The software vendor(s) and HPD management should be held accountable for the creation and implementation of a new evidence tracking system that integrates all evidence in the Property Room and CER into a user-friendly, numerically sequential program.*

**Recommendation #112:** *Until improved evidence tracking software is installed, a multi-part chain of custody form or a photocopy receipt should be used so that chain of custody documentation of the evidence transfer remains with the section or unit that transferred the evidence, as well as with the entity to which it has been transferred.*

These recommendations were generally implemented as a result of the construction of a new Property Room facility in June 2009. This allowed for all forensic evidence to be submitted to and maintained at a single location, with the exception of controlled substances, which are stored in a secure location at HPD Headquarters rather than in the new Property Room facility. Additionally, the Evidence Management System creates chain of custody documents that include the ability to provide electronic signatures at every stage of the process. As of December 7, 2009 the Crime Lab had LIMS and EMS, which together have addressed the most serious problems observed during the Independent Investigation.

**Recommendation #113:** *Many law enforcement agencies currently use transparent, breathable evidence bags. We recommend that these should be provided to all HPD personnel who collect, submit, examine, or handle evidentiary items. Various bag sizes and types are available, and they can accommodate large and small items, as well as long firearms and biological evidence. Bags can be purchased without labels or with evidence labels permanently affixed.*

This recommendation has been implemented to the extent practicable. As early as 2009, breathable bags were being used to store certain items, but the Crime Lab and Property Room concluded that not all evidence could properly be stored in such bags. It

---

<sup>11</sup> Our engagement with the HFSLGC does not extend to an assessment of the HPD Property Room. Because many of the evidence handling and storage recommendations in the 2007 Final Report relate to both the Crime Lab and the Property Room, the following assessments are based solely on our review of the aspects of evidence handling and storage issues that relate to the Crime Lab.

appears that the Crime Lab and Property Room gave consideration to which categories of items were appropriate for using breathable evidence bags.

**Recommendation #114:** *HPD should emphasize the proper collection, packaging, and submission of all types of forensic evidence—including biological evidence and suspected controlled substances evidence—during in-service training. Investigative and patrol supervisors should ensure that officers in their command follow proper procedures and practices related to the collection and handling of evidence.*

The Crime Lab has taken steps to implement this recommendation, but we could not determine whether the steps that have been taken have been sufficient to affect evidence collection. The Crime Lab's tracking sheet suggests that training was being offered to field officers and the Crime Scene Unit on proper evidence collection and preservation techniques, and that Crime Lab staff has taught evidence collection and preservation at the HPD Academy. A 2008 entry on the tracking sheet suggests that the program was being developed for Field Training Officers to do rotations in every Section of the Crime Lab but this never occurred.

**Recommendation #115:** *In order to reduce the unnecessary retention of evidence in resolved cases, investigative supervisors should be required to provide a detailed justification in response to requests from the Property Room seeking authorization to destroy evidence if the determination is that the evidence should be retained.*

This recommendation is not the responsibility of the Crime Lab. It involves communication and understandings between HPD investigative supervisors and the Property Room.

**Recommendation #116:** *The RMS should work effectively with any evidence-tracking and LIMS adopted by the Property Room and the Crime Lab.*

**Recommendation #117:** *The RMS should accommodate identification numbering systems used by other agencies in the Harris County criminal justice system. For example, case information should be retrievable using any one of the various identification numbers assigned by different agencies or HPD divisions to the same matter.*

These recommendations have been partially implemented. With few exceptions largely limited to containers of evidence, the existing EMS and LIMS are integrated and work well together. HPD will not be installing its new Records Management System (RMS) system until 2014, three years later than originally anticipated.

**Recommendation #118:** *An acknowledgement of receipt should be generated whenever an investigator's request for examination of evidence is sent to the Crime Lab.*

**Recommendation #119:** *Investigators who have requested examination of evidence by the Crime Lab should be notified automatically when results of the analysis are available.*

This recommendation has been implemented. LIMS generates two emails when an investigator submits evidence to be analyzed – one to the Crime Lab analyst and one to the section supervisor. Notifications to the investigator and anyone else who has been included on a recipient list are provided when analysis has been completed and when the analyst's report has been issued. While the analysis and report preparation are ongoing, investigators can determine the status of the analysts work through the Web Pre-log system.

**Recommendation #120:** *Because 20 to 40% of the cases submitted to CER are reportedly improperly sealed or marked, officers who make direct submissions should be provided a work area with supplies where they can remedy the deficiencies. When evidence deposited in lockboxes has been handled or submitted improperly, the submitting officers' supervisor should be notified of the deficiencies so that the errors can be corrected and the responsible officers provided remedial training regarding the proper collection and submission of evidence. Finally, CER should review current departmental guidelines for relevance and provide training to officers on evidence submission procedures.*

This recommendation has been partially implemented. Over time, guidance has been provided to both officers and their supervisors on the appropriate way to submit evidence, including the publication and dissemination of printed materials. In addition, Crime Lab personnel provide training on proper evidence submission to new HPD cadets. We were not provided with any information that would help us assess whether these steps have reduced the error rate involved in evidence submissions.

**Recommendation #121:** *HPD should create a career ladder for CER by implementing senior inventory clerk or evidence technician positions to address the high turnover in this unit, which contributes to the inefficiency of the transfer, storage, and disposal of evidence. Current pay levels are inadequate for personnel who are given a great deal of responsibility for handling and accounting for evidence.*

**Recommendation #122:** *Staffing in CER is inadequate, and all vacant positions (one supervisor and four clerk positions) should be filled immediately.*

These recommendations have been partially implemented. A new position of Senior Evidence Technician was created in 2009, with opportunities for advancement and increased salary. Staffing turnover continued to be a problem for many years but eventually stabilized. In August 2013, CER and its personnel were transferred to the HPD Property Room.

**Recommendation #123:** *CER and HPD should review existing evidence destruction procedures to identify ways to reduce the time evidence is stored at CER after adjudication.*

**Recommendation #124:** *A complete inventory and reconciliation should be conducted immediately in CER, and periodic audits should occur on a regular basis in the future.*

**Recommendation #125:** *We strongly recommend improved physical security measures in CER.*

These recommendations have been implemented. Although the process of implementing more sensible evidence destruction procedures took many years, their implementation has substantially increased the amount of evidence destruction relating to fully adjudicated cases. A database, the Justice Information Management System (JIMS), has kept CER staff advised of the status of cases and when they are no longer active and LIMS has allowed Destruction Order productions to take place electronically, thus expediting the process.

In 2009, the Crime Lab began the process of compiling an inventory of items in CER. The Crime Lab inventoried 164,000 pieces of evidence, including items in CER. CER's inventory and reconciliation took place in the fourth quarter of 2012. There were periodic audits thereafter until CER was transferred to the Property Room in August 2013.

As of early 2009, the Crime Lab had installed high-density shelving in CER with secure, locking doors. High value narcotics were maintained in those locked units.

**Recommendation #126:** *The Property Room should conduct an inventory and reconciliation immediately. Permanent staff should be hired to coordinate a complete annual inventory and reconciliation, as well as ongoing periodic audits.*

**Recommendation #127:** *To develop an efficient evidence disposal program, HPD should increase Property Room staffing to include one supervisor and two clerks whose sole responsibility is evidence destruction. Timely destruction of property is a critical element of efficient property room management, as is the proper management of records.*

**Recommendation #128:** *Because Property Room procedures are inconsistent and not clearly understood, managers must develop written policies and procedures for all property room operations. The policies and procedures must be understood by all employees and implemented in a uniform and consistent manner. HPD should authorize the hiring of one administrative manager to develop and update Property Room SOPs describing property room operations and proper procedures for submitting evidence to the Property Room. The SOPs should be available online so that all officers, investigators, and other HPD employees responsible for handling evidence can have easy access to the SOPS.*

**Recommendation #129:** *HPD should allocate funding to provide Property Room personnel with basic and refresher training on proper evidence handling procedures. HPD should also provide funding for membership in appropriate property room trade associations.*

**Recommendation #130:** *The Property Room storage facility is sorely in need of replacement with a modern, secure, climate-controlled warehouse large enough to accommodate all HPD evidence, to include forensic evidence, with room for expansion. HPD should vigorously pursue its plans to*

*design and build an appropriate storage facility that can accommodate all property and evidence currently in HPD custody. The new facility should be large enough to accommodate all forensic evidence (controlled substance, biological, firearms, questioned documents, fingerprint) and non-forensic evidence and property. The design should include enough expansion space to satisfy HPD needs until 2027.*

**Recommendation #131:** *Video and audio tapes that are currently stored in case files should be stored (under appropriate temperature and humidity conditions) as evidence in the Property Room.*

These recommendations all relate to the Property Room and have little or no connection to the Crime Lab. As described above, this is beyond the scope of the review authorized by the HFSLGC. Even so, HPD officials were generous enough to provide us with a courtesy tour of the new HPD Property Room, which opened in June 2009. The difference between the dilapidated, overcrowded former Property Room, and the modern, gleaming new Property Room is enormous in every discernible way — appearance, size, cleanliness, organization, room for expansion, and conditions of evidence storage.

**Recommendation #132:** *The Crime Lab should be interacting more with investigators and patrol officers regarding evidence collection techniques, as well as successes or failures relating to evidence handling issues.*

This recommendation has been generally implemented. The Crime Lab provides training to cadets and officers during cadet and in-service training. It also provides specialized training to various units within HPD, including Adult Sex Crimes and Juvenile. In addition, Director Rios described providing evidence collection advice and guidance to commanders and supervisors of the rank of Captain and above. In addition, the Crime Lab has created an online video that addresses evidence collection issues. The Crime Lab provided us with some documentation reflecting discussions of both evidence collection successes and failures.

**Recommendation #133:** *Crime Lab personnel should be directly involved in training of CSU investigators.*

This recommendation has been partially implemented. The Crime Lab has not provided training to the CSU. We recommend that the Crime Lab further increase its training of CSU members, including to alert them to some of the problems that Crime Lab analysts encounter because of flaws with the way evidence is collected.

**Recommendation #134:** *The Firearms Section should develop policies and procedures governing the submission of all types of firearms evidence.*

This recommendation has been implemented. A circular was issued in late 2007 requiring all firearms evidence to be submitted to the Property Room rather than the

Firearms Section. Since that time, firearms evidence has been submitted in accordance with that circular.

**Recommendation #135:** *HPD should hire an inventory management clerk to transport all firearms evidence between the Property Room and the Firearms Section, and the large amount of firearms evidence that is currently held in the Section vault should be moved to the Property Room. The current practice of using an examiner to transport evidence is an inefficient use of resources and has resulted in the accumulation of a large amount of evidence in the Firearms Section.*

This recommendation has been implemented. The Firearms Section hired an evidence technician in 2008. The technician's responsibilities include being responsible for the transfer of evidence between the Property Room and the Firearms Section for examination, and back to the Property Room for storage. Examiners are no longer used to transport firearms evidence between the Section and either CER (now part of the Property Room) or the Property Room itself.

**Recommendation #136:** *The Crime Lab should consider having all questioned document evidence submitted to the Property Room in a manner consistent with other property submission requirements for laboratory evidence.*

Following the issuance of the 2007 Final Report, HPD issued a circular directing investigators to submit Questioned Document evidence directly to the Property Room. With the closure of the Questioned Documents Section in December 2010, Questioned Documents with potential evidentiary value must be referred out to other laboratories but is logged into the Property Room before being sent out for analysis.

#### **IV. Conclusion**

This review was undertaken at the request of the HFSLGC to determine whether the HPD Crime Lab had, over the course of six years since the 2007 Final Report of the Independent Investigator, implemented the specific recommendations included in that report. We relied on a combination of the interviews with Director Irma Rios and the senior supervisors on her staff, our review of documents provided by the Crime Lab in response to our requests, a limited number of case files for each currently operating section of the Crime Lab, and a detailed spreadsheet maintained by the Crime Lab over the past six years. Because of limitations of time and budget, we did not interview line analysts, mid-level supervisors, or clerical personnel in the Crime Lab to further confirm what we learned from other sources.

Even with these limitations, we were able to draw conclusions on the specific recommendations contained in the 2007 Final Report and on more general issues of Crime Lab management as it transitions to being managed by the HFSLGC. First, the Crime Lab is a very different place than it was during the period 2005-2007. To be sure, it has experienced budgetary challenges, supervisory turnover, and some continued

turbulence over the past six years. However, it has managed to survive these challenges and solve many of the major problems that were documented in the 2007 Final Report. Second, it has been able to do so in large part because of an impressive set of senior supervisors under Director Irma Rios, all new in their positions since 2007, who have brought talent, experience, and good judgment to the task of improving the operations of the Crime Lab. Third, after some resistance reflected in its initial responses to the recommendations, the Crime Lab addressed most of them with care and balance. As this review reflects, some of the recommendations have not been addressed at all and others have been addressed incompletely. But on the whole, and with little oversight in the interim period, the Crime Lab did a responsible job of implementing the recommendations.

We were somewhat surprised to see that certain services generally considered integral parts of a major forensic laboratory are no longer offered in the HPD Crime Lab. Since 2007, the Trace Evidence and Questioned Documents Section have been disbanded and those services are no longer offered within the Crime Lab. We urge the HFSLGC to reconsider those decisions. In addition, the Firearms Section no longer conducts muzzle-to-target distance determinations, even though such analysis can be very important in such incidents as officer-involved shootings. In each case, the Crime Lab explained its decision primarily on the basis of a lack of demand for the specific services and issues relating to that lack of demand, including cost and the challenges of remaining proficient in the face of such low demand. But, as the 2007 Final Report explained at length, the demand for services is affected by making investigators and prosecutors aware of the contributions such services can make to convicting the guilty and exonerating the innocent.

The Conclusion to the 2007 Final Report expressed concern that without sustained effort and attention, the Crime Lab would not be able to perform “consistently competent and reliable forensic science analysis,” and that “HPD and the City must make sure that the needs of the needs of the Lab are never again ignored.” Final Report, p. 332. Mayor Parker’s landmark decision to create the HFSLGC and the ongoing efforts to recruit top-flight executive personnel to oversee the forensic operations of HPD, most of which are currently housed in the HPD Crime Lab, are hopeful signs that forensic services will receive the attention and resources they so richly deserve.

January 29, 2014



Michael R. Bromwich  
Founder and Managing Principal  
The Bromwich Group LLC



Douglas M. Lucas, D.Sc. (hon.)  
Centre of Forensic Sciences of the  
Province of Ontario, Canada (ret.)

Barry A.J. Fisher, M.S., M.B.A.  
Los Angeles County Sheriff's  
Department Crime Laboratory (ret.)

John C. Raffetto, Esq.  
Goodwin Procter LLP