

# OFFICE OF THE CITY CONTROLLER



## HOUSTON FIRE DEPARTMENT (HFD) ARSON BUREAU PERFORMANCE AUDIT

**Chris B. Brown, City Controller**

**Courtney E. Smith, City Auditor**



**OFFICE OF THE CITY CONTROLLER  
CITY OF HOUSTON  
TEXAS**

**CHRIS B. BROWN**

December 20, 2019

The Honorable Sylvester Turner, Mayor  
City of Houston, Texas

**SUBJECT: 2020-05 HOUSTON FIRE DEPARTMENT (HFD)  
ARSON BUREAU PERFORMANCE AUDIT**

Mayor Turner:

The Office of the City Controller's Audit Division contracted the professional services of BDO to complete a performance audit of the Houston Fire Department's Arson Bureau (Arson), which is under the oversight of the Fire Marshal's Office. Arson's responsibilities include investigating the origin and cause of fires, generating intelligence to enable faster case clearances, and pursuing prosecution for arson offenses.

The scope and objectives of this audit were to:

- Review the current organizational structure of the Arson Bureau;
- Assess the internal controls related to the Bureau's operations;
- Analyze staffing levels; and
- Evaluate the current operational and management practices against relevant benchmarks.

During the audit engagement, we noted some of Arson's strengths are:

- Investigators are certified fire fighters and certified peace officers by the State of Texas, and many hold certifications from national and international organizations;
- Arson officers have demonstrated increased mastery of their craft by obtaining advanced levels of the investigators' peace officer certification.
- Management has implemented measures to monitor, review, and approve overtime hours to ensure costs are valid.

The attached report identifies three opportunities to improve the effectiveness and efficiency of LSB operations. The findings in the report relate to reporting capability, report tracking, and forensic photographer staffing.



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CHRIS B. BROWN

We would like to express our appreciation to the management and staff of HFD for their time and effort, responsiveness, and cooperation during the course of the audit.

Respectfully submitted,

Chris B. Brown  
City Controller

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City of Houston

Houston Fire Department - Arson  
Bureau

December 20, 2019



## Introduction

The City of Houston engaged BDO USA, LLP (BDO) to conduct an independent performance audit of the Houston Fire Department (HFD), Arson Bureau Division (“Arson Bureau” or “Bureau”).

## Background

The City of Houston dispatches HFD to over 5,000 working fires<sup>1</sup> each calendar year. On average, the Arson Bureau responds, upon request, to over 1,000 fires annually, which is approximately 20% of the City’s reported fire incidents. For fire incidents where the Arson Bureau is not requested, the determination of origin and cause of fire are made and reported by the incident commander, who responded to the incident. However, the incident commanders are not certified fire investigators.

Below is a chart depicting the number of cases that Arson responded to for the 2015 through 2018 calendar years. Please note that the 2018 figure represents the number of cases, as of December 18, 2018.

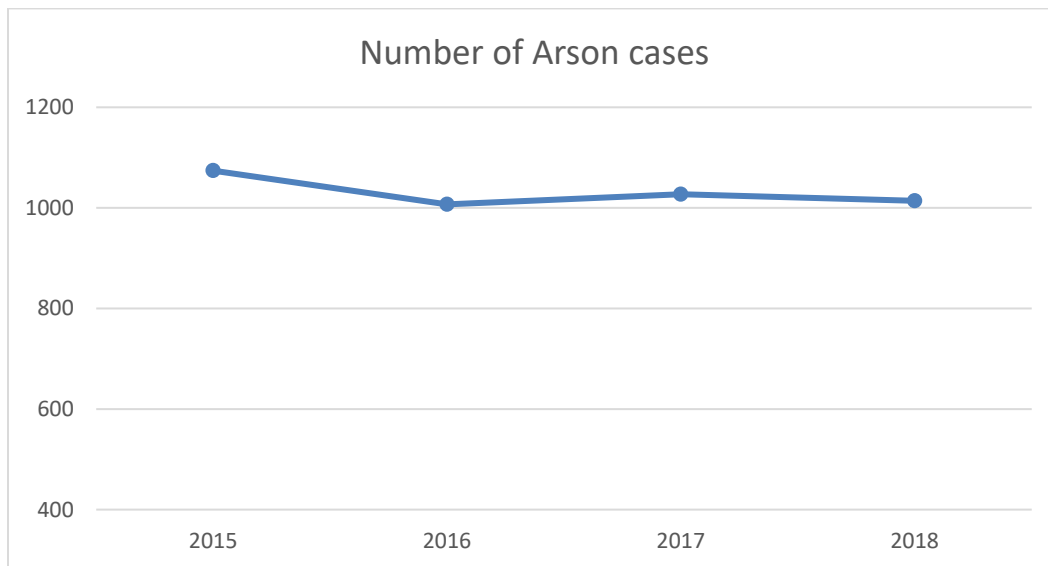


Figure 1 - See additional case load information in the Arson case cycle section of the report.

The primary activities of the Arson Bureau include:

- Performing investigations of fire incidents;

<sup>1</sup> Any incident with active fire; includes all NFIRS 100 series fires.



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- Determining the origin and cause of the fire;
- Conducting criminal investigations, as necessary, to identify arson suspects, collect, submit and maintain evidence, file charges, perform arrests, present cases to district attorneys for prosecution; and
- Testify in court, as subpoenaed.

The Arson Bureau operates under the Fire Marshal's Office, which is part of the Houston Fire Department's (HFD) Prevention/Planning and Homeland Security Command.

In many cases, investigators in the Bureau work with federal, state, and local agencies, such as the Bureau of Alcohol, Tobacco and Firearms (ATF), Federal Bureau of Investigation (FBI), and the Houston Police Department (HPD) to perform investigations. The Arson Bureau is a law enforcement agency within HFD and is classified as a Criminal Justice Agency of the State. Fire investigators can, and have, exercised police powers, which grant them the powers of arrest, search, and seizure under the law. All Arson Bureau investigators are both certified fire fighters and certified peace officers by the State of Texas.

The Arson Bureau also provides administrative support services to the Houston Fire Department, such as managing the Youth Fire Prevention and Intervention Program and administering polygraph tests for all HFD new hires.

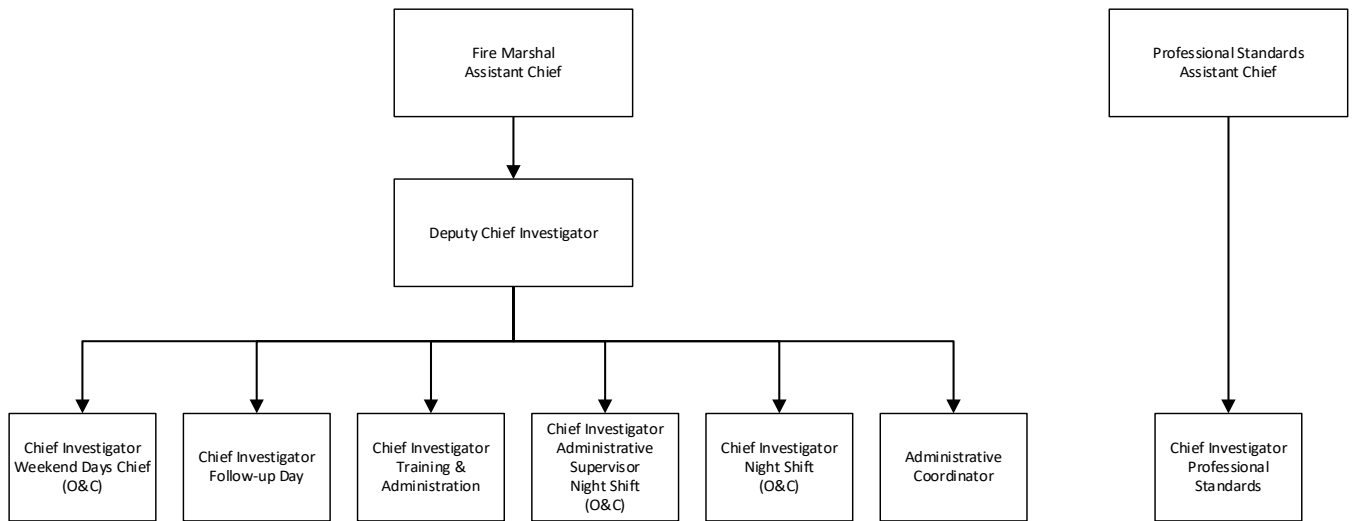
### *Jurisdiction*

According to the 2017 U.S. Census, the City of Houston has a population of approximately 2.3 million and covers 669 square miles of land area. The Arson Bureau responds to incidents in all areas of the City.

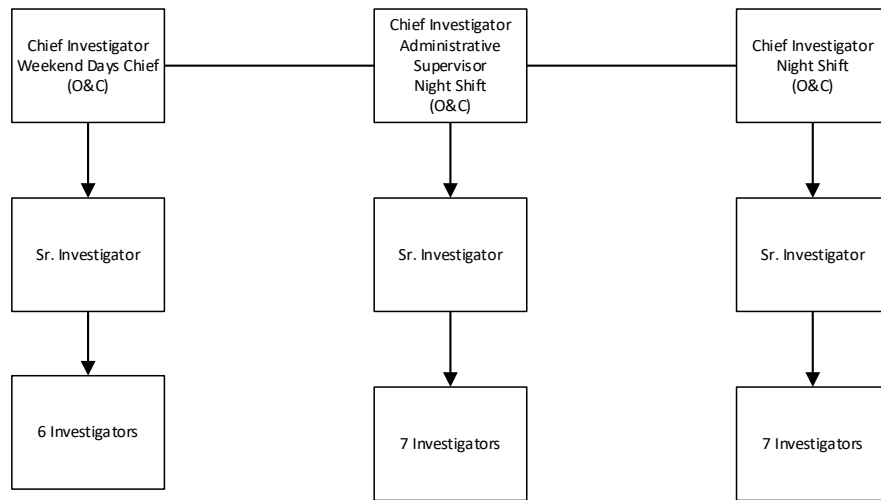
### *Organizational Structure and staffing*

In order to become an Arson Investigator with the City of Houston, one must have served in the Houston Fire Department and have passed a classified examination to receive the promotion into the Arson Bureau. Once promoted, the Arson Bureau arranges for qualified individuals to attend arson school and the police academy to receive required training and certifications. At the completion of training and certifications, the staff is assigned to one or more of the Bureau's experienced investigators to complete a field training program (FTO), where they receive on the job training, with real life incidents. A new member of the Bureau staff must also successfully pass an FTO evaluation prior to being placed on duty to perform arson investigations. The overall training process takes approximately 15 to 18 months.

The Arson Bureau is under the direction of the Deputy Chief Investigator, who reports to the Fire Marshal. In addition to the Deputy Chief, the Arson Bureau consists of six (6) Chief Investigators, nine (9) Senior Investigators, and fifty-three (53) Investigators assigned to the following units: Fire Investigations Origin and Cause (O&C), Follow-up, Administrative, and the Professional Standards Office (PSO).



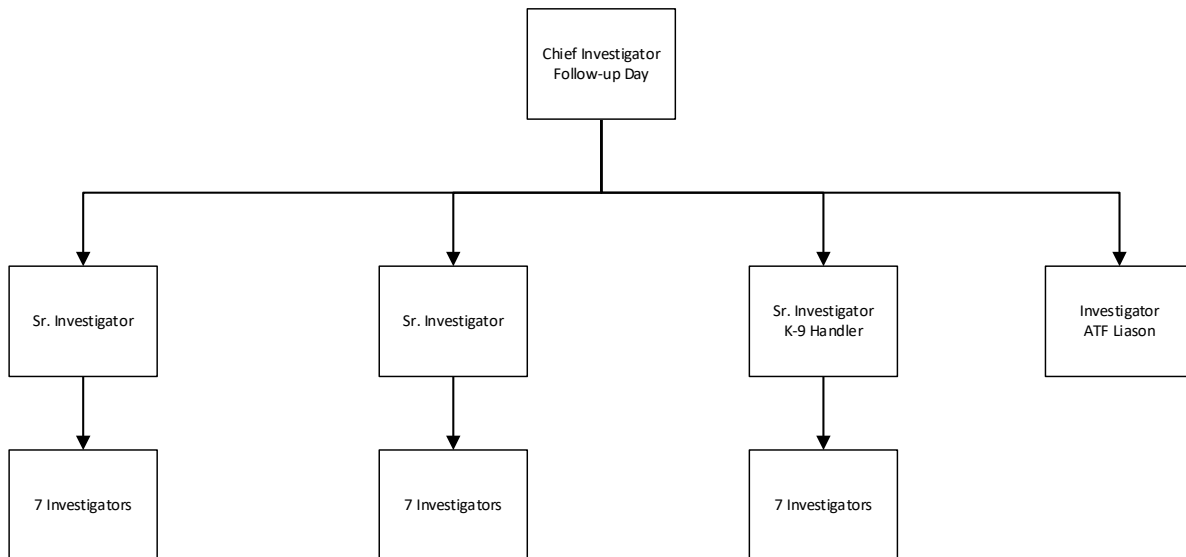
The Fire Investigations Origin and Cause (O&C) unit is managed by three Chief Investigators, supported by three Senior Investigators, and 20 Investigators. The primary duties of the Fire Investigators include responding to calls from fire suppression personnel to conduct initial on-scene investigations to determine O&C of the fire incidents.





The Follow-Up unit is managed by one Chief Investigator, supported by three Senior Investigators, and 22 Investigators<sup>2</sup>. The primary duties include, but not limited to the following:

- Perform follow-up investigations of incendiary fires to identify suspects;
- Make arrests;
- Work with the District Attorney’s Office in preparing charges in criminal cases; and
- Testify in trials, as subject matter experts.



At the start of each shift, the Chief Investigator for the unit reviews case logs on fire incidents from the previous shift and assigns the cases for follow-up. Investigators from the follow-up unit also respond to fire incidents that occur during their shifts and serve as origin and cause fire investigators.

The Administrative unit is composed of the Deputy Chief, one Chief Investigator, two Senior Investigators, and four Investigators. While the Deputy Chief oversees the overall operation of the Bureau, this unit performs administrative functions for the Arson Bureau, such as managing certifications, identifying and conducting training, ensuring that the team members meet all training requirements per certification levels, and that all continuing professional education credits are properly reported to certifying agencies. The unit also administers the Youth Fire Prevention and Intervention Program, and polygraph tests for investigations and all HFD new hires. Investigators in this unit also manage the Houston Fire Department’s Property Room and

<sup>2</sup> At the time of the audit fieldwork, three of the 22 Follow-up investigators were still in school, receiving fire investigation and police training, and were not yet performing investigations in the field.



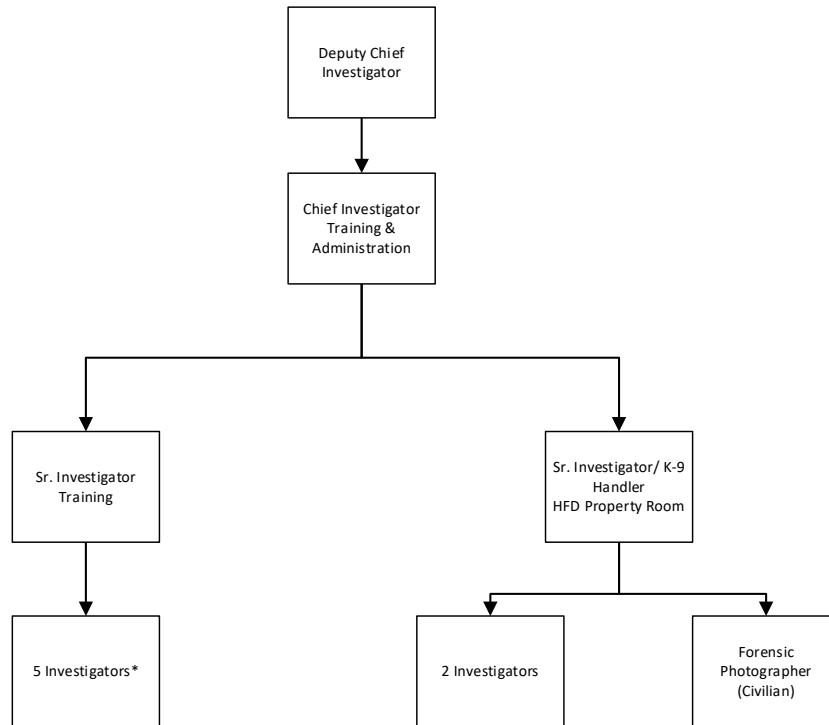
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evidence processing. Investigators in this unit serve as support function to investigations and do not carry active caseloads.

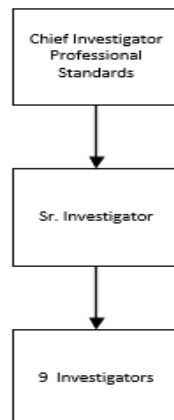
A Senior Investigator is assigned as the Bureau's training coordinator. The dedicated training coordinator function was developed in response to a review of the Houston Fire Department completed by TriData in 2000. TriData is a division of System Planning Corporation, who specializes in studies of fire protection, emergency medical services (EMS), EMS management, hazardous materials, rescue and emergency management; and the development of practical indicators to measure the performance of state and local government emergency services. The study noted that the Arson Bureau lacked "a Training Coordinator to identify training opportunities, schedule in-service and outside classroom training, manage the training profile for all investigators, and establish a Certified Fire Investigator (CFI) program" (TriData, 2001) for the Bureau. The need to provide additional appropriate certifications for fire investigators was also identified in a separate 2016 review conducted by FACETS Consulting, who specializes in providing management consultation for federal, state, and government agencies. Both Founders and Principals of FACETS Consulting had extensive experience in various Fire Departments across the country.

Currently, 29 members in the Arson Bureau hold a Master Arson certification issued by the Texas Commission on Fire Protection (TCFP), five members hold the Advanced Arson certification, and other members with over one-year experience in the Arson Bureau, hold the Basic or Intermediate Arson Certification. Additionally, members of the Arson Bureau also hold certifications, such as Certified Fire Investigator issued by the International Association of Arson Investigators and Certified Fire and Explosion Investigator issued by the National Association of Fire Investigators. Both certifying organizations are nationally recognized. As the investigators are expected to state not only facts, but also provide expert testimony during trial, they are required to be able to demonstrate their knowledge, experience and training to support their credentials, as expert witnesses. The dedicated training program is developed to achieve these objectives.



\*Note: Investigators in this group also administer the Youth Fire Prevention and Intervention Program, conduct polygraph tests for investigations and HFD new hires, and supports internal fleet management and maintenance schedules.

The Professional Standards Office (PSO) is led by an Assistant Fire Chief, and supported by one Senior Investigator, and seven investigators. While the Professional Standards Office is considered part of the Arson Bureau, the Professional Standards Office maintains a separate budget and performs internal investigations on complaints filed against members of the Houston Fire Department. PSO staff members do not perform any fire investigations.

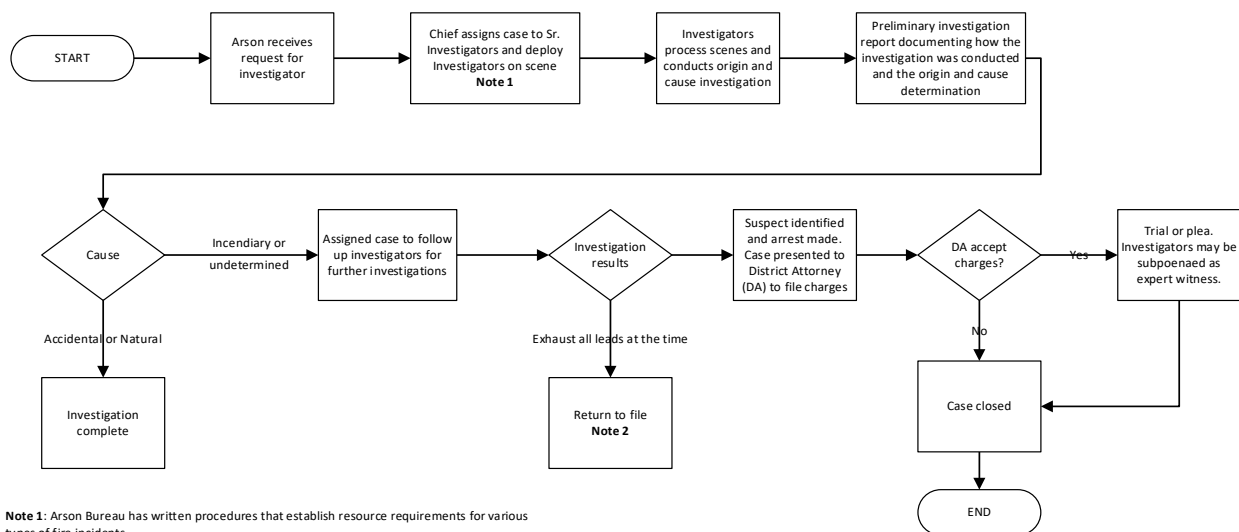


Two investigators in the Bureau are canine handlers and work with trained canines in investigations. One investigator in the Bureau is also a Bureau of Alcohol, Tobacco and Firearms (ATF) liaison, who assists with federal investigations, as necessary. On duty fire investigators are also assigned administrative tasks to be performed at times when not actively working cases. Below are examples of the administrative tasks:

- Assisting in the training/ certification tracking and reporting
- Managing fleets
- Performing case report quality review
- Teaching proper report writing
- Reviewing and/or updating internal policies and procedures
- Monitoring sick time usage and coordinating overtime
- Conducting new Investigator registration with proper authorities (TCOLE, Harris County, peace officer school, training) and handling documentation for retirees
- Monitoring Field Training (FTO) program

### Arson case cycle

Duration of an arson investigation varies based on numerous factors. Severity of the fire incident, availability of witnesses, or timeliness of crime lab processing of evidence are examples of factors that impact progress of an investigation. Below is a simplified, high-level overview of an arson investigation cycle:



**Note 1:** Arson Bureau has written procedures that establish resource requirements for various types of fire incidents.

**Note 2:** Investigators exhaust all available leads at the time. Pending additional or new information to become available.

Law enforcement agencies can clear, or “close,” offenses in one of two ways: by arrest or by exceptional means. Based on guidance published by the FBI Uniform Crime Report (UCR), a

law enforcement agency may report that an offense is cleared by arrest when the three conditions are met below:

- That at least one person has been arrested;
- That at least one person has been charged with the commission of the offense; and
- That at least one person has been turned over to the court for prosecution (whether following arrest, court summons, or police notice).

A law enforcement agency may report that an offense is cleared by exceptional means when elements beyond law enforcement's control prevent the agency from arresting and formally charging the offender in certain situations. The agency must meet the below four conditions to clear an offense by exceptional means. The agency must have:

- Identified the offender;
- Gathered enough evidence to support an arrest, make a charge, and turn over the offender to the court for prosecution;
- Identified the offender's exact location so that the suspect could be taken into custody immediately; and
- Encountered a circumstance outside the control of law enforcement that prohibits the agency from arresting, charging, and prosecuting the offender.

Examples of exceptional clearances include, but are not limited to, the death of the offender (e.g., suicide or justifiably killed by police or citizen); the victim's refusal to cooperate with the prosecution after the offender has been identified; or the denial of extradition because the offender committed a crime in another jurisdiction and is being prosecuted for that offense.

It is important to note that crime reporting counts the number of offenses that are cleared, not the number of persons arrested. The arrest of one person may clear several crimes, and the arrest of many persons may clear only one offense. In addition, some clearances that an agency records in a calendar year may pertain to offenses that occurred in previous years.

The Arson Bureau responded to approximately 1,020 incidents as of mid-December in calendar year 2018. Without consideration of the timing of fire incidents and shift schedules, on average, each investigator from the Fire Investigations (O&C) responded to 51 new fire incidents in 2018. Of the 1,020 new incidents, 556 required additional investigations and were assigned to the 22 investigators in the Follow-up unit. Each Follow-up investigators received an average of 25 new case assignments. Chiefs and Senior Investigators do not carry caseloads as they perform supervisory duties.

As shown in the high-level process flow chart on page 8 of this report, incendiary<sup>3</sup> cases require additional investigations. These investigations are not always resolved within the same year. Unresolved cases are carried over until the earlier of resolution or the expiration of the statute of limitation of ten years and can quickly cause the caseload of Follow-up investigators to compound. As of the completion of audit fieldwork, the Arson Bureau did not have a system with statistical reporting capabilities to capture overall arson case metrics, such as, the status of all cases, cases worked, all cases closed, or all open cases (RTP) by investigators. Therefore, total caseload per investigators cannot be accurately assessed. See Finding #1 in the Findings and Recommendations section of this report for further details.

### *Prior reviews*

In the past five years, no audits have been conducted of the Arson Bureau's operations. However, there have been several reviews and self-assessments related to the overall Fire Department's operations. Most recently, the "Response Time and Staffing Analysis Model for the Houston Fire Department" was published in 2016 and reported a brief assessment related to the Arson Bureau's operations. Prior to the 2016 study, HFD published an annual review of the entire fire department in 2007.

The Houston Fire Department also compiles and submits an annual compliance report to the Center for Public Safety Excellence (CPSE) to maintain the accreditation status of the agency. The accreditation report includes an assessment of the Arson Bureau's key performance measures. The accreditation report noted that HFD's clearance rate, the number of cases cleared by arrest or by exceptional means, as a percentage of total cases in a year, in 2017 was 18%, up from 16% in 2016, both of which are above the average amongst peer jurisdictions with population over one million. According to the UCR, agencies in this peer group had average clearance rates of 14.1% and 13.1 % for Arson cases in 2016 and 2017 respectively. The Houston Fire Department has since made revision to the 2017 clearance rate and noted a rate of 19.95% in 2017 and 21.55% in 2018.

### **Audit Objectives**

The objectives of this engagement were to:

- Review the current organizational structure of the Arson Bureau;
- Assess the internal controls related to the Bureau's operations;

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<sup>3</sup> An incendiary fire is a fire intentionally ignited under circumstances where the person knows the fire should not be ignited.

- Analyze staffing levels; and
- Evaluate the current operational and management practices against relevant benchmarks.

Our analysis was limited to the above audit objectives and was not intended to assess all operational aspects of the Arson Bureau.

### **Procedures Performed**

We conducted our planning and fieldwork from November 2018 through March 2019, performing the following tasks:

- Conducted necessary research to identify best practices and industry standards, to the extent available, relating to Arson investigations;
- Performed site visits, observed procedures and conducted interviews with key Arson Bureau personnel;
- Reviewed policies, procedures, and key documents, such as the internal investigation procedures, applicable National Fire Protection Association (NFPA) Standards, City ordinances, Texas Commission on Fire Protection training requirements, Texas Commission on Law Enforcement training requirements, and other relevant information for fire investigation and peace officer training;
- Evaluated applicable operational practices, technology tools, and internal controls;
- Performed a risk assessment to identify, assess, and prioritize risks to develop a risk-based approach for audit programs;
- Performed analytical procedures;
- Mapped risks and controls to key processes;
- Examined pertinent documents and records including training documentation, and other supportive evidence; and
- Tested compliance with established or stated policies and procedures.

### **Audit Methodology**

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards and in conformance with the International Standards for the Professional Practice of Internal Auditing. In accordance with our engagement letter, this project did not constitute an audit of financial statements in accordance with generally accepted auditing standards.

### **Strengths of the Arson Bureau Personnel**

In conducting our audit, we noted the following:

- Arson Bureau officers have attained an increase in the level of mastery in the investigators' peace officer certification since 2016;
  - 7 Individuals advanced from Basic to Master level
  - 6 Individuals advanced from Basic to Advanced level
  - 10 Individuals advanced from Basic to Intermediate level
  - 3 Individuals advanced from Intermediate to Advanced level
- The Arson Bureau is staffed with investigators who are certified arson investigators through the State of Texas, as well as nationally and internationally recognized organizations such as International Association of Arson Investigators (IAAI) and National Association of Fire Investigations (NAFI). Investigators attained certifications such as Certified Fire Investigator (CFI), Fire Investigation Technician (FIT), Evidence Collection Technician (ECT) through the IAAI; and Certified Fire & Explosion Investigator (CFEI) through NAFI.

## **General Observations**

To accomplish one of the audit objectives, we sought published standards, guidelines, and organizational structures of other law enforcement agencies responsible for overseeing arson investigations, to provide a basis for comparison to evaluate the organizational structure of the City of Houston's Arson Bureau.

### *Staffing standards*

The published standards and guidance refer to the number of individuals or resources that one supervisor can manage effectively during an incident as "span of control." Span of control varies considerably, depending on the size of the organization, functions and complexities of the jobs involved, and between the public and private sectors.

When examining national standards and recommendations established by the National Fire Protection Association (NFPA) and Federal Emergency Management Agency (FEMA), it was noted that these authoritative literatures did not establish a single standard staffing model requirement for arson investigation agencies. Arson Investigations are conducted under standards established by National Fire Protection Association (NFPA), more specifically, NFPA 921 Guide for Fire and Explosion Investigations. Section 15.3.1 and 15.3.2 of the standard provide that investigators should fulfill four basic functions: leadership/coordination, photography, note taking, mapping and diagramming, with personnel available; and establishes criteria that a minimum of two investigators should be present at the incident scene in section 13.2.1. However, it does not provide requirements for the number of investigators required at complex (e.g. large area, fatality, bombing, etc.) scenes, nor the overall organizational structure



of Arson. Another standard published by the NFPA is the NFPA 1561 Standard on Emergency Services Incident Management System and Command Safety. The document establishes minimum requirements for an incident management system to be used by emergency services to manage all emergency incidents and defines emergency incident as “any situation to which an emergency services organization responds to deliver emergency services, including rescue, fire suppression, emergency medical care, special operations, law enforcement, and other forms of hazard control and mitigation.” Section 8.2 of NFPA 1561 requires that “command structure for each incident [to] maintain an effective supervisory span of control at each level of the organization,” and like the NFPA 921, the standard did not establish a staffing model with a fixed number of investigators for each incident and/or organization.

#### *Comparison to other Arson investigation agencies*

Our procedures also included steps to compare Arson Investigative units across the country. However, we were not able to perform this comparison due to fundamental organizational structure differences between each agency. Each jurisdiction differs in handling of fire and arson investigations. Agencies also operate differently and may not respond to the same types of fire incidents. Additionally, they vary in reporting of arson statistics.

These differences between the Arson Investigative units across the country were highlighted when we examined the FBI’s arson statistics by reviewing their published Uniform Crime Report (UCR), particularly in what is reported, and the consistency of reporting.

The UCR only captures fires that investigations determined to have been willfully set, fires labeled as suspicious or of unknown origin are excluded from the UCR; meaning only a subset of all fire incidents that the City of Houston Arson Bureau (or other jurisdiction) responds to is reflected within the data presented as investigations must be conducted to determine whether the fires were in fact willfully set. This shows that while the UCR presents standardized information for comparable jurisdictions, the available statistics do not provide operating insights into the individual agencies participating in the reporting. Therefore, meaningful comparisons between the Arson Investigative units cannot be established.

Moreover, the UCR noted a total of 15,336 agencies across the nation reporting 42,131 arson cases in 2016 and 14,975 agencies reported a national total of 40,416 arson cases in 2017. In 2017, only 10 agencies from jurisdictions with population over 1,000,000, same jurisdiction class as Houston, reported arson cases to the FBI for 12 complete months. The reported total arson cases from these 10 agencies was 3,662, making up 9% of the national total. The FBI included a footnote to the 2017 Percent of Offenses Cleared by Arrest or Exceptional Means by Population



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Group (table 25) that “*not all agencies submit reports for arson to the FBI...As a result, the number of reports the FBI uses to compute the percent of offenses cleared for arson is less than the number it uses to compute the percent of offenses cleared for all other offenses*” which amplify the inconsistencies across different agencies when reporting arson. Due to these inherent differences in information, an in-depth analysis and comparison between the various agencies could not be performed.



*Overtime Cost Management*

As the City has faced numerous budget cuts in recent years, Arson Bureau’s Management has implemented measures to monitor the Bureau’s costs associated with overtime. Between FY2016 – FY2018, the overtime cost incurred by classified employees was first reduced by 16.7% in FY2017 and reduced again by 7.5% in the most recent fiscal year. Overtime cost incurred by the Arson Bureau between FY2016 – FY 2018 is summarized below:

Fiscal Year	Budget	Actual total (Rounded to the nearest dollar)	Actual vs. budget	Changes from prior fiscal year
2016	\$489,480	\$472,633	-3.44%	-
2017	\$382,553	\$393,863	2.96%	-16.67%
2018	\$385,614	\$364,149	-5.57%	-7.54%

When evaluating the components of the overtime costs incurred, the primary contributing factors are time associated with investigations or trial, minimum staffing, and extra board arrangements. Overtime incurred due to investigations or trial are non-controllable. For other controllable circumstances, overtime costs are managed by Management through various means. For example, a new training program is in place that arranges for training to occur mostly during the investigators’ normally scheduled shifts, where practicable. Procedures are also in place to ensure supervisory approval of overtime is obtained prior to occurrence. The Deputy Chief also monitors budget to actual overtime regularly, as well as, reviews and approves overtime hours to ensure that costs are valid.

*Reporting Tool*

Currently, the Arson Bureau manually compiles case statistics for the FBI’s Uniform Crime Report (UCR). Within the UCR, Arson is reported as part of property crime. Arson statistics (i.e. clearance rate) for different states and cities are not easily obtained and analyzed due to the varying degrees of reporting arson offenses among agencies, in that not all jurisdictions have dedicated resources to conduct arson investigations.

The FBI’s UCR program is retiring the current data collection means and is transitioning into a National Incident-Based Reporting System (NIBRS)-only data collection by January 1, 2021. Currently, only 17% of Texas law enforcement agencies are contributing to NIBRS and only the police departments (PD) within the City of Houston are submitting to NIBRS, as PD’s current records management system can produce compatible data sets.



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The Arson Bureau utilizes the Houston Police Department (HPD)'s record management system when charges are filed. However, other arson investigations are not recorded in HPD's system. During the audit, it was noted that there are discussions between the Arson Bureau and HPD to evaluate practicality and adoptability for the Arson Bureau to fully transition into utilizing HPD's records management system to document all arson investigations. This effort is still in progress.

## Findings and Recommendations

Findings and recommendations relative to the Arson Bureau are detailed below.

### **Finding #1: Limitations to current reporting capabilities**

#### **Risk Rating: High**

**Background:** A manual log is maintained to track the Bureau's year-to-date caseload and to manage case assignments.

All arson case reports written for incidents on the case log have been recorded in the Bomb Arson Tracking System (BATS) since 2013. While the system allows users to search cases by assignees, the system does not provide statistical reporting capabilities to allow supervisors to quickly assess overall arson case statuses, such as all cases worked, all cases closed, or all open cases (RTP) by investigators.

**Finding:** The current tools utilized in the Arson Bureau's operations limit the department's ability to quickly and accurately evaluate and assess investigators' caseloads, as the log does not reflect or roll forward cases from prior years that are still open and within Texas' statute of limitation of ten years for arson cases.

The tools also present challenges for Management to perform periodic assessment of cases within the statute of limitations. The tool does not identify open cases that are flagged as "returned to file" in prior periods (i.e. exhaust all leads at the time). Management is not able to determine whether additional investigations should be performed on these open items without relying on various tracking mechanisms each investigator employs or reviewing detailed case files.

**Recommendation:** We recommend that the Arson Bureau consider the following:

- Expand the SharePoint case log to include necessary data fields that tracks case status and assignments. As the SharePoint contains rolling case data since 2011, the cases listed on the logs, if remained open, are still within the statute of limitations, where investigators can provide assessment on whether additional investigative work can be performed, or all leads exhausted, and case pending new information.
- Update Bureau operating procedures to require investigators and/or supervisors to periodically review details of their respective cases to ensure that case information is accurately reflected on the SharePoint case log.



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- Implement changes to enable Department Chiefs to perform a periodic review of the updated case log to determine whether they agree with the investigators' assessments.

Implementing such procedures could also allow the Bureau to quickly provide certain Department statistics and key performance measures for internal and external reporting.

**Management Response:** The case log has been expanded to include fields to track case status, assignments, and comments regarding whether additional investigative work can be performed, all leads exhausted, case pending new information, etc. Operating procedures will be updated to require Investigators and Senior Investigators to periodically review the case log to ensure it accurately reflects the details for their respective cases. These procedures will also have Chief Investigators perform a periodic review of the updated case log to determine whether they agree with the investigators' assessments. The updated operating procedures will be distributed to all members of the Arson Bureau by the Deputy Chief over Arson and reviewed during the next meeting with the Chiefs and Seniors. The Chiefs and Seniors will review the updated procedures with all Investigators assigned to each of their respective shifts.

**Responsible Party:** Deputy Chief Investigator

**Estimated Date of Completion:** July 2019

**Assessment of Response:**

Management response sufficiently address the issues identified and corrective actions are appropriate.



## **Finding #2: No back up to Forensic photographer on staff (civilian position)**

### **Risk Rating: High**

**Background:** Within the Arson Bureau, the Forensic photographer position is held by a civilian, who is also a certified fire investigator through the Texas Commission of Fire Protection (TCFP). The Forensic photographer's primary job responsibility is to perform forensic photography of the crime scene and/or crime scene evidence. The photographer also assists with evidence processing at the property room/crime lab and supports production of photographic evidence for presentations in trials. Moreover, the photographer supports the Houston Fire Department on photographic duties and is required to be present at other HFD engagements, such as academy graduations and press conferences.

In addition to regularly scheduled shifts, the photographer is also on-call to assist with any multiple alarm fires, fires involving fatality, explosions, and other applicable major events. The current Forensic Photographer for the Arson Bureau has been with the Bureau for over 20 years.

**Finding:** Through interviews and observations, the auditors noted that while there is a process in place to back-up investigators on leave, there is currently no resource to serve as back up Forensic Photographer for the Bureau. It was noted that another investigator at the crime lab can assist in special forensic photographs of the fire scene. However, the investigator is not a trained photographer, who understands the importance of lighting and angles required to capture the scene best. Additionally, the same investigator at the crime lab is trained on a 360 technology to document the crime scene through series of spherical photographs, which are later processed into a virtual crime scene walkthrough. It is not efficient for a single individual to perform all photographic processing of the scene.

There are other Forensic Photographers for the City (such as ones at the Houston Police Department). However, the position at Arson requires the candidate to have or obtain the Fire Cause and Origin certification by the National Fire Protection Association within one year of being in the position.

**Recommendation:** We recommend that the Arson Bureau consider adding qualified resources and/or establishing a Forensic Photographer Apprenticeship program. This succession planning is considered best practice to ensure business continuity and proper staffing, assuring that required photographs for investigations are taken to allow adequate investigations of all applicable fires.

**Management Response:** While management agrees with this recommendation, implementation of this recommendation will require a funding source. An assessment will be conducted to evaluate the cost of adding additional resources and to explore possible funding sources.

**Responsible Party:** Fire Marshal



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**Estimated Date of Completion:** July 2019

**Assessment of Response:**

Management response sufficiently address the issues identified and corrective actions are appropriate.





### **Finding #3: Review of investigation reports are not tracked**

#### **Risk Rating: Medium**

**Background:** In 2016, when the current Deputy Chief assumed office, the Arson Bureau implemented a quality review process of case reports to ensure that the reports meet the standards outlined in the National Fire Protection Association's *Guide for Fire and Explosion Investigations* (NFPA921). Fire Investigators who respond to incidents are required to document initial reports assessing the cause and origin of the fire. These original reports are to be reviewed by the supervisor overseeing the original investigation. Depending on the nature of the fire, and the determined cause of the fire, additional follow-up investigations might take place, requiring supplements to be added to the case reports, as the investigation progresses. The revised reports are required to be reviewed by the supervisor overseeing the follow-up investigations. The Chief Investigator is also required to review to ensure that the reports are written in a manner that addresses the scientific method and systematic approach investigators employed to perform the investigations.

In addition to the tiered review process, a Chief Investigator from the weekend shift is assigned to perform quality assessments of the reports included in the Bomb Arson Tracking System (BATS). The Chief selects a random sample of reports from different shifts for review to verify whether reports written meet the NFPA921 standards. In cases where the reports require additional revisions, the responsible Senior Investigator or Investigators are assigned to complete the updates. The Chief Investigator's review is on a sample basis and does not constitute a review of all case reports prepared by the Arson Bureau. The department mainly relies on the tiered review process to ensure that case reports receive proper reviews.

For high priority cases, the reports are also reviewed by the Deputy Chief and other members of the Management team.

**Finding:** Evidence of the reviews conducted is not consistently retained. For instance, some Senior Investigators may review physical copies of the report and provide written comments, whereas, some reviewers may document their reviews utilizing the comments functions of Microsoft Word. Investigators release the case report from draft in BATS once they addressed the comments. However, additional reviews are not consistently performed over the revised reports in BATS to verify that needed corrections are made. As supplements are added to the case reports, BATS does not identify new sections of the reports that are added. Reviewers would need to re-review the reports from top to bottom to reevaluate the report.

Supervisors are expected to review the investigators' original reports for any grammatical errors, as soon as practical. However, this review process is not tracked. When the weekend Chief Investigator performs quality review of randomly selected reports, it is unknown if the reports had received prior reviews. As the Chief identifies items requiring revisions, comments are



provided to Senior Investigators with the expectation that responsible investigators are to revise reports with guidance from the Senior Investigators. However, the system currently does not provide the Chief Investigator with confirmation that issues identified are subsequently addressed.

Cases involving fatalities receive high levels of scrutiny due to the nature of the incidents, other cases may or may not be reviewed until a later time, as there is currently no tracking mechanism to monitor the review cycle of case reports. Management is not able to easily assess whether reports receive the proper level of inspection needed to meet the expected quality.

**Recommendation:** We recommend that the Arson Bureau expand the SharePoint case log to also include review status, priority (severity) of the case report, and indicate whether additional quality review of the report was performed. This allows Management to identify case reports requiring revisions and perform follow-up reviews, and to identify individuals that might require additional report writing training. This also helps ensure that high priority cases receive the necessary scrutiny and/or review before delivery of the case reports to district attorneys or other agencies for next steps.

**Management Response:** The case log has been expanded to incorporate review statuses, including documentation of each administrative review, follow up review, technical review, and quality assurance review.

**Responsible Party:** Deputy Chief Investigator

**Estimated Date of Completion:** June 2019

**Assessment of Response:**

Management response sufficiently address the issues identified and corrective actions are appropriate.



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**Respectfully submitted,**

A handwritten signature in blue ink that reads "Janet Smith". The signature is written in a cursive style.

**December 20, 2019**

# **EXHIBIT 1**

# Acknowledgement Statement

Date: December 2, 2019

Chris B. Brown  
City Controller  
Office of the City Controller

**SUBJECT: HFD ARSON BUREAU PERFORMANCE/COMPLIANCE AUDIT REPORT–  
ACKNOWLEDGEMENT OF MANAGEMENT RESPONSES**

I acknowledge that the management responses contained in the above referenced report are those of the Houston Fire Department. I also understand that this document will become a part of the final audit report that will be posted on the Controller's website.

Sincerely,

A handwritten signature in blue ink, appearing to be 'SP', written over a horizontal line.

Samuel Peña, Fire Chief  
Houston Fire Department

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