REPORT OF
THE TEXAS FORENSIC SCIENCE COMMISSION

WILLINGHAM/WILLIS INVESTIGATION

APRIL 15, 2011

TABLE OF CONTENTS

Recommendation 8: **Establishment of Peer Review Group/Multidisciplinary Team**
Recommendation 9: **Standards for Testimony in Arson Cases**
Recommendation 10: **Enhanced Admissibility Hearings in Arson Cases**
Recommendation 11: **Evaluating Courtroom Testimony**
Recommendation 12: **Minimum Report Standards**
Recommendation 13: **Preservation of Documentation**
Recommendation 14: **Dissemination of Information Regarding Scientific Advancements**
Recommendation 15: **Code of Conduct/Ethics**
Recommendation 16: **Training for Lawyers/Judges**
Recommendation 17: **Funding**

TABLE OF EXHIBITS

Exhibit 26 Willis v. Texas, 498 U.S. 908 (1990)

Exhibit 27 Willis v. Cockrell, No. P-01-CA-20, 2004 WL 1812698 (W.D. Tex. Aug. 09, 2004)

Exhibit 28 August 2010 Letter from the SFMO to the FSC

Exhibit 29 National Institute of Justice's June 2000 Report

Exhibit 30 National Center for Forensic Science's January 2008 Report

Exhibit 31 TCFP's "A-List" and "B-List" courses

Exhibit 32 Ignition Matrix

I. BACKGROUND

A. History of the Texas Forensic Science Commission

In May 2005, the Texas Legislature created the Texas Forensic Science Commission ("FSC" or "Commission") by passing House Bill 1068 (the "Act"). The Act amended the Code of Criminal Procedure to add Article 38.01, which describes the composition and authority of the FSC. *See* Act of May 30, 2005, 79th Leg., R.S., ch. 1224, § 1, 2005. The Act took effect on September 1, 2005. *Id.* at § 23.

The Act provides that the FSC "shall investigate, in a timely manner, any allegation of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility or entity." TEX. CODE CRIM. PROC. art. 38.01 § 4(a)(3).

The term "forensic analysis" is defined as a medical, chemical, toxicological, ballistic, or other examination or test performed on physical evidence, including DNA evidence, for the purpose of determining the connection of the evidence to a criminal action. *Id.* at art. 38.35(4). The statute specifically excludes certain types of analyses from the "forensic analysis" definition, such as latent fingerprint examinations, a breath test specimen, and the portion of an autopsy conducted by a medical examiner or licensed physician.[1]

The FSC has nine members—four appointed by the Governor, three by the Lieutenant Governor and two by the Attorney General. *Id.* at art. 38.01 § 3.

[1] For list of statutory exclusions, *see* TEX. CODE CRIM. PROC. art. 38.35(a)(4)(A)-(F) & (f).

Seven of the nine Commissioners are scientists and two are attorneys (one prosecutor and one criminal defense attorney). *Id.* The FSC's presiding officer is designated by the Governor. *Id.* at § 3(c).

The FSC's policies and procedures set forth the process by which it determines whether to accept a complaint, as well as the process used to conduct an investigation once a complaint is accepted. *See* FSC Policies & Procedures at § 3.0, 4.0. The ultimate result of an investigation is the issuance of a final report.

B. National Context

With the FSC's creation, Texas emerged as a leader among states seeking to advance the integrity and reliability of forensic science in criminal courts. Texas is one of only a handful of states to establish an independent agency for forensic oversight of accredited criminal forensic laboratories. Since 2005, the Commission has worked to meet the challenges inherent in building an agency from scratch with no pre-existing model. The FSC operated without funding for two consecutive bienniums; it hired its first staff member (the commission coordinator) in June 2008 and a second (the general counsel) in December 2010. From its inception, the Commission has been in the unusual position of developing standards to govern its own internal processes while simultaneously providing recommendations and coordinating accountability with other agencies. The Commission anticipates that other states will look to Texas and its peers as resources for developing similar forensic oversight commissions.

Current interest in improving forensic science at the national level was prompted in part by the release of a 2009 National Academy of Sciences report

entitled *Strengthening Forensic Science in the United States: A Path Forward* (the "NAS Report").[2] The NAS Report contains thirteen recommendations designed to improve forensic science and establish consistency and predictability. It addresses fire science briefly in a section entitled "Analysis of Explosives Evidence and Fire Debris." (NAS Report at 170-173.) The Commission incorporates observations from the NAS Report herein to the extent such information is relevant and useful.

C. Intersection of Science and the Law

As the United States Supreme Court noted in its landmark decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S. 579 (1993) ". . . there are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly." *Id.* at 596-97. Despite these differences, scientists, lawyers and judges must work together to fulfill their respective roles in the legal system. While judges and lawyers have some exposure to forensic science, they often lack the expertise necessary to thoroughly evaluate the reliability of forensic techniques. (NAS Report at 85.) This places tremendous pressure on the forensic science community to engage in continuous internal evaluation of forensic disciplines and to strive for consistent application of modern scientific principles in the courtroom. *Id.* at 110.

[2] For a copy of the NAS Report, *see* http://www.nap.edu/catalog.php?record_id=12589.

In this report, the Commission offers recommendations specific to the forensic discipline of fire investigation, with the goal of encouraging the consistent application of modern fire science principles. The Commission notes that fire investigation, like many forensic disciplines, requires the exercise of judgment by individual investigators. For example, as NFPA 921 states in its discussion of origin determination, "ultimately, the decision as to the level of certainty in data collected in the investigation or of any hypothesis drawn from an analysis of the data rests with the investigator." (NFPA 2008 edition at 18.6.2.) Reasonable minds can differ on interpretive issues, and disagreements will occur among forensic experts, including fire investigators. However, such disagreements must be based on a shared knowledge of modern fire science and the proper application of the scientific method as described in NFPA 921. Ongoing training, effective dissemination of information regarding advances in fire science, and an environment that encourages honest dialogue among stakeholders are critical to achieving this goal.

II. PENDING JURISDICTIONAL ISSUES

Since its creation in September 2005, the FSC has received numerous investigative requests involving various types of forensic analyses, some of which were conducted years or decades ago. Because the FSC's enabling statute provides limited detail regarding the scope of its jurisdiction, some interested parties have questioned the reach of the FSC's investigative authority. For example, during the course of this particular investigation, both the Corsicana Fire Department ("CFD") and State Fire Marshal's Office ("SFMO") challenged the

FSC's jurisdiction on the following grounds: (1) the complaint involves facts that pre-date the existence of the FSC and the statewide process for accreditation of laboratories, facilities or entities that test evidence for presentation in criminal courts; (2) the Act's effective date language limits the FSC's jurisdiction over evidence tested before September 2005; and (3) the complaint involves the forensic discipline of fire investigation, which does not fall within the applicable statutory definition of a "forensic analysis conducted by an accredited laboratory, facility or entity."

In light of these jurisdictional questions and the related risk of litigation, the Commission voted at its January 21, 2011 quarterly meeting to obtain an official legal opinion from the Texas Attorney General's Office. (*See* Exhibit 1 for copy of request.) The FSC anticipates that ambiguities and conflicts over jurisdictional issues will be addressed by the Attorney General's office in its response to the pending request. Legislative amendments during the 82nd Session may also provide additional clarification.

III. SCOPE OF THE REPORT

The Commission understands the importance of issuing a report that provides substantive recommendations designed to improve arson investigation in Texas. In light of the jurisdictional issues discussed above and related litigation concerns, the Commission declines to issue any finding regarding negligence or professional misconduct pending the issuance of an Attorney General opinion and/or legislative action during the 82nd Session. However, the FSC realizes that there is great public interest in the resolution of the combined Willis/Willingham

investigation ("Investigation"), especially to the extent that a resolution will contribute to the ongoing development of fire investigation in Texas. This report sets forth the FSC's observations regarding the history and progress of fire science, including incendiary indicators and related investigative issues. It takes a forward-looking approach, suggesting concrete training and educational initiatives. Observations regarding the state of fire science and suggestions for continued advancement are not limited to the Willingham and Willis cases, but rather apply generally to arson investigations in Texas.

This Investigation has also revealed the practical difficulties of conducting a negligence review for a case in which there is a significant gap in time between the FSC's consideration of the complaint and the point at which the original forensic analysis was conducted. Both fires occurred at least two decades ago. The substantial passage of time, limited record and the unavailability of at least one of the original fire investigators all add to the difficulty of conducting a thorough review.

Some Commissioners have also noted that the Willingham case has posed a particular challenge due to the controversy surrounding the death penalty. The FSC was not established as a commission for establishing innocence or guilt, nor was it established as a forum for debating the merits of capital punishment. It was established to advance the reliability and integrity of forensic science in Texas courts. As the Texas Court of Criminal Appeals noted in a recent decision, criticism concerning the potential for wrongful execution is an important moral and public policy question, suitable for intense and open debate by legislative

policymakers. *State ex. rel. Lykos v. Fine*, Nos. AP-76,470 and AP-76,471 at 25 (Tex. Crim. App. Jan. 12, 2011). "Neither trial judges nor judges on this Court sit as a moral authority over the appropriateness of the death penalty." *Id.* The FSC notes that the same observation applies to its role in the Willingham case.

No finding contained herein constitutes a comment upon the guilt or innocence of any individual. A final report by the FSC is not prima facie evidence of the information or findings contained in the report. TEX. CODE CRIM. PROC. art. 38.01 § 4 (e); FSC Policies and Procedures § 4.0 (d). The Commission does not currently have enforcement or rulemaking authority under its statute. The information it receives during the course of any investigation is largely dependent upon the willingness of concerned parties to submit relevant documents and respond to questions posed. The information gathered has not been subjected to the standards for admission of evidence in a courtroom. For example, no individual testified under oath, was limited by either the Texas or Federal Rules of Evidence (*e.g.,* against the admission of hearsay) or was subjected to formal cross-examination under the supervision of a judge. Therefore, this report does not serve as a document necessarily admissible in court for any civil or criminal purpose. Rather, it seeks to encourage the development of forensic science in Texas, particularly in the area of fire investigation.

IV. COMPLAINT BACKGROUND

On August 13, 2008, the Innocence Project ("IP") filed a formal complaint with the FSC alleging professional negligence and/or misconduct in the course of

the arson investigations and testimony given at the trials of Cameron Todd Willingham in 1991 and Ernest Ray Willis in 1987, including the responsibility of the SFMO to re-evaluate opinions in light of new scientific standards. (*See* Exhibit 2.)

The FSC began its investigation by soliciting initial responses from the CFD and SFMO. (*See* Exhibits 3 & 4.) Both agencies submitted responses. (*See* Exhibits 5 & 6.) The Commission also contracted for the professional opinion of fire scientist Craig L. Beyler, Ph.D. Beyler's final report is attached. (*See* Exhibit 7.) Dr. Beyler was given a cd-rom of documents provided by the Complainant and photographs of the crime scene, along with other documents received from the SFMO. (*See* Exhibit 8.)

In addition to Beyler's report, the FSC solicited written comments from independent fire science expert John DeHaan, Ph.D. and Houston Police Department fire investigation expert Thomas "Buddy" Wood. In July 2010, the Commission requested further comment from the SFMO, CFD and IP. (*See* Exhibits 9, 10 & 11.) Each entity provided a response. (*See* Exhibits 12, 13 & 14.) The FSC also received several unsolicited comments. Since receiving the complaint, the Commission has gathered and reviewed thousands of pages of documents and received extensive input from fire scientists and investigators. Commissioners have also heard public comment at numerous meetings.

On January 7, 2011, the FSC convened an expert panel during which Ed Salazar, Assistant State Fire Marshal of the SFMO, Dr. John DeHaan, Dr. Craig Beyler and Houston fire investigator Buddy Wood provided extensive comments

and responded to questions from Commissioners. The FSC also heard brief comments from Paul Maldonado, the Texas State Fire Marshal, and Ed Cheever, fire investigator for the SFMO.

On January 21, 2011, the FSC directed the general counsel to begin drafting a final report.

V. PROCEDURAL HISTORY OF CONVICTIONS AND APPEALS

While the Commission relied upon documents from various phases of litigation in these cases, the Commission does not comment on or evaluate the appropriateness of the litigation. The procedural history is provided here simply to give context to how the cases came before the Commission.

A. Cameron Todd Willingham

After a jury trial in the District Court of Navarro County, Texas in August 1992, Cameron Todd Willingham was convicted and sentenced to death for killing his three children by setting fire to their home in Corsicana, Texas. For a summary of the criminal case, *see Willingham v. State*, 897 S.W.2d 351 (Tex. Crim. App. 1995). (*See* Exhibit 15.)

The CFD was the first to respond to the fire on December 23, 1991; CFD investigators Doug Fogg and James Palos began reviewing the scene immediately after fire suppression activities concluded. The CFD also contacted the SFMO for assistance, and SFMO Deputy Fire Marshal Manuel Vasquez arrived on December 27, 1991. Mr. Fogg is now retired from the CFD and Mr. Vasquez is deceased. Mr. Palos is currently the Fire Marshal of the CFD.

Direct appeal. Following a mandatory direct appeal, the Texas Court of

Criminal Appeals affirmed Willingham's conviction and sentence. *Id.* at 359. A motion for rehearing was denied on April 26, 1995. The United States Supreme Court denied a petition for writ of certiorari. *Willingham v. Texas*, 516 U.S. 946 (1995). (*See* Exhibit 16.)

State post-conviction litigation. Willingham filed a petition for writ of habeas corpus in state court. The Texas Court of Criminal Appeals denied the petition for relief. *Ex parte Willingham*, No. 35,162 (Tex. Crim. App. 1997). The United States Supreme Court denied a petition for writ of certiorari. *Willingham v. Texas*, 524 U.S. 917 (1998). (*See* Exhibit 17.)

Six years later, Willingham filed a petition for writ of habeas corpus in state court, attaching a statement challenging the fire investigation. (*See* Exhibit 18.) The Texas Court of Criminal Appeals denied the petition, finding that it did not meet the legal requirements for a claim of newly discovered evidence of actual innocence. *Ex parte Willingham*, No. 35,162-02 (Tex. Crim. App. 2004).

Federal post-conviction litigation. Willingham filed a petition for writ of habeas corpus in federal court. A federal magistrate judge denied the petition, and the federal district court judge agreed with the magistrate's denial. *Willingham v. Johnson*, No. 3:98-CV-0409-L, 2001 WL 1677023, at *1 (N.D. Tex. Dec. 31, 2001). (*See* Exhibit 19.) A federal court of appeals agreed with the district court. *Willingham v. Cockrell*, No. 02-10133, 2003 WL 1107011 (5th Cir. Feb. 17, 2003). (*See* Exhibit 20.) The United States Supreme Court also denied a petition for writ of certiorari. *Willingham v. Dretke*, 540 U.S. 986 (2003). (*See* Exhibit 21.)

Application for reprieve and commutation. On February 3, 2004, Willingham filed an application for a temporary reprieve from the execution of death sentence and for commutation with the Texas Board of Pardons and Paroles and the Governor's office. On February 13, 2004, an affidavit in support of clemency was faxed to the Texas Board of Pardons and Paroles and to the Governor's office challenging the fire science in the case. (*See* Exhibit 22.) A reply was filed. (*See* Exhibit 23.) The stay of execution was denied, and Willingham was executed on February 17, 2004.

B. Ernest Ray Willis

After a jury trial in the District Court of Pecos County, Texas in August 1987, Ernest Ray Willis was convicted and sentenced to death for killing two women in the course of committing arson in Iraan, Texas. For a summary of the criminal case, *see Willis v. Cockrell*, No. P-01-CA-20, 2004 WL 1812698 (W.D. Tex. Aug. 09, 2004). (*See* Exhibit 24.) Insurance company fire investigator John Dailey and SFMO fire investigator Ed Cheever both testified at Willis' trial.

Direct appeal. Following a mandatory direct appeal, the Texas Court of Criminal Appeals affirmed the conviction and sentence of Willis. *Willis v. State* 785 S.W.2d 378, 387 (Tex. Crim. App. 1989). (*See* Exhibit 25.) The United States Supreme Court denied a petition for writ of certiorari on October 9, 1991. *Willis v. Texas*, 498 U.S. 908 (1990). (*See* Exhibit 26.)

State post-conviction litigation. On June 7, 2000, the trial court that originally convicted Willis recommended that he be granted a new trial based on

ineffective assistance of counsel, withheld psychiatric profile and administration of involuntary drugs by the State. However, the Texas Court of Criminal Appeals disagreed and denied Willis relief on December 13, 2000.

Federal post-conviction litigation. Willis then filed a petition alleging 1) violation of the Eighth and Fourteenth Amendments; 2) the State's wrongful administration of antipsychotic medications; 3) defense counsel's ineffective assistance at trial and sentencing phases; 4) the prosecution suppressed evidence material to his sentencing determination; and 5) the cumulative effect of error in all four claims violated due process. *See Willis v. Cockrell,* No. P-01-CA-20, 2004 WL 1812698 (W.D. Tex. Aug 09, 2004). (*See* Exhibit 27.) The United States District Court for the Western District of Texas granted relief on August 9, 2004. *Id.* at *34-35.

Release. Willis was released from prison on October 6, 2004. The Texas Attorney General's office declined to appeal and the District Attorney commissioned a review of the scientific evidence in the case. The indictment against Mr. Willis was dismissed, and he was exonerated by the State of Texas on grounds of actual innocence.

VI. SCIENCE AND INVESTIGATION

A. Standard of Practice in 1991

After soliciting and reviewing input from numerous sources, the FSC concludes that there was no uniform standard of practice for state or local fire investigators in the early 1990's in Texas or elsewhere in the United States. (DeHaan at 1.) In fact, before the release of NFPA 921 in 1992, there was no

single document describing the standard of practice in fire investigation. (Beyler at 2.) Investigators relied upon the process of elimination; a cause would be eliminated if it "was inconsistent with known case facts or was not physically possible." (Beyler at 4.)

The FSC also notes that in the early 1990's, fire investigators (including but not limited to those in this case) relied heavily upon the teachings of their mentors regarding the nuances involved in interpreting incendiary indicators. Access to controlled burn experiments and other practical guidance regarding the science of fire behavior was limited. At the national level, the NAS Report notes the prevalence of apprenticeship training across forensic disciplines, finding that reliance on "apprentice-type training" and a "guild-like structure" works against predictability. (NAS Report at 15-16.) Similarly, the knowledge levels on which fire investigation practices were based at the time were "extremely variable" due to the "one-on-one training that dominated." (DeHaan at 1.) The FSC has also observed that while scientific papers and textbooks describing some of the "modern" fire science principles existed in the early 1990's, it is difficult to determine how widely those materials were disseminated, or whether they were understood and accepted by fire investigators at the time. (*Id.* at 5.)

B. Contemporary Standard of Practice

The contemporary standard of practice is expressed in NFPA 921 *Guide for Fire and Explosion Investigations*, published by the National Fire Protection Association ("NFPA"). (Beyler at 1.) Work on NFPA 921 began in the mid-1980s but it was not published until 1992. *Id.* As recognized by various experts,

there was a "natural period of time" before NFPA 921 gained universal recognition among investigators. (Beyler at 1.) Most experts believe that it took at least until the mid-1990's for NFPA 921 to be widely accepted. (Beyler at 1, DeHaan at 2.) As Ed Cheever noted at the January 7th hearing, until the late 1990's the SFMO maintained only one copy of NFPA 921 at each regional office. Today, every SFMO investigator is issued a copy of NFPA 921.

Standards in fire investigation are not static and will continue to develop over time. For example, the NFPA recently released the 2011 edition of NFPA 921, which contains revised and enhanced standards. In addition, in 2009 the NFPA released NFPA 1033, which suggested minimum educational requirements for fire investigators. Many of the educational guidelines discussed in NFPA 1033 focus on specific subject areas in science. FSC recommendations regarding adoption of NFPA 1033 are set forth in Section XI below.

C. Perceived Gap in Understanding Between Fire Scientists and Fire Investigators

Many Commissioners are concerned about perceived differences in understanding of fire indicators between the scientists and engineers who study principles underlying fire indicators, and the state and local professionals who respond to and investigate fires. One challenge is the lack of science education on the part of many fire investigators. (DeHaan at 6.) Though this dynamic is changing as younger classes of investigators gain exposure to college coursework in chemistry and physics, most active investigators do not have scientific backgrounds. *Id.* Those charged with teaching and training fire investigators also bear some responsibility for ensuring that principles are communicated effectively

to investigators. Moreover, the FSC's experience during the course of this Investigation shows the importance of creating an environment in which scientists and investigators have frequent opportunities to meet and exchange their knowledge and experience, where open and honest dialogue can occur, and where discussion of fire scene variables and hypotheticals is encouraged.

Highlighting the perceived gap between the fire science and fire investigation communities is the following language in the SFMO's submission to the FSC on August 20, 2010, which was of concern to many Commissioners:

> "In reviewing documents and standards in place then and now, we stand by the original investigator's report and conclusions." (SFMO Aug. Ltr. at 1.)

This appears to be an untenable position in light of advances in fire science. The fires in these cases occurred two decades ago; there are few circumstances in which an investigation could not be improved with the benefit of twenty years of controlled scientific experiment and practical experience.

The Commission notes the importance of the tone and culture established by the leadership of any organization. Leadership must engage in ongoing internal review to ensure that information regarding scientific advancement is disseminated properly, and mistakes (if they occur) are identified and corrected in a timely manner. Specific recommendations regarding these issues are set forth in Section XI below.

The SFMO has expressed a willingness to work with the Commission in developing methods for improving training for fire investigators in Texas.

VII. USE OF THE SCIENTIFIC METHOD

The 1995 edition of NFPA 921 described fire investigation as a "complex endeavor involving both art and science." (NFPA 921, 1995 edition at 2-1.). The basic methodology of fire investigation relies on the use of a systematic approach (*i.e.,* the scientific method as described in NFPA 921) and attention to all relevant detail. (*Id.* at 2-2). While earlier editions of NFPA 921 described six steps in applying the scientific method to fire investigation, the 2008 edition of NFPA 921 describes eight. (NFPA 921, 2008 edition at 4.3.1-4.3.8.)

One of the primary goals of the scientific method is to detect and minimize investigator bias. (NAS Report at 112.) The FSC emphasizes the importance of applying these principles to fire investigation. The law assumes that every person is innocent until proven guilty, and the use of the scientific method in fire investigation helps to ensure the viability of this principle.

As indicated by Buddy Wood's comments at the January 7th expert panel, today's fire investigators are trained to apply the scientific method as set forth in NFPA 921. However, most investigators do not have access to the resources used by fire scientists to examine a range of controlled hypothetical scenarios. As the NAS report notes, scientists operating in laboratory settings are in a position to continually observe, test and modify the body of knowledge before them. (NAS Report at 112.) Most fire stations do not have controlled burn facilities attached in which investigators can test various hypotheses. Many fire investigators gain their experience by examining scenes that have already been burned. (DeHaan at 3.) In a laboratory, a scientist can vary conditions in order to isolate exclusive

effects and understand how various factors influence outcomes. (NAS Report at 112.) The FSC notes that progress achieved by fire scientists in laboratories must be better communicated to those charged with responding to actual fires and conducting real-time investigations.

In sum, the Commission makes the following observations about the scientific method as applied to fire investigation in Texas: (1) fire investigators must apply the scientific method described in NFPA 921 to all investigations; (2) training courses must explain *what that means on a practical level* to ensure that principles are applied properly, and (3) fire investigators (especially those working in smaller communities) should have more opportunities to participate in and learn from controlled burn exercises and related experiments in conjunction with scientific training. *See* Section XI below for specific recommendations regarding these observations.

VIII. OBSERVATIONS REGARDING ANALYSIS OF INCENDIARY INDICATORS AND ALTERNATIVE CAUSES

The FSC recognizes that the value of various incendiary indicators and the manner in which they are identified and evaluated have changed since the Willingham and Willis investigations were conducted. Similar progress has been made in the evaluation of potential accidental causes. The Commission's primary concern is to ensure that today's fire investigators have a comprehensive understanding of how to accurately interpret incendiary indicators and understand their limitations. The FSC appreciates the feedback it has received from local investigators indicating a strong desire to participate in scientific training focused

on practical application, including participation in live burn exercises. Specific recommendations regarding training in this area are set forth in Section XI below.

A. Elimination of Accidental Causes

A critical component of successful fire investigation is the elimination of accidental causes. The elimination of any single cause requires an investigator to use his or her judgment, and to request outside assistance when necessary. For example, when considering whether a child could have set the fire in the Willingham case, investigators concluded that the possibility was remote considering the ages of the children, the fact that no lighters were found near them and that a child's gate blocked the bedroom doorway. This is the sort of judgment that fire investigators typically must engage in during the course of an investigation. Investigators would be required to make a similar judgment call today if the same facts were presented.

However, other components of assessing accidental causes have been assisted by developments in science and engineering over the last two decades. For example, scientists and engineers have created methods that allow investigators to conduct a more thorough review of possible electrical malfunction as a point of origin. In the early 1990's, investigators routinely checked for shorts in the line after "pulling" the electrical meter for the safety of those on the scene, in accordance with the safety requirements of NFPA 921. (*See* NFPA 921, 1995 edition at 10-2.4.) If there were no shorts in the line and no evidence of appliance malfunction, investigators concluded that the cause was not attributable to electrical malfunction.

Today's investigators have additional tools at their disposal. For example, investigators can use the process of arc mapping (*See* 2011 edition of NFPA 921) to determine a fire's possible point of origin. Many local investigators are aware of the arc mapping process and often consult electrical engineers for assistance. The FSC understands that the most likely source for engineering expertise in many fire investigations would be the homeowner's insurance company. As of this report, the SFMO no longer has an electrical engineer on staff due to budgetary constraints.

While the Commission is not in a position to assess whether having an electrical engineer on staff is critical to the SFMO's mission, Commissioners note that the SFMO should consider cost-effective alternatives for consulting electrical experts as needed. In the case of electrical systems, investigators must know how to conduct a thorough initial evaluation and to identify when an engineer should be requested. Commissioners also note the importance of ensuring sufficient technical support for smaller, more remote communities where investigative resources are limited.

In sum, investigators must be trained to employ methods for eliminating accidental causes that effectively review all facts and circumstances within the framework of the scientific method. Specific recommendations regarding training in this area are discussed in Section XI below.

B. Treatment of Debris

The investigators in both cases have been criticized for not considering fire debris on the scene and simply "shoveling the debris out the window."

(Beyler at 29). Because the treatment of debris is an extremely important component of any fire investigation, the Commission conducted further inquiry into how debris was handled in the Willingham case, and whether any changes have been made in treatment of debris over the last two decades. Although the CFD informed the Commission that a thorough examination was conducted, the documentation provided to the District Attorney no longer exists.

The Commission's primary concern is that today's fire investigators thoroughly understand how to properly evaluate, review, photograph, document and remove debris. NFPA 921 addresses the treatment of debris in detail (NFPA 921, 2008 edition at 17.3.2 et seq.) and investigators must be regularly trained and updated on proper treatment and documentation of debris. Even assuming that proper debris analysis and removal was conducted in a case, if the record does not document investigative steps properly, investigators leave themselves open to tremendous scrutiny. Specific recommendations regarding improvements in documentation are set forth in Section XI below.

C. Pattern Indicators

As previously stated, the Commission recognizes that the value of various incendiary indicators and the manner in which they are identified has changed since the early 1990's. Experts have identified indicators that were present in the Willingham and Willis cases that have since undergone extensive scientific testing and experimentation. Such testing has provided scientists with a better understanding of the limitations of the indicators. The Commission further recognizes that many of these indicators may be present in arson cases where

accelerants are used, thus requiring an investigator to use the scientific method as expressed in NFPA 921 to conduct a systematic review. The discussion does not examine every indicator used in the investigators' reports but rather includes illustrative examples applicable to all arson cases. Excerpts from fire scene reports and trial testimony, though inherently incomplete, provide a sense of the investigators' understanding of incendiary indicators at the time of trial. Excerpts from the reports of Drs. Craig Beyler and John DeHaan provide examples of the manner in which the fire science and investigation community's understanding of these indicators has changed since the early 1990's. The question of when, why and how certain limitations should be applied to incendiary indicators is the subject of ongoing study by the fire science community.

1. V-Pattern as Indicator of Origin

Deputy Fire Marshal Vasquez's report discusses "V-patterns" as an indicator of fire origin. The report states:

> The burn pattern on the east and west wall of the hallway disclosed a gradual climb in a 45 degree angle toward the south end and clearly showed a "V" pattern. This "V" pattern is an indicator that the fire originated on the floor near the north end. (Vasquez Report at p. 2.)
>
> The north end area of the floor disclosed that the fire had burned through the tile blocks and caused charring of the wooden floor underneath. The burn pattern on the floor and "V" burn patterns on the walls is an indication that a fire originated at the north end area of the center hallway. (Vasquez Report at p. 2.)

Deputy Fire Marshal Vasquez also testified regarding "V" patterns as follows:

> The photograph that sees the V pattern debris, that's Exhibit No. 23. The one that tells where the V is, that's possible origin of the fire. (Willingham Transcript p. 240, line 3-5.)

In the early 1990's, many fire investigators based their conclusions of origin in part on the theory that a "V-pattern" on a wall points to the origin of the fire. For example, the 1995 edition of NFPA 921 4-17.1 stated: "the angled lines of demarcation, which produce the "V" pattern, can often be traced back, from the higher to lower levels, toward a point of origin. The low point or vertex of the "V" may often indicate the point of origin." NFPA 4-17.1 (1995 edition). Scientists now know that the "V-pattern" simply points to where something was burning at some stage of the fire, not necessarily the origin. (DeHaan at 8.)

2. Pour Patterns

Deputy Fire Marshal Vasquez testified as follows regarding his interpretation of pour patterns in the Willingham home:

> So this area right here are what I call burn trailers. Burn trailers is like a trailer, you know, like a little path, a burnt path. A pour pattern, which is a pattern like somebody put some liquid on the floor or wherever and, of course, when you pour liquid, then it creates a puddle. Liquid creates puddles. When it rains you get puddles. When the baby drops its milk, you create puddles. If you ever drop a coke, you create puddles. All this area has that, has the burn trailer pour patterns and configurations. This area right here, which is right here almost in front of this bed is deep charred. The floor, it didn't burn through the floor, but it burned the three layers of the floor. And a pour pattern and trailer is an indication that somebody poured something, you know, either going in or out. (Willingham Transcript p. 238, line 16—p. 239, line 6.)
>
> All fire goes up. All water goes down. Or any liquid goes down unless man changes the course. (Willingham Transcript p. 232, lines 16-18.)

Fire Investigator Cheever also testified regarding his interpretation of pour patterns in the Willis case:

> It appears to be burned areas resembling how a liquid would have run and burned on that surface. (Answer in response to a question regarding irregular floor patterns.) (Willis Transcript p. 31, line 10.)

> "I have never run across that, no, sir." (In response to the following question: "Now, in your experience, training, and your reading publications to keep up-to-date, have you or have you not heard of the phenomenon that radiation can cause irregular patterns?") (Willis Transcript p. 128, lines 4-8).
>
> "That's correct." (In response to counsel's assertion that "fire burns up, not down.") (Willis Transcript p. 93, line 6).

In the early 1990's, many fire investigators reasoned that fire moves upward (at least flames and hot gases do) and that carpet and flooring is difficult to ignite. (DeHaan at 7.) If one pours ignitable liquid on a floor, the carpet burns away in an irregular path similar to the deposits of the liquid. *Id.* Thus, it was often thought that pour patterns at floor level were "nearly proof alone" that the fire was started with an accelerant. *Id.* While such a fire could have been started with an accelerant (*see e.g.,* NFPA 921 1995 edition, 4-17.7.2) other phenomena of fire behavior can also cause similar pour-like patterns.

For example, when a fire approaches or surpasses flashover conditions, all of the exposed carpet in the room will ignite. (DeHaan at 7.) Synthetic carpets and pads melt or decompose to liquid as they burn, producing highly irregular and unpredictable patterns. (DeHaan at 8.) The effect of ventilation conditions, radiant heat, flaming and smoldering debris, and drop-down burning from things like synthetic mattresses and bedding also affect the irregular burn patterns. (Beyler at 8, DeHaan at 7-8.)

Today, fire scientists and investigators should have a better understanding of the nuances of flashover conditions, including how to analyze their effects. Rigorous, ongoing training is the key to ensuring that all investigators in Texas are knowledgeable about developments in the scientific community's

understanding of the complex chemical and physical phenomena involved in fires, including but not limited to the effects of flashover.

3. Low/Deep Burning and Multiple Separate Points of Origin

Deputy Fire Marshal Vasquez testified as follows regarding his interpretation of low/deep burning and multiple separate points of origin:

> And you got char burning, like for example, this is the bottom here. It's burned down here at the bottom. That is an indicator in my investigation of an origin of fire because it's the lowest part of the fire. (Willingham Transcript p. 239, lines 20-24.)

> Multiple areas of origin indicate—especially if there is no connecting path, that they were intentionally set by human hands. (Willingham Transcript p. 255, lines 19-21.)

> The first incendiary indicator is the auto ventilation. The inconsistency of the fire going out of this window and the fire going out of the door and this window here. That's inconsistent with fire behavior. That's an indicator that it's a possible incendiary fire. Okay. Puddle configurations, pour patterns, low char burning, charred floor, the underneath burning of the baseboard, the brown stains on the concrete, the underneath of the bed, because of the fire right underneath the bed, puddle configurations in that area, and the total saturation of this floor is indicated with pour patterns, because that's all I'm doing is looking at the facts, at the evidence. (Willingham Transcript p. 255, lines 20-25.)

Fire Investigator Cheever also noted low burn as a significant indicator in the Willis case as follows:

> Initially, when we had finished the view of the exterior of the building and walked into the inside of the structure, there were a couple of things that caught our attention right off. First of all, the low burning on the walls almost to floor level. (Willis Transcript p. 11, line 9.)

> The most highly significant would be the low burning to the floor level on some of the walls, and the burn patterns that I observed on the floor itself. (Willis Transcript p. 14, line 4.)

> In my opinion, there was some type of flammable liquid applied there. There was no other fuel source there that would have indicated it would have burned in that manner. (Willis Transcript p. 35, line 7.)

Low burn patterns may be an indicator of accelerant (Beyler at 8), but scientific experiments have also shown that radiant heat transfer causes low burn patterns (*Id.*), and that the radiant heat of a fully involved room fire can be sustained to penetrate floors deeply. (DeHaan at 8.) Scientific testing has also shown that ignitable liquids alone do not burn long enough to penetrate floors deeply. (*Id.*) Similarly, the appearance of multiple separate points of origin may provide evidence that a fire was intentionally set, but is often attributable to radiation and drop down effects. (Beyler at 14.)

Today, fire scientists and investigators should have a better understanding of the nuances of low burn and deep burn patterns, as well as the various factors that create the appearance of separate multiple points of origin. Continuous, targeted education regarding these indicators will ensure that investigators understand and effectively analyze the extent to which patterns are attributable to accelerant and/or other factors.

4. Spalling

Deputy Fire Marshal Vasquez's report includes an assessment of spalling evidence as follows:

> The examination of the porch concrete floor disclosed an area of brown discoloration at the base of the north wall and in front of the door to the central hallway. This discoloration, or brown condition, is also an indication that a liquid accelerant burned on the concrete. (Vasquez Report at p. 4.)

Spalling (*i.e.,* brown discoloration) occurs when concrete, masonry or brick is exposed to a high rate of heating by flame or high levels of radiation from fuel. (SFMO at 5, citing NFPA 921 1995 edition at 4-6.1.) Controlled laboratory

experiments have shown that while spalling may be caused by burning accelerant, it is more often caused by sustained heat from other sources. (Beyler at 11, DeHaan at 5.) It is critical that today's investigators understand how to properly analyze spalling evidence. For example, investigators should identify appropriate samples of adjacent materials and send those materials for laboratory testing to determine whether accelerant is present.

5. Burn Intensity

Deputy Fire Marshal Vasquez testified as follows regarding his interpretation of burn intensity:

> And aluminum melts at 1200 degrees normal. Wood fire does not exceed 800 degrees. So to me, when aluminum melts, it shows me that it has had a lot of intense heat. It reacts to it. That means its temperature is hot. The temperature cannot react. Therefore, the only thing that can cause that to react is an accelerant. You know, it makes the fire hotter. It's not normal fire. (Willingham Transcript p. 249, lines 9-16.)
>
> So when I found that the floor is hotter than the ceiling, that's backwards, upside down. It shouldn't be like that. The only reason that the floor is hotter is because there was an accelerant. That's the difference. Man made it hotter or woman or whatever. Human being made it hotter. (Willingham Transcript p. 256, lines 17-22.)
>
> The fire, itself, tells me that it's a very aggressive fire; and, therefore, the fire was not a planned fire. It was a spur-of-the-moment fire. (Willingham Transcript p. 72, lines 14-16.)

In the early 1990's, the "widely held belief" among fire investigators was that the flames of a wood-fueled fire are cooler than those fueled by petroleum products. (DeHaan at 8.) Thus, investigators would often conclude that a "hot fire" must have had an accelerant ignition. (*Id.*) Scientists now know that flame temperatures for normal fuels against liquid fuels are similar, and compartment temperatures alone cannot be used to distinguish whether ordinary or liquid fuels

were involved. (Beyler at 12, DeHaan at 4.) It is critical that today's fire investigators understand the significance of flame temperature and heat release rates, and how these factors should be viewed within the context of other indicators.

6. Crazed Glass

Crazing is a term used in the fire investigation community to describe a complicated pattern of short cracks in glass. (SFMO at 4 citing NFPA 921 1995 at 4-13-1.) Deputy Fire Marshal Vasquez made the following statement regarding crazed glass in his report in the Willingham case:

> The pieces of broken window glass on the ledge of the north windows to the northeast bedroom disclosed a crazed 'spider webbing' condition. This condition is an indication that the fire burned fast and hot. (Vasquez Report at p. 4.)

Crazing is the result of the rapid cooling of glass in a hot environment by the application of water spray. (*Id.* citing NFPA 921 1992 at 4-13.1.) Fire scientists and investigators have concluded that it no longer has any value as an indicator. As the SFMO explained at the January 7th panel, today's investigators should not mention the presence of crazed glass in a fire scene report. If crazed glass were mentioned, corrective action would be taken immediately.

The Commission observes that incendiary indicators, including but not limited to those discussed above, are subject to numerous variables that require continuous study and evaluation. Scientific understanding of the indicators has continued to advance as additional experiments are conducted. Training must ensure that fire investigators clearly understand all incendiary indicators and their limitations, including the possible effects of phenomena such as flashover and

associated radiation, ventilation, smoldering debris and drop-down effects. The FSC observes that whatever training is provided must include an environment in which investigators and scientists are free to exchange information and engage in honest and open dialogue regarding fire behavior and incendiary indicators. Specific recommendations are set forth in Section XI below.

D. Confirmation of Accelerant Through Laboratory Testing

In the Willis case, ten samples were sent for testing. None of the samples tested positive for accelerant. (Beyler at 26.) In the Willingham case, an unspecified number of samples were sent for testing, and one (under the aluminum threshold of the front door) tested positive for accelerant. (Beyler at 41.)

At the time these cases occurred, positive laboratory results were accepted if they were available, but they were not considered necessary to reach the conclusion that the fire involved intentional use of an accelerant. (Beyler at 13.) As technology advanced, fire scientists and investigators developed a better understanding of the importance of confirmatory testing. Experts have also noted that technology used in gas chromatography/mass spectrometry and other laboratory testing is more sensitive today than it was in the early 1990's. As a result, laboratory tests are better able to detect evidence of accelerant than they were two decades ago. Due to the passage of time, re-testing of samples taken in the Willis and Willingham cases is not an option.

The FSC notes that laboratory testing is relied upon more heavily today due to improvements in technology and enhanced expectations of lawyers and

judges. Fire investigators should have a thorough understanding of the importance of laboratory testing as a tool for confirming the theory of a case, especially where arson is suspected.

E. Re-Examination of Cases

The evolution of fire science and standards of practice raises the question of whether or not an obligation exists to re-evaluate cases if those changes have the potential to materially affect the results or opinions rendered. The FSC learned through its Investigation that neither the SFMO nor the CFD notified any judicial or prosecutorial authority that the standards of arson investigation had changed over 1991 to 2004. In an August 2010 response to a request for information from the FSC, the SFMO stated that it began referencing and receiving training on NFPA 921 almost immediately after its initial publication in 1992. (*See* Exhibit 28.)

F. Eyewitness Accounts

Eyewitness interviews, while not typically scientific in nature, are a critical component of NFPA 921's investigative guidelines. For example, the 1995 edition of NFPA 921 provided guidance to investigators regarding the purpose of interviews (to gather both useful and accurate information). (NFPA 921 at 7-4.1.) The document also distinguished between three categories of interviews: (1) "Interviews with Those You Can Approach with an Attitude of Trust;" (2) "Interviews with Those You Must Approach with Caution;" and (3) "Interviews with Those You Must Approach with an Attitude of Distrust." (*Id.* at 7-4.4, 7-4.5, 7-4.6.)

Investigators in the Willingham case interviewed numerous witnesses. Without commenting on the weight of any particular eyewitness account, the Commission notes that fire investigators will continuously be expected to interview eyewitnesses and assess their credibility. While eyewitness testimony plays a valuable role in the criminal justice system, it is a product of human memory, which has inherent limitations. Many Commissioners believe it is important to note these limitations and the associated need for ongoing training in methods for properly conducting and evaluating eyewitness interviews during arson investigations. Arson investigators should receive training in current techniques that encourage objectivity in witness interviews. They should also record the interviews so that they are subject to future review. Specific recommendations are provided in Section XI below.

IX. EVOLUTION OF STANDARDS GOVERNING ADMISSIBILITY OF EXPERT TESTIMONY AND FORENSIC EVIDENCE

Before Federal Rule of Evidence ("FRE") 702 was adopted in 1975, many courts in the United States followed a "general acceptance" standard for admitting scientific expert testimony. *Frye v. United States,* 54 App. D.C. (1923). Under this standard, testimony was admitted if its scientific basis was "generally accepted" by the scientific community. With the adoption of FRE 702, expert testimony was permitted if the information would "assist the trier of fact." After FRE 702 was adopted, many courts struggled with the question of whether the rule included or rejected the concept of "general acceptance" set forth in *Frye*.

When the Willingham and Willis cases were tried, Texas courts allowed expert testimony and scientific evidence to be admitted if the information would

"assist the trier of fact" under Texas Rule of Evidence 702, which was based on FRE 702 and had been adopted in 1986. *Kelly v. State*, 824 S.W.2d 568, 572 (Tex. Crim. App. 1992). Most expert testimony, including that of fire experts and investigators, was readily admitted into evidence, and the jury was then allowed to assign varying degrees of weight to the testimony depending upon perceptions of credibility. The judge did not make a preliminary determination of reliability or relevance outside the presence of the jury.

In 1992, the Texas Court of Criminal Appeals explicitly rejected *Frye* and required courts to determine whether evidence is reliable and "relevant to help the jury in reaching accurate results." *Id.* Though *Kelly* provided stricter criteria for admitting expert testimony and forensic evidence, it did not provide a specific mechanism for screening evidence and testimony outside the presence of the jury.

A year after *Kelly* was issued by the Texas Court of Criminal Appeals, the United States Supreme Court also rejected the *Frye* standard in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). Similar to the enhanced requirements set forth in *Kelly*, *Daubert* required a stricter standard than the "general acceptance" standard set forth in *Frye*. The Court explained that judges must make an initial determination regarding the evidence or testimony's reliability. It was then that judges began to assume the role of "gatekeepers" for expert testimony, much of which is scientific or otherwise highly technical in nature. The Texas Supreme Court also adopted the *Daubert* standard explicitly in 1995, requiring that scientific evidence and related testimony must not only be

relevant but must also have a reliable, underlying scientific validity. *E.I. du Pont de Nemours & Co. v. Robinson*, 923 SW2d 459 (Tex. 1995).

The standards set forth in *Daubert, Kelly* and similar cases require expert witnesses to understand and describe the science behind their conclusions before they are allowed to testify to a jury regarding those conclusions. Though many fire investigators could describe complex fire science principles before *Daubert*, not everyone agreed on the scientific nature of fire investigation. (DeHaan at 6.) For example, the International Association of Arson Investigators ("IAAI") filed an *amicus curiae* brief in *Kumho Tire Company, Ltd. v. Carmichael,* 526 U.S. 137 (1999) arguing that fire investigation was not strictly based on science and therefore investigators should be exempt from the judicial expectation. *Id.* The IAAI's arguments were eventually rejected and fire investigators are now expected to be able to demonstrate their methods, rationale, and scientific expertise. *Id.*

The Commission observes the importance of conducting admissibility hearings in arson cases. In light of the continuously evolving nature of fire science, it is imperative that judges provide a meaningful opportunity for each side to establish the relevance and reliability of fire science methodology before testimony is admitted. FSC recommendations regarding enhanced admissibility hearings (*i.e., Daubert*/*Kelly* hearings) for arson cases are set forth in Section XI below.

X. OBSERVATIONS REGARDING TRIAL TESTIMONY

As discussed above, when the Willingham and Willis cases were tried, *Daubert* had not yet been issued, and judges had yet to assume a gatekeeping role for the admission of scientific testimony outside the presence of the jury. As the CFD noted in its submission to the FSC, *Daubert* and subsequent Texas cases (*see e.g., E.I. du Pont de Nemours v. Robinson*, 923 S.W.2d 549 (Tex. 1995)) provided a mechanism for lawyers to challenge expert testimony in cases where they perceived the evidence to be unreliable. (CFD at 3.)

Some Commissioners have raised concerns about the tone and scope of expert testimony in arson cases; examples from the Willingham case may be used as an educational tool for today's fire investigators. As a threshold matter, a review of trial testimony offers an incomplete snapshot of an underlying fire investigation. Most testifying experts know from experience that the pace and tone of testimony is often dictated by counsel and is subject to the judge's ability to control the courtroom effectively. As noted in the NAS Report, the adversarial process relating to the admission and exclusion of scientific evidence is not well-suited to the task of finding "scientific truth," due in large part to the fact that lawyers and judges have very limited exposure to scientific principles (NAS Report at 12.) Testifying experts must continuously strive to ensure that their testimony is communicated clearly and accurately, even under the pressures of heated cross-examination.

The NAS Report also observes that there is a need to develop consensus within forensic fields about the precise meaning of terms used to describe a

particular forensic analysis. The use of vocabulary can have a profound effect on how the trier of fact perceives and evaluates evidence. (NAS Report at 185.) Even today, few disciplines have developed common vocabulary for use in reporting results in the courtroom. Where such developments have occurred, they are not standard practice. (*Id.* at 186.) Courtroom testimony must be presented in a way that allows the jury to understand and properly weigh and interpret testimony. *Id.* In the early 1990's, fire investigators did not receive instruction on what vocabulary to use in describing the phenomena of fire behavior. Developing minimum standards for reporting (*See* recommendations in Section XI below) should provide fire investigators with a foundation from which to develop consistent methods for discussing indicators in court.

The Commission is still in the process of determining whether and to what extent trial testimony should be considered as part of the "forensic analysis" reviewed during FSC investigations. Accordingly, the discussion below uses illustrative examples to suggest appropriate boundaries for expert testimony. It also includes a review of concrete steps taken by the SFMO to educate and support fire investigators who testify in courts today, as well as commentary on the roles of judges and lawyers.

1. Suggestions Regarding General Boundaries in Expert Testimony

As an initial observation, the FSC notes that testimony must be viewed in context. For example, Deputy Fire Marshal Vasquez made statements at the Willingham trial such as "The fire tells a story. I am just the interpreter," and "The fire does not lie. It tells me the truth." During the FSC's January 7th

hearing, Buddy Wood indicated that this language was commonly used at the time by instructors at training seminars, and was even used in written materials distributed during training sessions. Conversations with other investigators who were active during that period confirm that the language is consistent with their recollection of common terms used by experts to describe fire behavior. In fact, investigators have observed that this language reflects "verbatim" what they were taught in training courses. This example highlights the importance of establishing consensus within the field on a common vocabulary for explaining fire dynamics so that testifying experts have clear guidelines to rely upon on when explaining concepts to a lay jury.

Other testimony, such as Vasquez's response to a question regarding Willingham's state of mind, is an example of the type of testimony that experts should avoid as falling outside of their field of expertise. As the CFD noted in its submission to the FSC, Vasquez "could not read Todd Willingham's mind." (CFD at 4.) Defense counsel did not object to the question, and the judge did not interject with an instruction to the jury. This testimony might have been permitted before *Kelly*, *Daubert* and *Robinson*, but would likely be limited under the stricter standards established by those cases. The Commission observes that today's testifying experts must understand when and how to resist counsel's attempts to push testimony beyond measurable facts and scientific principles.

Another example is the statement that in the 1200-1500 fires Vasquez investigated, almost all of them were arson. Discussion at the January 7th panel indicated that the SFMO is usually called to the scene in cases where arson is

already suspected by local investigators, which would result in a higher number of arson cases than one might ordinarily expect. Scientists on the Commission have noted that this dynamic raises concerns about cognitive bias similar to those observed in other areas of forensic science. As discussed in the NAS Report, human judgment is subject to many different types of biases. (NAS Report at 122.) For example, in the Madrid bombing case, an FBI fingerprint analyst identified a man named Brandon Mayfield as a positive match based on a latent print found at the scene. The FBI later determined that once the fingerprint examiner had declared the first match, both he and the other examiners who were aware of the finding were influenced by the urgency of the investigation to confirm the first match during the second review. (NAS Report at 123.) As the NAS Report observes, cognitive biases are not the result of character flaws; instead, they are common features of decision-making. *Id.* at 122.

The FSC recognizes that ideally, all biases would be removed and complete independence would be ensured in all investigative settings. However, in an environment where there are limited resources to conduct fire investigations, the SFMO will continue to be called upon to assist with complex investigations in which cause and origin are difficult to determine and arson is suspected. While fire investigators do not have any direct incentive to reach a finding of arson, they will continue to be subject to intense pressure by counsel to make certain statements at trial. The following section discusses one approach the SFMO has taken to minimize any perception of bias for cases in which it is called to the

scene by local investigators and subsequently required to testify in court regarding the investigation.

2. Current Approach to Testimony by SFMO Investigators

The SFMO has taken steps to ensure that its investigators understand and recognize possible bias and observe appropriate boundaries when testifying in court. For example, in the last few years, the SFMO began conducting mock trials with its investigators. Attorneys who participate in the mock trials attempt to force investigators to "cross the line" into testimony that may not be supported by the facts or scientific analysis, but is difficult to resist in a highly pressurized environment. The SFMO conducts these mock trials in a peer review setting, thereby encouraging active dialogue among investigators regarding the specifics of each examination. While these mock trial programs have been effective, their reach is limited. The Commission makes recommendations regarding expansion of this program in Section XI below.

3. The Role of Lawyers and Judges

The responsibility for ensuring that scientific testimony is accurately and clearly communicated to the jury does not rest with testifying experts alone. Currently, lawyers and judges in Texas are not required to take any forensic science training as part of their continuing legal education. The legal system relies heavily on forensic science evidence in criminal prosecutions, and the FSC anticipates that such reliance will only increase. As the NAS Report notes, judges, lawyers, and law students would all benefit from a greater understanding of the scientific bases underlying forensic science disciplines and how the

underlying scientific validity of techniques affects the interpretation of findings. (NAS Report at 218.) The FSC includes specific recommendations on training of lawyers and judges in Section XI below.

XI. DRAFT RECOMMENDATIONS

The Commission makes seventeen recommendations below regarding initiatives designed to improve arson investigation in Texas. Though these recommendations have arisen from the arson investigations in this case, they are applicable to all fire investigation activities statewide. The Commission recognizes that each recommendation is dependent upon the willingness and ability of stakeholders to implement the recommendation. To that end, the Commission requests that the SFMO (in collaboration with the Texas Commission on Fire Protection ("TCFP") and other appropriate stakeholders) review the recommendations provided below, in conjunction with any other national best practices (*see* examples cited) and develop its own near and long-term strategic plan. Any existing SFMO strategic plans or relevant initiatives should be incorporated. The plan should include an assessment of resources and highlight any gaps that could prevent stakeholders from implementing recommendations and best practices. The plan's timeline should be aggressive but flexible to encourage effective implementation.

RECOMMENDATION 1: ADOPTION OF NATIONAL STANDARDS

The FSC recommends that fire investigators adhere to the standards of NFPA 921. The SFMO has indicated a willingness to improve standards and public confidence in fire investigation techniques. The Commission recommends

that all SFMO fire investigators adhere to the standards of NFPA 921 and serve as a model to other local fire investigators.

The FSC notes that laboratory testing on fire debris admitted into evidence in Texas courts is already subject to accreditation. For example, the SFMO laboratory that reviews fire debris is accredited through the American Society of Crime Laboratory Directors—Laboratory Accreditation Board ("ASCLD—LAB"). At this time, there are no plans to accredit the broader field of fire investigation. One obvious benefit of accreditation is that it provides an agency with an ongoing mechanism for assessing internal performance and implementing best practices.

While accreditation may not be appropriate for fire investigation, the Commission recommends that the SFMO work in collaboration with TCFP and other agencies to develop its own strategic plan setting forth best practices in fire investigation. The plan should meet the recommended national standards that exist at the time it is completed. Examples of guiding documents for current standards include but are not limited to the current edition of NFPA 921, NFPA 1033, the National Institute of Justice's June 2000 report entitled *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel* (*See* Exhibit 29); and the National Center for Forensic Science (Carl Chasteen), and Technical/Scientific Working Group's January 2008 report entitled *Fire and Explosion Investigations and Forensic Analyses: Near-and Long-Term Needs Assessment for State and Local Law Enforcement.* (*See* Exhibit 30.)

RECOMMENDATION 2: RETROACTIVE REVIEW

Accredited disciplines of forensic science have standards that promote the re-examination of cases when science has evolved to create a material difference in the original analysis or result. Those standards include: (1) duty to correct; (2) duty to inform; (3) duty to be transparent; and (4) implementation of corrective action. The SFMO should develop similar standards.

If new scientific knowledge develops over time that would materially change the opinions or results in a criminal investigation, the individual or agency has a responsibility to inform the parties involved or develop procedures for doing so.

RECOMMENDATION 3: ENHANCED CERTIFICATION

The primary mechanism for training and educating fire investigators in Texas is individual certification. The certification process is administered by the TCFP. Texas has two separate certification titles for fire protection personnel: fire investigator and arson investigator. The main difference between the two is that an arson investigator must be certified both as a fire investigator and as a peace officer. The Texas Commission on Law Enforcement Officer Standards and Education ("TCLEOSE") administers peace officer certification. Below is a summary of requirements for the four existing certification levels: basic, intermediate, advanced and master.

CLASS	FIRE INVESTIGATOR	ARSON INVESTIGATOR
Basic	Completion of a TCFP-approved basic training program; and Successfully passing the TCFP certification exam for fire investigators.	Peace officer license from TCLEOSE or federal equivalent; and Accreditation from International Fire Service Accreditation Congress as fire investigator or TCFP- approved basic fire investigation certificate.
Intermed.	Prerequisite of basic fire investigator certification; and 4 years of fire protection experience and either: • 6 semester hours of fire science or fire technology from an approved Fire Protection Degree Program; or • Acceptable combinations of coursework from either "A-List" or "B-List" courses (*See* Exhibit 31); or • Acceptable combination of college courses with either "A-List" or "B-List" courses.	Prerequisite of basic arson investigator certification; and 4 years of fire protection experience and either: • 6 semester hours of fire science or fire technology from an approved Fire Protection Degree Program; or • Acceptable combinations of coursework from either "A-List" or "B-List" courses; or • Acceptable combination of college courses with either "A-List" or "B-List" courses.
Advanced	Prerequisite of intermediate fire investigator certification; and 8 years of fire protection experience and either: • 6 semester hours of fire science or fire technology from an approved Fire Protection Degree Program; or • Acceptable combinations of coursework from either "A-List" or "B-List" courses; or • Acceptable combination of college courses with either "A-List" or "B-List" courses.	Prerequisite of intermediate arson investigator certification; and 8 years of fire protection experience and either: • 6 semester hours of fire science or fire technology from an approved Fire Protection Degree Program; or • Acceptable combinations of coursework from either "A-List" or "B-List" courses; or

		• Acceptable combination of college courses with either "A-List" or "B-List" courses.
Master	Prerequisite of advanced fire investigator certification; and 12 years fire protection experience; and 60 college semester hours or an associate's degree that includes at least 18 hours in fire science subjects.	Prerequisite of advanced arson investigator certification; and 12 years fire protection experience; and 60 college semester hours or an associate's degree that includes at least 18 hours in fire science subjects.

A. Continuing Education Requirements

Texas fire and arson investigators are required to maintain their certification by participating in at least 20 hours of continuing education coursework from the "A-List" or "B-List", or a combination of the two. Alternatively, if an individual has completed a TCFP-approved academy in the 12 months prior to his or her certification expiration date, a copy of that certificate of completion is documentation of continuing education for that certification renewal period.[3] Arson investigators are also required to maintain their peace officer certification, which requires an additional 40 hours of continuing education coursework per training cycle (training cycles are two years long; the next cycle runs from September 1, 2011 to August 31, 2013.)[4]

B. NFPA 1033 Guidelines

In 2009, the NFPA released enhanced guidelines for education and

[3] Information on fire investigator training and continuing education requirements was obtained from the most recent edition of the Texas Commission on Fire Protection's *Standards Manual for Fire Protection Personnel*.

[4] http://www.tcleose.state.tx.us/content/licensing_certifications.cfm

training of fire investigators nationwide, and clarified that the guidelines should apply to *all fire investigators*. Under NFPA 1033's guidelines, fire investigators should have, at a minimum, a high school degree plus successful coursework in the following topics at a "post-secondary education" level:

- fire science;
- fire chemistry;
- thermodynamics;
- thermometry;
- fire dynamics;
- explosion dynamics;
- computer fire modeling;
- fire investigation;
- fire analysis;
- fire investigation methodology;
- fire investigation technology;
- hazardous materials; and
- failure analysis and analytical tools. (NFPA 1033 at 1.3.8.)

Fire investigators must also maintain their knowledge in these subject areas and "remain current" with investigation methodology, fire protection technology, and code requirements by attending workshops and seminars and/or through professional publications and journals. (*Id.* at 1.3.7.)

The Commission recommends that the TCFP phase in a timeline for requiring all investigators to comply with NFPA 1033. The first phase should require that any fire investigator who testifies in court come into compliance with NFPA 1033 standards as soon as practicable. Subsequent phases should require compliance based on the levels of responsibility assumed by investigators. The timeline should be aggressive but flexible to encourage a smooth transition toward compliance. Continuing education requirements promulgated by the TCFP should incorporate NFPA 1033's guidelines.

The FSC also recommends that the SFMO expand its mock trial program to include more participants. One alternative would be to allow for online participation, or to work with the TCFP to make the program a component of continuing education for arson investigators.

RECOMMENDATION 4: COLLABORATIVE TRAINING ON INCENDIARY INDICATORS

The FSC is encouraged by recent efforts among fire scientists,[5] investigators and officials at the SFMO to develop a training course that includes hands-on analysis of incendiary indicators through live burn exercises. The SFMO and TCFP should work with local fire departments to encourage maximum participation, possibly by offering sessions in multiple regional locations. A special effort should be made to ensure participation by smaller rural communities. The SFMO and TCFP should also take into consideration any other pertinent curriculum recommended by the NIJ and other national agencies and working groups. The FSC recommends that the following subjects be reviewed at a minimum:

- fire science basics;
- fuels;
- ignition;
- fire growth;
- incendiary indicators;
- myths and misconceptions;
- elimination of accidental causes;
- proper documentation and photos;
- eyewitness interviews;
- diagrams and use of the Ignition Matrix.

[5] The FSC is especially grateful to Dr. John DeHaan for working with Commission staff to develop a suggested training curriculum.

Training should be limited to active fire investigators currently serving in Texas to encourage an open and honest exchange (similar to the "post-mortem" sessions conducted by medical doctors and scientists). It should include opportunities for investigators to participate in live burn exercises. All attendees should be given current copies of NFPA 921 and *Kirk's Fire Investigation* at a minimum. Participants should receive continuing education credit for their attendance. Finally, an examination should be given at the end of the course to determine whether attendees absorbed key principles.

RECOMMENDATION 5: TOOLS FOR ANALYZING IGNITION SOURCES

New tools exist to help investigators identify and analyze various sources of ignition during a fire investigation. For example, the Ignition Matrix (*See* Exhibit 32) was introduced in the latest edition of *Kirk's Fire Investigation* and NFPA 921 as a straightforward method for ensuring compliance with the various requirements of NFPA 921.[6] The matrix prompts investigators to ask a series of questions regarding potential ignition sources. Investigators then label the information they have gathered based on pre-established color and notation categories. The approach constitutes a best practice method for evaluating sources of data at the scene of a fire and documenting the facts relied upon when reaching conclusions about various ignition possibilities. When carried out with a comprehensive map of the suspected area of origin, the Ignition Matrix provides investigators with a concrete way to conduct a methodical review of data and facts before forming an opinion, in compliance with NFPA 921. The SFMO

[6] Information regarding the Ignition Matrix, developed by Lou Bilancia, was provided to the FSC by Dr. John DeHaan in February 2011.

should consider methods for integrating the Ignition Matrix into its training and investigative work.

RECOMMENDATION 6: PERIODIC CURRICULUM REVIEW

The FSC recommends that stakeholders (including representatives from the TCFP, SFMO, fire investigators and scientists) form a regular working group to review training curricula and ensure that it meets the ongoing needs of fire investigators in Texas. The group could also identify ways to take advantage of Internet-based training such as CFITrainer and virtual reality fire investigation programs. Because CFITrainer provides a variety of online options for achieving compliance with NFPA 1033, use of the website may be particularly helpful in rolling out the enhanced certification requirements discussed above.

RECOMMENDATION 7: INVOLVEMENT OF SFMO IN LOCAL INVESTIGATIONS

Local fire departments call the SFMO for assistance when they believe a case is significant enough to warrant such assistance. If the SFMO has personnel available, it sends them to assist. Based on discussions with SFMO leadership, it appears that the SFMO is always available to assist when called upon; the agency rarely (if ever) denies assistance. Some Commissioners have questioned whether there should be clear legal requirements governing cases in which the SFMO appears for assistance. The Commission strongly recommends that the SFMO have an Advanced or Master Arson Investigator participate in all fire investigations involving the loss of life.

RECOMMENDATION 8: ESTABLISHMENT OF PEER REVIEW GROUP/MULTIDISCIPLINARY TEAM

The Commission strongly recommends that the SFMO establish a peer review team (perhaps to include someone from the SFMO, a local investigator, a fire scientist and a medical examiner) to review pending and completed arson cases on a quarterly basis (similar to the cold case DNA task force group, or CPS' review of child abuse cases, multidisciplinary team (MDT) models, etc.) This would be a good-faith effort to assure the public that there is a review mechanism in place, especially for structure arson cases involving fatalities. It would also be a way to encourage ongoing professional development across the field. The most efficient approach may be to establish regional MDTs.

RECOMMENDATION 9: STANDARDS FOR TESTIMONY IN ARSON CASES

The FSC recommends that the SFMO and local fire investigators begin implementing the standards set forth in NFPA 1033 and related guidelines to improve the overall quality of testimony offered in arson investigations.

RECOMMENDATION 10: ENHANCED ADMISSIBILITY HEARINGS IN ARSON CASES

The FSC recommends that admissibility hearings (also referred to as *Daubert/Kelly* hearings) be conducted in all arson cases, due to the inherently complex nature of fire science and the continuously evolving nature of fire investigation standards. The FSC encourages both prosecutors and defense counsel to aggressively pursue admissibility hearings in arson cases. In addition, judges should affirmatively exercise their discretion to hold such hearings in all

arson cases as a method of ensuring that fire science testimony is reliable and relevant.

RECOMMENDATION 11: EVALUATING COURTROOM TESTIMONY

The Commission recommends that the SFMO and local fire departments develop policies and procedures for the evaluation of courtroom testimony.

RECOMMENDATION 12: MINIMUM REPORT STANDARDS

SFMO leadership reviews each fire investigation report submitted by its investigators, and instructs investigators to revise their reports if there is any indication of an incomplete analysis. This process is designed to help ensure that the scientific method is followed by SFMO investigators. However, it is limited to fire reports submitted by investigators employed by the SFMO; there is no standardized reporting method that applies to fire investigators statewide.

The Commission recommends that the SFMO develop and release minimum standards for fire investigation reporting statewide. As the NAS Report notes, "there is a critical need in most fields of forensic science to raise the standards for reporting and testifying about the results of investigations." (NAS Report at 185.) Minimum standards should verify that key elements have been reviewed, documented, collected, photographed (to the extent applicable) and analyzed. They should also have a method for red-flagging scenarios in which additional consultation might be necessary (such as when an electrical engineer should be called in to help with arc mapping, etc.). They should track key elements of NFPA 921, and evolve as new editions are released. Tools such as the Ignition Matrix and voice-recognition software should be integrated into the

report-writing process. The SFMO has obtained a grant for the use of voice-recognition software; the FSC encourages the agency to seek additional ways to expand opportunities for using the software.

RECOMMENDATION 13: PRESERVATION OF DOCUMENTATION

The Commission notes that review of documentation in the Willingham case presented difficulties because the documents, photographs of fire debris and related records were no longer available. Local fire departments and the SFMO should preserve originals and forward only copies of documentation.

RECOMMENDATION 14: DISSEMINATION OF INFORMATION REGARDING SCIENTIFIC ADVANCEMENTS

The SFMO should identify additional ways to help the fire investigation community in Texas stay current with national developments in fire science. For example, there should be a consistent and effective method for disseminating new information regarding the results of fire science experiments and controlled burn studies. Formats could include quarterly electronic newsletters, regular online forums, periodic webcast updates, NIST and NCJRS library resources, journal abstracting services, etc. The SFMO may also consider retaining a fire scientist to consult on an as-needed basis. Such a relationship would encourage the free flow of information between the two communities and provide a continuous source of outside expertise for particularly challenging interpretive questions.

The FSC recommends that the SFMO perform an internal audit to evaluate fire investigation training, certification, policies and procedures to ensure compliance with all relevant national standards. The FSC recommends that the

SFMO develop a plan for implementing new standards as they evolve as well as ongoing quality assurance measures.

RECOMMENDATION 15: CODE OF CONDUCT/ETHICS

State agencies and professional organizations often have a Code of Conduct or Ethics to guide expectations. The FSC understands that the SFMO does not currently have such a Code; the FSC recommends that the SFMO establish a Code of Conduct/Ethics for fire investigators in Texas.

RECOMMENDATION 16: TRAINING FOR LAWYERS/JUDGES

The FSC recommends that the Texas Legislature and/or any other body overseeing continuing education in Texas consider requiring judges and lawyers practicing in criminal courts to have some form of ongoing forensic science training as a component of their Continuing Legal Education obligations.

RECOMMENDATION 17: FUNDING

The Commission urges that the Texas Legislature and municipalities take steps to ensure that sufficient funding is available to provide training to fire and arson investigators so that they may meet the standards set out in NFPA 921 and NFPA 1033, and stay current with national advances in fire science.

The FSC further recommends that the Texas Department of Insurance make it a priority to ensure that the SFMO receives sufficient funding so that its fire and arson investigators are properly trained to meet the standards set out in NFPA 921 and NFPA 1033, and so that they are able to stay current with advances in fire science.

Finally, the FSC recommends that the SFMO aggressively seek out alternative sources of funding for education of its investigators, including but not limited to federal and private grants.

This report was unanimously approved on April 15, 2011 by the following members of the Texas Forensic Science Commission:

Dr. Garry Adams
Professor and Coordinator of Biodefense & Emerging Disease
Texas A&M University, College of Veterinary Medicine & Biomedical Sciences
College Station, Texas

John M. Bradley
District Attorney
Williamson County, Texas

Dr. Arthur Jay Eisenberg
Professor and Director, DNA Identity Laboratory
University of North Texas Health Science Center
Fort Worth, Texas

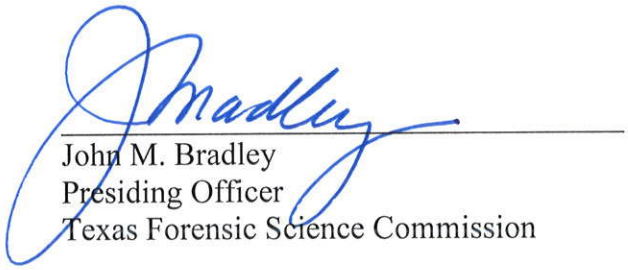
Lance T. Evans
Partner, Criminal Defense Attorney
Evans, Daniel, Moore & Evans, LLP
Fort Worth, Texas

Dr. Norma J. Farley
Chief Forensic Pathologist
Hidalgo County, Texas

Dr. Stanley R. Hamilton
Director, M.D. Anderson Division of Pathology & Laboratory Medicine
Houston, Texas

Dr. Sarah Kerrigan
Professor and Director, Sam Houston State University Regional Crime Lab
Huntsville, Texas

Dr. Nizam Peerwani
Chief Medical Examiner
Tarrant County, Texas



John M. Bradley
Presiding Officer
Texas Forensic Science Commission

Texas Forensic Science Commission

Justice Through Science

January 28, 2011

VIA CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Greg Abbott
Attorney General
P. O. Box 12548
Austin, TX 78711-2548

Re: Texas Forensic Science Commission Request for Attorney General Opinion

Dear Attorney General Abbott:

Pursuant to Section 402.042 of the Texas Government Code, I submit this request for an opinion regarding the jurisdictional scope of the Texas Forensic Science Commission ("FSC"). The FSC voted unanimously to approve this request. There is no litigation pending regarding the matters for which this opinion is requested.

In May 2005, the Texas Legislature passed House Bill 1068 (the "Act") which created the FSC by amending the Code of Criminal Procedure to add Article 38.01. *See* Act of May 30, 2005, 79th Leg., R.S., ch. 1224, § 1, 2005. In three pages, Article 38.01 sets forth the composition and authority of the FSC. The Act took effect on September 1, 2005. *Id.* at § 23. No changes have been made to Article 38.01 since that date.

The following statutory language is critical to the opinion request set forth below:

1. Effective Date Provision

The Act contains an effective date clause, which provides that changes made by the Act apply to:

(1) **evidence tested or offered in evidence on or after the effective date of this Act; and**

(2) **an individual who, on or after the effective date of this Act:**

A. is confined in a penal institution operated by or under contract with the Texas Department of Criminal Justice….;

John M. Bradley
Presiding Officer

Commission Office

Leigh Tomlin
Commission Coordinator

Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296
816 17th Street
Huntsville, TX 77341-2296

Phone: 1 (888) 296-4232
Fax: 1 (888) 305-2432

B. is confined in a facility operated by or under contract with the Texas Youth Commission….;

C. voluntarily submits or causes to be submitted a DNA sample as described in....; or

D. is ordered by a magistrate or court to provide a DNA sample under subsection G, Chapter 411, Government Code.

Id. at §22 (emphasis added).

2. Accredited Laboratory

Under Article 38.01(4)(a)(3) of the Act, the Commission shall:

> investigate, in a timely manner, any allegation of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis **conducted by an accredited laboratory, facility or entity** (emphasis added).

3. Forensic Analysis

Article 38.01(2) refers to Article 38.35(a) for the meaning of the term "forensic analysis." Article 38.35(a) defines the term as follows:

> "Forensic analysis" means a **medical, chemical, toxicologic, ballistic, or other expert examination or test performed on physical evidence**, including DNA evidence, for the purpose of determining the connection of the evidence to a criminal action. The term includes an examination or test requested by a law enforcement agency, prosecutor, criminal suspect or defendant, or court (emphasis added).

Article 38.35 also expressly excludes certain types of analysis from the "forensic analysis" definition. For purposes of this opinion request, the most relevant exclusion is found in Article 38.35(a)(4)(D):

> an examination or test **excluded by rule** under Section 411.0205(c), Government Code (emphasis added).

Under Section 411.0205(b) of the Government Code, the Texas Department of Public Safety ("DPS") is responsible for accrediting crime laboratories and other entities that conduct forensic analysis in Texas. DPS is also authorized to designate certain forensic disciplines that are exempt from accreditation. *Id.* at §411.0205(c). Pursuant to its rulemaking authority, DPS maintains two lists of forensic disciplines, one including those that are subject to accreditation, and the other including disciplines that are exempt from accreditation. *See* 37 TEX. ADMIN. CODE §§ 28.145-28.147 (2010). There are, however, numerous categories of forensic analysis that do not appear on either list.

The questions for which the FSC requests an opinion are as follows:

1. Impact of Effective Date Provision: Does the Act's effective date provision restrict the FSC's investigative authority to cases in which the requirements set forth in that provision are met?

2. Meaning of "Accredited Laboratory": Does the Act limit the investigative scope of the FSC to allegations of negligence and misconduct involving forensic analyses conducted only by laboratories, facilities or entities that were accredited by the Department of Public Safety ("DPS") when the analyses took place?

3. Scope of the Term "Forensic Analysis": Does the Act prohibit the FSC from investigating fields of forensic analysis that have been expressly excluded by DPS pursuant to its rulemaking authority under Section 411.0205(c) of the Texas Government Code? When the FSC receives a complaint involving forensic analysis that is *neither* expressly included *nor* expressly excluded by the Act or DPS rule, does the FSC have authority to investigate such a complaint?

Since its creation in September 2005, the FSC has received numerous investigative requests from the public (referred to herein as "complaints"). Some complaints involve cases in which the evidence underlying the forensic analysis was tested or offered into evidence years (and sometimes decades) before the Act's effective date. In other complaints, the laboratory in question was not accredited at the time the analysis in question was performed. The FSC has also received complaints in which the forensic analysis is not expressly excluded from accreditation by statute or DPS rule, but also does not expressly appear on the inclusion list promulgated by DPS under its rulemaking authority.

In many of these cases, the FSC has struggled to determine the scope of its jurisdiction, while remaining responsive to concerns of the public and the laboratories and agencies under investigation. There is no established administrative construction for the questions set forth in this request. An Attorney General opinion regarding the FSC's jurisdictional and investigative scope would provide clarity to the public and other state agencies, while protecting the FSC and its members from potential liability for exceeding

statutory authority. The opinion would also assist the Legislature in deciding whether to amend the FSC's investigative authority.

The FSC respectfully requests a response to the questions set forth above as soon as possible. Please feel free to contact me if we may provide additional information.

Sincerely,

John Bradley
Presiding Officer
Texas Forensic Science Commission

If the criteria for an investigation are not met or the Commission declines to investigate further, you will receive a letter from the Commission.

Your cooperation, patience and understanding are appreciated.

1. PERSON COMPLETING THIS FORM

Barry C. Scheck, Co-Director
Name: The Innocence Project

Address: 100 Fifth Avenue, Third Floor

City: New York State: NY

Zip Code: 10011

Home Phone: _____ Work Phone: (212) 364-5393 (Elizabeth Vaca, Administrative Assistant)

Email Address (if any): evaca@innocenceproject.org (Elizabeth Vaca, Administrative Assistant)

2. SUBJECT OF COMPLAINT

List the full name, address of the laboratory, facility or individual that is the subject of this complaint (if known):

Individual/Laboratory: Texas Fire Marshal's Office Forensic Arson Laboratory

Address: 7915 Cameron Road

City: Austin State: Texas

Date of Examination, Analysis, or Report: (Several -- see previously submitted document)

Type of forensic analysis: Arson

Laboratory Case Number (if known): 1. Willingham: 91 FR 3577 (among others); 2. Willis: 643 JUN 036 S (among others)

Is the forensic analysis associated with any law enforcement investigation, prosecution or criminal litigation?

X Yes _____ No

*If you answered "Yes" above, provide the following information (if possible):

*Name of Defendant: 1. Cameron Todd Willingham and 2. Ernest Willis

*Case Number/Cause Number: Numerous (if unknown, leave blank)

*Nature of Case: Capital murder (for example – burglary, murder, etc.)
(in both cases)

*The county where case was investigated, prosecuted or filed: 1. Willingham: Navarro County; 2. Willis: Pecos County

*The court: 1. Willingham: 366th Judicial District; 2. Willis: 112th Judicial District

*The outcome of case: 1. Willingham was sentenced to death and the State of Texas carried out the sentence; 2. Willis was sentenced to death but later exonerated and released

*Names of attorneys in case (if known):

1. Willingham: Walter M. Reaves, Jr., P.O. Box 55, West, Texas 76691 / Ph:(254) 826-3713 / Fax: (254) 826-5572 / wmreaves@postconviction.com

2a. Willis: James Blank of Kaye Scholer (formerly of Latham and Watkins) 425 Park Avenue New York, NY 10022-3598 Ph. (212) 836-7528 / Fax: (212) 836-8689 / jblank@kayescholer.com

2b. Willis: Ori White, Former DA for the 112th District, Pecos County Ori T. White & Associates, 107 E. 4th St., Ft. Stockton, TX 79735 Ph: (432) 336-2880 / Fax: 432-336-2881/ office@oritwhite.com

*Your relationship with the defendant:

_____ Self _____ Family Member _____ Laboratory staff member _____ Parent

_____ Friend X Attorney _____ None

Other (please specify): Although the Innocence Project did not represent Mr. Willis or Mr. Willingham in court proceedings, it raises this allegation as a member of the public.

*If you are not the defendant, please provide us with the following information regarding the defendant:

Name: 1. Cameron Todd Willingham 2. Ernest Willis

Address (if known): 1. N/A (deceased) 2. Available through the Innocence Project

Home phone number: 1. N/A (deceased) 2. Available through the Innocence Project Work phone number: _____

3. WITNESSES

Provide the following about any person with factual knowledge or expertise regarding the alleged professional negligence or misconduct which is the subject of this complaint (attach separate sheet(s), if necessary)

First witness (if any):

Name: Dr. John Lentini
Applied Technical Services
Address: 1190 Atlanta Industrial Dr.
Marietta, GA 30066
Daytime phone: 770.423.1400 X 3047 Evening phone: _____
Fax : n/a Email Address: jlentini@atslab.com

Second witness (if any):

Name: Daniel L. Churchward / Kodiak Fire & Safety

Address: 6204 Constitution Dr. / Ft Wayne, IN 46804

Daytime phone: 260.432.6590 Evening phone: 260.438.6548

Fax : 260.436.0768 Email Address: dchurchward@kodiakconsulting.com

4. DESCRIPTION OF COMPLAINT

Please write a *brief* statement of event(s), acts or omissions you believe show that an accredited laboratory, facility or other entity committed professional negligence or misconduct that substantially affected the integrity of the results of a forensic analysis:

Both Ernest Willis and Cameron Willingham were sentenced to death, based on virtually identical assumptions, findings, and conclusions by state and local arson investigators in 1986 and 1992 respectively that each man had set fire to houses and killed people. Eventually, the conviction of Ernest Willis was vacated and, on remand, after submission of a report by Dr. Gerald Hurst at the request of Pecos County District Attorney Ori White, the prosecution concluded that the assumptions, findings and conclusions of arson investigators had no scientific merit. The indictment against Mr. Willis was dismissed

in 2004, and ultimately, the State of Texas agreed Mr. Willis was actually innocent and provided him maximum compensation under the state's wrongful conviction statute.
Mr. Willingham, on the other hand, despite an affidavit in support of clemency from Dr. Hurst submitted to the Texas Board of Pardons and Paroles and to the Governor's office that raised precisely the same criticisms as the Willis case, was executed in February 2004.
These two outcomes are mutually exclusive. Willis cannot be found "actually innocent" and Willingham executed based on the same scientific evidence.

You may use additional paper, if necessary.

5. EXHIBITS AND ATTACHMENT(S)

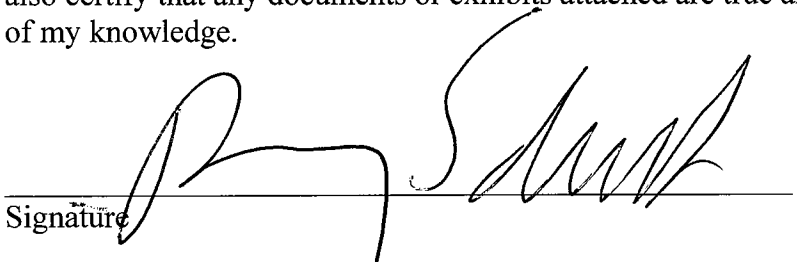
Whenever possible, complaints should be accompanied by readable copies (NO ORIGINALS) of any laboratory reports, relevant witness testimony, affidavits of experts about the forensic analysis, or other documents related to your complaint. Please list and attach any documents that might assist the Commission to evaluate your complaint. Documents provided will NOT be returned.

PLEASE SEE DOCUMENTATION PREVIOUSLY SUBMITTED TO THE COMMISSION FOR ADDITIONAL INFORMATION PERTINENT TO THIS ALLEGATION.

6. YOUR SIGNATURE AND VERIFICATION

You must sign below:

By signing below, I certify that the statements made by me in this complaint are true. I also certify that any documents or exhibits attached are true and correct copies, to the best of my knowledge.



Signature

Date signed: 8/13/08

Arson Review Committee

A Peer Review Panel Commissioned by the Innocence Project

Douglas J. Carpenter, P.E.
Combustion Science & Engineering, Inc.
8940 Old Annapolis Rd. Ste L
Columbia, MD 21045
www.csefire.com

Daniel L. Churchward
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Michael A. McKenzie, Esq.
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Atlanta, GA 30308
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David M. Smith
Associated Fire Consultants
4257 West Ina Rd Suite 101
Tucson, AZ 85741
www.assocfire.com

Report on the Peer Review of the Expert Testimony in the Cases of

State of Texas v. Cameron Todd Willingham

and

State of Texas v. Ernest Ray Willis

Innocence Project

Arson Review Committee (ARC) Report

TABLE OF CONTENTS

Executive Summary

Neither the fire that killed the three Willingham children nor the fire that killed Elizabeth Grace Belue and Gail Joe Allison were incendiary fires. The artifacts examined and relied upon by the fire investigators in both cases are the kind of artifacts routinely created by accidental fires that progress beyond flashover.

The State's expert witnesses in both cases relied on interpretations of "indicators" that they were taught constituted evidence of arson. While we have no doubt that these witnesses believed what they were saying, each and every one of the indicators relied upon have since been scientifically proven to be invalid.

To the extent that there are still investigators in Texas and elsewhere, who interpret low burning, irregular fire patterns and collapsed furniture springs as indicators of incendiary fires, there will continue to be serious miscarriages of justice.

Continuous (and in some cases, remedial) training and professional development of fire investigators is required. Additionally, participants in the justice system need to become better educated, and more skeptical of opinion testimony for which there is no scientific support, and need to ensure that defendants in arson cases are afforded the opportunity to retain independent experts to evaluate charges that a fire was incendiary.

In the cases of individuals already convicted using what is now known to be bad science (or no science), the Courts should treat the "new" knowledge as "newly discovered evidence." It was resistance to this concept that allowed the State to execute Mr. Willingham, even though it was known that the evidence used to convict him was invalid.

Introduction

The undersigned fire investigators have been requested by the Innocence Project to examine the outcomes of two Texas arson convictions, those of Cameron Todd Willingham and Ernest Ray Willis.[1] The Willis fire occurred in Iraan, Texas, on June 11, 1986, and the Willingham fire occurred in Corsicana, Texas on December 23, 1991. Both cases reached their ultimate conclusion in 2004. On February 17, Cameron Todd Willingham was executed by lethal injection. On October 6, Mr. Willis was freed from the same facility where Mr. Willingham was executed.

Fire is governed by the laws of physics. In order to reach valid determinations, therefore, the investigation of fires must follow the Scientific Method as all other physical science investigations do. After a review of the scientific basis for the determination of arson, the prosecutors in the Willis case acknowledged that his conviction was based on faulty science and unreliable indicators of arson. Even though, for all practical purposes, the interpretations of the physical evidence as testified to in the Willis trial were the same in the Willingham trial and after

[1] None of the authors have received any compensation for this *pro bon*o review, nor will any compensation be accepted.

a similar review determined that the conviction was also based on unreliable indicators, no such acknowledgment has come forward from the prosecutors in that case. While any case of wrongful conviction, acknowledged or not, is worthy of review, the disparity of the outcomes in these two cases warrants a closer inspection.

The primary goal of this review is to identify the factors that led to the conviction of Mr. Willingham and Mr. Willis and to provide recommendations that, if followed, will lead to the undoing of other miscarriages, and prevent future miscarriages of justice with respect to the crime of arson.

Methodology

In any prosecution of arson, there is a bifurcation associated with the burden of proof. Unlike bank robberies or murders, arson prosecutions require that the State first prove beyond a reasonable doubt that the fire was, in fact, intentionally set. In many cases, once this hurdle is overcome, the identity of the perpetrator is obvious. If the fire is intentionally set and the perpetrator is not obvious, the State must further prove beyond a reasonable doubt that the fire was intentionally set by a specific individual(s). If the fire is not intentionally set, however, the potential for a miscarriage of justice does not just lie in the false determination of a set fire. The miscarriage extends to the accusation and potential conviction of an innocent person for a crime that never occurred. Certainly, in the case of the Willingham fire, if the fire was set, Mr. Willingham most likely was the perpetrator. Thus, a threshold question for the jury is not whether the defendant committed the crime, but whether in fact a crime was committed. The jury's determination of the cause of the fire usually rests on the interpretation of post-fire artifacts by expert witnesses.

Beyond the expert's determination of the cause of the fire, however, there is the communication of that opinion to a jury. In effect, the jury is making a second determination, or ratifying the fire investigator's determination. Thus, while looking at photographs of the fire scene and the fire investigator's report will help us to understand how a fire investigator could be mistaken, it is the testimony of the fire investigator that causes a jury to reach its conclusion. Because it is the jury's decision that ultimately determines the outcome of a case, our focus will be mainly on the sworn testimony of the investigators[2] who persuaded the jury to believe that the fires in both cases had been intentionally set.

[2] The testimony under study is both lengthy and repetitive. Thus, the review of the testimony will be somewhat tedious. Because it is so repetitive, however, there is little chance that we have misconstrued the witnesses' meaning.

Review of Testimony and Reports

State of Texas v. Cameron Todd Willingham

Trial Testimony of Manuel Vasquez

Manuel Vasquez was a Deputy State Fire Marshal who was the lead expert witness in the case against Cameron Todd Willingham. After eight years of service in the Army, Mr. Vasquez worked for the Grand Prairie Fire Department for thirteen years, spent three years with the Dallas County Fire Marshal's Office, seven years as the Fire Marshal for the City of Lancaster, and seven years with the Texas State Fire Marshal's Office. Trial transcript at page 227 begins on line 24 with the following:

> Q: And how many fires have you investigated since becoming a Certified Fire/Arson Investigator?
>
> A: Perhaps in the range of 1,200 to 1,500 fires.
>
> Q: Of these 1,200 to 1,500 fires, how many turned out to be arson in your opinion?
>
> A: With the exception of a few, most all of them.
>
> Q: And how many—again, based on your experience, how many arson fires that you investigated involved injuries or deaths?
>
> A: Unfortunately, fires injure a lot of people—kill a lot of people. It's about 50%.

While it is true that State Fire Marshals frequently do not receive requests to investigate fires that are known to be accidental, "most all of them" is an extremely high percentage of fires to have been determined to be arson. There are many organizations including the National Fire Protection Association (NFPA), the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), the United States Fire Administration (USFA), and the Federal Bureau of Investigations (FBI) that collect and compile statistics on the crime of arson that can be used to compare Mr. Vasquez's estimates. The most relevant data with respect to this case is from the Texas State Fire Marshals Office (TSFMO). Table 1 provides the number of fires investigated by the TSFMO versus the number of fires investigated that were determined to be arson. From the period of 1980 to 2005, the average percentage of fires determined to be arson by the TSFMO was 50%. A 50% arson rate would not be considered to be "most all of them," as testified to by Mr. Vasquez.

Furthermore, the injury rate estimated by Mr. Vasquez is exceptionally high when compared with national fire statistics. Table 2 provides the number of fires reported annually and the number of fire-related deaths and injuries from data compiled by the U.S. Fire Administration.

YEAR	SET FIRES / INVESTIGATIONS	PERCENT
2004	229 of 507	45%
2003	274 of 550	50%
2002	343 of 678	51%
2001	217 of 487	45%
2000	241 of 556	43%
1999	216 of 481	45%
1998	219 of 531	41%
1997	209 of 433	48%
1996	352 of 754	47%
1995	333 of 624	53%
1994	311 of 552	56%
1993	276 of 524	53%
1992	269 of 486	55%
1991	247 of 415	60%
1990	227 of 428	53%

Table 1 – Number of Set Fires versus the Number of Fires Investigated (Source: Texas State Fire Marshal's Office, Department of Insurance). Copyright 2006, Chicago Tribune

From the period of 1995 to 2005, the average annual percentage of fires that resulted in deaths was 0.23% and the average annual percentage of injuries was 1.22%. Again, Mr. Vasquez's overestimation of the death and injury rates shows a lack of knowledge in this area. Such comparisons highlight his bias towards arson determinations and a lack of knowledge of the death and injury rates in his home state. Of course this overestimation may simply have been an attempt to prejudice the jury. Mr. Vazquez's characterization that "most all" of his fire investigations are arsons alerts the jury that this case must also be an arson case because Mr. Vasquez has investigated it. He should have been challenged in cross-examination on these estimates with respect to his credibility as an expert witness.

YEAR	FIRES	DEATHS	INJURIES	DIRECT DOLLAR LOSS IN MILLIONS
1995	1,965,500	4,585	25,775	$9,182
1996	1,975,000	4,990	25,550	$9,406
1997	1,795,000	4,050	23,750	$8,525
1998	1,755,000	4,035	23,100	$8,629
1999	1,823,000	3,570	21,875	$10,024
2000	1,708,000	4,045	22,350	$11,207
2001[3]	1,734,500	3,745	20,300	$10,583
2001[4]	1,734,500	2,451	800	$33,440
2002	1,687,500	3,380	18,425	$10,337
2003	1,584,500	3,925	18,125	$12,307
2004[5]	1,550, 500	3,900	17,785	$9,794

Table 2 - Number of fires, deaths, injuries and dollar loss in the United States from 1995 to 2004. (Source: United States Fire Administration)

On page 232 of the trial transcript, Mr. Vasquez provided the kind of testimony very typical of under-trained fire investigators in that time period.

> "All fire goes up. All water goes down. Or any liquid goes down unless man changes the course."

At page 238, Mr. Vasquez's testimony moves into the interpretation of alleged "pour patterns" on the floor in a compartment (room) fully involved in fire. The following testimony begins at line 16.

> "So this area right here are what I call burn trailers. Burn trailers is like a trailer, you know like a little path, a burnt path. A pour pattern, which is a pattern like somebody put some liquid on the floor or wherever; and, of course, when you pour liquid, then it creates a puddle. Liquids create puddles.[6] When it rains, you get puddles. When the baby drops its milk, you create puddles. If you ever drop a Coke, you create puddles. All this area has that, has the burn trailer pour patterns and configurations.
>
> This area right here, which is right here almost in front of this bed, is deep charred. The floor, it didn't burn through the floor but it burned the three layers of

[3] Excludes the events of September 11, 2001.
[4] These estimates reflect the number of deaths, injuries and dollar loss directly related to the events of September 11, 2001.
[5] The decrease in direct dollar loss in 2004 reflects the Southern California wildfires with an estimated loss of $2,040,000,000 that occurred in 2003.
[6] The transcript actually reads "Liquids **creates** puddles." Because of the possibility that many grammatical errors are actually transcription errors, this report will not gratuitously reprint grammatical errors, unless failing to do so would alter the meaning of the testimony.

> the floor. And a pour pattern and trailer is an indication that somebody poured something, you know, either going in or going out."

Later, on page 239 at line 15, he states:

> "It indicates—you are beginning to see the puddle configurations, the pour patterns right here in this area in front of the bedroom, but in the hallway—again, now, we are looking at this area right here just before you go into the bedroom, you are still in the hallway. This picture right here, that's Exhibit #27. And you got a char burning, like for example, this is the bottom here is burned down here at the bottom. That is an indicator in my investigation of an origin of fire because it's the lowest part of the fire."

When a fire occurs inside a compartment (i.e. a compartment fire[7]), the fire behaves differently than if it is burning in the open[8]. Following ignition, while the fire in a compartment is still relatively small, it will be burning freely[9,10]. If it can grow in size, either through flame spread across the first ignited fuel or by spreading to adjacent fuels, a stage will be reached when the compartment boundaries influence the development of the fire[11]. Due to buoyancy, the heated products of combustion from a fire in the open rise as a column of hot gas referred to as a *thermal plume*. When the rising thermal plume impinges on the ceiling of a compartment, the flow of hot gases is forced to spread horizontally in all directions until the flow is redirected by any intervening walls. When the hot products of combustion can no longer spread horizontally, a layer will start to develop, descend, and become relatively uniform in depth. This layer is referred to as the *upper layer*, also known as the *ceiling laye*r. Mass and energy are transported from the fire source to the upper layer through the thermal plume. If the fire continues to grow in size, the upper layer will increase in depth and temperature. In the early stages of a compartment fire, convection is the most significant mode of heat transfer in the room of origin and throughout the building. As the temperature of the upper layer increases, thermal radiation becomes the dominant mode of heat transfer.[12].

When the temperature of the upper layer reaches approximately 1,100-1,200 ^{o}F, there is sufficient thermal radiation (i.e. 20 kW/m^2) reaching the fuel packages within the compartment to ignite every exposed and "easily-ignitable" combustible surface in the room. This level of thermal radiation has been defined as the onset of *flashover*, which is a transitional event that marks a change from a condition where the fire is dominated by the burning of the first item ignited to a condition where the fire is dominated by the burning of all combustible items in the compartment. The post-flashover condition is referred to as a *fully developed fire* or *full room involvement*. Flashover also marks a transition from a fuel-controlled fire to a ventilation-

[7] The term "compartment fire" is defined as a fire that is confined within an enclosure such as in a room or building.
[8] Drysdale, D., *An Introduction to Fire Dynamics*, second edition, John Wiley & Sons, New York, 1999.
[9] The term "burning freely" is defined as a fire whose pyrolysis rate and heat release rate are affected only by the burning of the fuel itself and not by the presence of any boundaries of a compartment.
[10] Walton W. D., and Thomas, P. H., "Estimating Temperatures in Compartment Fires," in *The SFPE Handbook of Fire Protection Engineering*, 2nd edition,, Society of Fire Protection Engineers, Quincy, MA, 1995.
[11] Drysdale, D., *An Introduction to Fire Dynamics*, second edition, John Wiley & Sons, New York, 1999.
[12] NFPA 921, *Guide for Fire and Explosion Investigations*, National Fire Protection Association, Quincy, MA, 2004.

controlled fire. The size of the fire (i.e. the heat release rate) in the fuel-controlled phase is dependent on how much of the surface area of the fuel package(s) is burning at any given time. In the ventilation-controlled phase, the size of the fire is dependant on the rate of inflow of air into the compartment. The post-flashover compartment fire is characterized by the entire volume of the compartment being filled with flames, and any unburned fuel produced within the compartment can be burned at ventilation openings (e.g. open doors and windows) where the fuel can be mixed with available air. This burning regime will produce conditions sufficient to burn and consume materials lining the compartment, such as floors, ceilings, and walls. This process can create patterns on those surfaces of the type described by Mr. Vasquez as "puddle configurations" and "pour patterns." More importantly, these patterns can be created in compartment fires where no flammable liquids were introduced. Surprisingly, such knowledge of compartment fires was readily available to the fire investigation community in the *Fire Investigation Handbook*[13] published in 1980, more than a decade before the Willingham fire.

In order for any investigator, including Mr. Vasquez, to credibly identify the fire pattern as being the result of an ignitable liquid, he would have had to possess knowledge that would allow him to distinguish the characteristics of patterns on the floor that resulted from a fully involved compartment fire where flammable or combustible liquids were introduced from patterns on the floor created by a fully involved compartment fire where no such flammable or combustible liquids were introduced. Such knowledge exists only in the imagination of certain fire investigators. While Putorti[14] documented the patterns resulting from the burning of flammable and combustible liquids on different flooring materials, the purpose of his work was to provide a method for predicting the quantity of spilled fuel required to form a burn pattern of a given size. In addition, these tests were not conducted in an enclosed compartment that produced post-flashover burning. Putorti[15] also conducted full-scale tests of compartment fires to provide data for the study of burn patterns. The goal of the project was to produce data that would support conclusions on the impact of the fire ignition method (accidental vs. arson) on the formation of burn patterns. Based on this work, significant differences in the condition and appearance of the fire compartments and contents were observed between experiments with the same method of ignition. Simply stated, **the patterns produced could not be used to discriminate an arson fire from an accidental fire.**

The United States Fire Administration also conducted a study of fire patterns in compartments with and without the use of an accelerant[16]. One of the findings of the study was that the presence of floor patterns in a compartment, which experienced post-flashover conditions, is not a reliable indicator of the presence of an ignitable liquid introduced as an accelerant. Thus, the knowledge required to discern patterns produced by ignitable liquids from those in un-accelerated compartment fires was not available at the time of this fire, and subsequent experimental testing has shown that it is not possible to correctly evaluate a fire in a fully

[13] Brannigan, F. L., Bright, R. G., and Jason, N. H., *Fire Investigation Handbook*, National Bureau of Standards Handbook 134, National Bureau of Standards, Washington, D.C., August, 1980.
[14] Putorti, A. D., "Flammable and Combustible Liquid Spill/Burn Patterns," NIJ Report 604-00, National Institute of Justice, Washington, D.C., March 2001.
[15] Putorti, A. D., "Full Scale Room Burn Pattern Study," NIJ Report 601-97, National Institute of Justice, Washington, D.C., December 1997.
[16] Shanley, J. H., "Report of the United States Fire Administration Program for the Study of Fire Patterns," FA 178, Federal Emergency Management Administration, United States Fire Administration, July 16, 1997.

involved compartment as being the result of ignitable liquids on the basis of the appearance of the floor. Yet, that is exactly what happened time after time prior to the early 1990s. Unfortunately, some of these same misinterpretations still happen today.

In order to credibly identify the fire pattern as being the result of an ignitable liquid, it is necessary for a laboratory to find the ignitable liquid residue in samples of the debris. Laboratory techniques that were available to the State of Texas in 1992 were sufficient to detect quantities of ignitable liquid residue as small as 0.1 ml, or 1/500 of a standard drop.

The misconception that he could identify the cause of a fire pattern based on visual inspection was not Mr. Vasquez's only error. Describing the condition of bedsprings, on page 241, he states:

> "The springs were burned from underneath. This indicates there was a fire under this bed because of the burn underneath the bed."

Perhaps the fire did, at some point, burn underneath the bed, but this is a natural progression in a fully involved compartment fire, especially when polyurethane foam is involved, which can melt, drip and form a pool fire on surfaces under furniture. This is demonstrated in the USFA study of burn patterns[17]. In Test 7, the compartment went to flashover and was allowed to burn for a couple of minutes before manual suppression was initiated. Based on the post-fire observations, it was evident that the fire was able to spread and cause damage to the floor under a bed.

Mr. Vasquez indicates that he understands the nature of expert testimony: that of interpreting fire artifacts for the jury. At page 244, he states:

> "The fire tells the story. I am just the interpreter. I am looking at the fire, and I am interpreting the fire. That is what I know. That is what I do best. And the fire does not lie. It tells me the truth."

Unfortunately for Mr. Willingham, while the fire may not have "lied," Mr. Vasquez misinterpreted what it was telling him. Such willingness to offer "expert" testimony, while lacking the knowledge to present accurate information to the jury, may excuse Mr. Vasquez's many serious errors. The judicial system that allows such testimony to be presented, however, is clearly flawed and in need of reform.

At page 249, Mr. Vasquez provided some truly remarkable (and seriously mistaken) testimony that may have convinced the jury that this fire burned "hotter than normal." He stated, beginning at line 7:

> "This is the same area except I'm outside. I'm taking the picture looking inside, and this time I'm looking at the aluminum threshold. And aluminum melts at

[17] Shanley, J. H., "Report of the United States Fire Administration Program for the Study of Fire Patterns," FA 178, Federal Emergency Management Administration, United States Fire Administration, July 16, 1997.

> 1,200º normal. Wood fire does not exceed 800º. So to me, when aluminum melts, it shows me that it has a lot of intense heat. It reacts to it. That means its temperature is hot. The temperature cannot react. Therefore the only thing that can cause that to react is an accelerant. You know it makes the fire hotter. It's not normal fire. It's Exhibit #43."

First, there exists no such entity as a "normal" fire. Hostile fire in a structure is by definition an "abnormal" event. There is only the fire's behavior and the investigator's expectations of fire behavior. If the investigator's expectations about fire behavior are not properly "calibrated," the investigator will make misinterpretations. For example, the notion that an accelerated fire burns at higher temperatures than an unaccelerated fire is an appealing one, but it is simply incorrect. It can be easily demonstrated that this notion is verifiably false using classical thermodynamic analysis techniques. Adiabatic flame temperature calculations[18] have been well established for more than a century and clearly demonstrate that a well-ventilated gasoline fire produces flame temperatures virtually the same as a well-ventilated wood fire. Further, controlled burns where fire investigators "tested" various principles in fire science have produced repeatable results in which the range of temperatures attained by unaccelerated fires were of the same magnitude as those in which ignitable liquids were used. In 1992, unfortunately, such knowledge was relatively new to the fire investigation community, having been published in the first edition of NFPA 921[19]. The proposition that wood fires do not exceed 800º is an incredible one.[20] Aluminum has a melting point in the range of 1000 to 1200 °F and regularly melts in un-accelerated compartment fires, which can achieve average temperatures in the range of 1,000 to 2,000 ºF[21]. Thus, there is nothing unusual about finding melted aluminum, or even melted copper, in a compartment fire when the room becomes fully involved. The statement, "Therefore the only thing that can cause that to react is an accelerant," would be sufficient in itself to cause a trusting jury member to believe that the fire was intentionally set.

All of the authors have reviewed a 52-minute videotape showing the scene of the fire. Mr. Vasquez claimed, beginning at page 255, that there were multiple points of origin. This is another assertion that has no support. Because of the convincing nature of the proposition that accidental fires are only supposed to have one point of origin, if the jury believes there are multiple points of origin, they are likely to believe the fire was intentionally set. He says:

> "So there were three areas of origin."

He further stated:

> "Multiple areas of origin indicate—especially if there is no connecting path, that they were intentionally set by human hands."

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[18] Holman, J. P., *Thermodynamics*, Fourth Edition, John Wiley & Sons, New York, 1988.

[19] NFPA 921, *Guide for Fire and Explosion Investigations*, National Fire Protection Association, Quincy, MA, 1992.

[20] Because he was using the Fahrenheit melting temperature of aluminum, we infer that he was also using the Fahrenheit scale when he stated that wood fires do not exceed 800 degrees.

[21] Drysdale, D., *An Introduction to Fire Dynamics*, second edition, John Wiley & Sons, New York, 1999.

In fact, as shown in the videotape, all of the burned areas in this residence were contiguous. There is a "connecting path." That path might not always be visible on the floor, simply because fire is a three-dimensional phenomenon. Even if we assume for the sake of argument that Mr. Vasquez's repeated assertions that there was liquid accelerant used in this fire are correct, the distance between the three alleged areas of origin would not constitute an effective separation for a flammable liquid because the vapor would simply flash across the intervening space between the alleged pools of liquid fuel. In essence, there could only have been one origin given Mr. Vasquez's determination.

When asked to explain what "indicators" mean, he states:

> "The first incendiary indicator is the auto-ventilation. The inconsistency of the fire going out of this window and the fire going out of the door and this window here that's inconsistent with fire behavior. That's an indicator it's a possible incendiary fire.
>
> Okay. Puddle configurations, pour patterns, low char burning, charred floor, the underneath burning of the baseboard, the brown stains on the concrete, the underneath of the bed, because of the fire right underneath the bed, puddle configurations in that area, and the total saturation of this floor is indicated with pour patterns, because that's all I'm doing is looking at the facts, at the evidence. That's all I'm using."

The "first incendiary indicator," i.e., auto-ventilation, is a term of art used by fire fighters to describe ventilation paths not created by the actions of those fighting the fire. Window breakage is a common example of "auto-ventilation" and is consistent with unaccelerated compartment fires. A classic example of window breakage in an un-accelerated compartment fire is shown in the NFPA video Fire Power[22], which was produced in 1985. The mechanism of window breakage in fires due to thermal exposure was first studied experimentally by Bart and Sung[23] at Harvard University in 1977. Subsequent papers have been published that have verified and expanded on this research.[24,25,26,27,28,29,30,31] The conclusion of this extensive research is that glass

[22] Fire Power (Video), NFPA, Quincy, MA, 1985.
[23] Barth, P.K., and Sung, HT, "Glass Fracture under Intense Heating," Senior Project ES96, Harvard University, 1977.
[24] Emmons, H. "The Needed Fire Science," *Fire Safety Science – Proceedings of the First International Symposium*, 1986.
[25] Skelly, M. J., Roby, R. J., and Beyler, C. L., "An Experimental Investigation of Glass Breakage in Compartment Fires, *Journal of Fire Protection Engineering*, 3 (1), pp 25 – 34, 1991.
[26] Pagni, P.,J., "Thermal Glass Breakage," *Fire Safety Science – Proceedings of the Seventh International Symposium*, 2002.
[27] Hassani, S. K. S., Shields, T. J., and Silcock, G. W. H., "An Experimental Investigation into the Behavior of Glazing in Enclosure Fire," Chapter 1, *The Behavior of Glass and Other Materials Exposed to Fire*, Volume 1, Applied Fire Science in Transition Series, Baywood Publishing Company, Amityville, NY, 2002.
[28] Hassani, S. K. S., Shields, T. J., and Silcock, G. W. H., "Thermal Fracture of Window Glazing: Performance of Glazing in Fires," Chapter 2, *The Behavior of Glass and Other Materials Exposed to Fire*, Volume 1, Applied Fire Science in Transition Series, Baywood Publishing Company, Amityville, NY, 2002.

exposed to a fire breaks due to the temperature differential between the exposed and unexposed areas of the window glass.

In addition, it is undisputed that Mr. Willingham himself created most of the initial ventilation paths. Mr. Willingham stated that he exited the house through the front door. The rear exterior door located in the kitchen was found to be obstructed by a refrigerator preventing the use of this door as an exit by occupants. Mr. Willingham stated that he broke out the two front windows on the front porch using a pool cue. This information was apparently disregarded in Mr. Vasquez's analysis of this fire, but had significant implications with respect to any determination that "auto-venting" was the "first incendiary indicator". Aside from the lack of attention paid by Mr. Willingham's counsel to such inconsistencies, disregarding data that does not fit one's hypothesis is a clear violation of the scientific method. The scientific method requires that **all** of the data gathered be used to test any developed hypothesis. Again, such knowledge is relatively new to the fire investigation community. Although the scientific method had its origins and acceptance in the mid-1600s [32] and has been used in forensic analyses in other disciplines for more than a century, it was not explicitly recommended for use in fire investigations until the first edition of NFPA 921 was issued in 1992.[33]

Each and every one of the "indicators" listed by Mr. Vasquez means absolutely nothing, and, in fact, is expected in the context of a fire that has achieved full room involvement, as this fire clearly did. Low burning, charred flooring and burning underneath items of furniture are common characteristics of a fully involved fire.[34] They mean nothing with respect to the origin and cause of the fire, and they absolutely do not support any hypothesis that the fire had been accelerated by liquid fuels.

On the next page of the transcript (256) Mr. Vasquez stated:

> "So when I found that the floor is hotter than the ceiling, that's backwards, upside down. It shouldn't be like that. The only reason that the floor is hotter is because there was an accelerant. That's the difference. Man made it hotter or woman or whatever. Human being made it hotter."

Such reasoning shows a lack of knowledge of compartment fire dynamics and the response of building materials when exposed to fire. It is impossible during a compartment fire for the

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[29] Hassani, S. K. S., Shields, T. J., and Silcock, G. W. H., "In Situ Experimental Thermal Stress Measurements in Glass Subjected to Enclosure Fires," Chapter 3, *The Behavior of Glass and Other Materials Exposed to Fire*, Volume 1, Applied Fire Science in Transition Series, Baywood Publishing Company, Amityville, NY, 2002.

[30] Hassani, S. K. S., Shields, T. J., and Silcock, G. W. H., "The Behavior of Single Glazing in an Enclosure Fire," Chapter 4, *The Behavior of Glass and Other Materials Exposed to Fire*, Volume 1, Applied Fire Science in Transition Series, Baywood Publishing Company, Amityville, NY, 2002.

[31] Hassani, S. K. S., Shields, T. J., and Silcock, G. W. H., "The Behavior of Double Glazing in an Enclosure Fire," Chapter 5, *The Behavior of Glass and Other Materials Exposed to Fire*, Volume 1, Applied Fire Science in Transition Series, Baywood Publishing Company, Amityville, NY, 2002.

[32] Lentini, J., *Scientific Protocols in Fire Investigation*, CRC Press, 2006.

[33] NFPA 921, *Guide for Fire and Explosion Investigations*, National Fire Protection Association, Quincy, MA, 1992.

[34] See USFA Fire Burn Pattern Tests. Patterns on floor surfaces were produced in fire tests where post-flashover conditions were produced without the use of ignitable liquids. Examples include Tests 2, 5, 7, and 9.

temperatures to be greater at the floor than at the ceiling with the exception of the volume within the fire plume. Prior to flashover, buoyancy drives the hot products of combustion to the ceiling through the thermal plume, where a hot upper layer at the ceiling forms. As a first approximation, the lower layer is at ambient temperatures. During post-flashover conditions, flames fill the volume of the compartment, so for all practical purposes, the temperature is the same at the floor as at the ceiling. Thus, the temperatures at the floor are never higher than at the ceiling.

With respect to the response of the building materials, the walls and ceiling of the front bedroom were constructed of gypsum wallboard, while the floor was constructed of wood overlaid with tile, padding and carpet. The major component of gypsum wallboard is calcium sulfate dihydrate, ($CaSO_4 \cdot 2H_2O$). Because of the chemically bound water, gypsum wallboard has the ability to absorb a significant amount of heat, which drives off the water before the wallboard experiences calcination and eventually, structural failure.[35] Gypsum wallboard is able to withstand post-flashover conditions for a significant period of time (tens of minutes) before failure occurs, and is one of the more reliable materials used in the construction of fire-resistant barriers. Carpet, padding, floor tile, and wood, on the other hand, are easily ignitable fuels, when exposed to post-flashover conditions. Thus, given full room involvement, one would **expect** that the flooring materials would be more heavily damaged than the less combustible walls and ceilings. To interpret this natural fire progression as evidence of incendiarism is false and extremely misleading. Mr. Vasquez might not have known better, but his testimony was misleading nonetheless.

Fire investigators who reach false conclusions, then hear descriptions of events from fire survivors that do not comport with their conclusions, frequently have testified that only the killer or the arsonist has a motive to lie. The undersigned investigators, having been involved in cases of fires misattributed to arson, are familiar with this phenomenon. Mr. Vasquez first formed the conclusion that the fire was intentionally set. Then he was allowed to tell the jury:

> "I've talked to the occupant of this house and I let him talk and he told me a story of pure fabrication."

Mr. Vasquez's only basis for reaching that conclusion was his own misinterpretation of the meaning of the fire artifacts that he observed. He stated over and over:

> "He just talked and he talked and all he did was lie." (Page 260)

> "He said what he said he had done is inconsistent with the burn patterns in the house." (Page 261)

Mr. Vasquez testified at page 262 that Mr. Willingham's injuries were self-inflicted. Based on his misinterpretation of the fire artifacts and the "inconsistent" description of events provided by

[35] McGraw, J. R., Jr., and Mowrer, F. W. Flammability and Dehydration of Painted Gypsum Wallboard Subjected to Fire Heat Fluxes," *Fire Safety Science – Proceedings of the Sixth International Symposium*, International Association for Fire Safety Science, Boston, MA, pp 1003-1014, 2000.

Mr. Willingham, Mr. Vasquez was allowed to testify to the ultimate issue on page 268 when the following exchange took place:

> Q: Do you have an opinion as to who started fire?
>
> A: Yes, sir.
>
> Q: What is that opinion?
>
> A: The occupant, Mr. Willingham.

Later, on redirect examination, he not only was able to testify that the fire was intentionally set by Mr. Willingham, but that his intent was to kill his children. Mr Vasquez stated:

> "The fire, itself, tells me that it's a very aggressive fire; and, therefore, the fire was not a planned fire. It was a spur-of-the-moment fire."

Thus, while Mr. Vasquez claims the ability to divine intent, he can provide no motive other than a "spur-of-the-moment" decision.

Trial Testimony of Douglas Fogg

Douglas Fogg was the Assistant Fire Chief for the Corsicana Fire Department. He had worked for the fire department for a little over 22 years at the time of his testimony. That was the only qualification presented prior to the Mr. Fogg being allowed to present expert opinion testimony. Although no testimony was elicited indicating that he had been trained in fire investigation, there was no objection from the defense.

Mr. Fogg seemed to harbor many of the same misconceptions held by Mr. Vasquez, particularly the notion that without the use of accelerants, fire will only burn upward. He stated, at page 159,

> …and as we started removing debris from the floor, as we had low burn, we started finding configurations of puddling effects, pouring effects of a liquid or what we would consider a liquid being used to accelerate a fire.

In this testimony, Mr. Fogg was describing fire patterns on the floor, which have been scientifically proved to be the natural result of fires in fully involved compartments.

At page 160, he eliminates the electrical wiring as an ignition source. He stated:

> The electrical, you look at the electrical wiring for evidence of shorts from the outlets, from fixtures, so forth. There again, those were eliminated.
>
> Q: Do you feel that you eliminated gas as a cause or an electrical cause as the origin of this fire?

A: Yes.

Mr. Fogg did not explain how he was trained to examine electrical systems in appliances, nor was there any significant cross-examination on the subject.

On the next page (161) he again referred to "pour patterns, puddling effects – were evidenced on the floor."

On page 165, he described an unusual burning characteristic in State's Exhibit 6.

Q: Does that photograph exhibit an unusual burning characteristic?

A: Yes, it does.

Q: Can you explain what it is?

A: Yeah. When a fire normally burns, it burns up. As heat rises, flames go up. This burning characteristic had fire going under the threshold plate, which is very unusual in that it should have been protected from flame itself under that base plate.

This is the central misconception held by many fire investigators at that time, i.e., that fire burns up and does not burn downward without "help." Mr. Fogg was asked, "To what do you attribute that?" and answered, "Liquid being used to accelerate the fire."

The threshold plate was constructed of aluminum, which was fixed on top of a wooden base plate. During post-flashover conditions (i.e. an under-ventilated fire), all of the fuel being produced within the bedroom and hallway is not able to burn within the compartment. The flow of unburned hydrocarbons (i.e. gaseous fuel) through compartment openings, such as open doors and windows, allows the fuel to mix with the surrounding air and burn. This is commonly referred to as *vent burning*. This phenomenon can produce significant thermal radiation exposure to the threshold of an open doorway. In this case, the aluminum threshold, which has a relatively high thermal conductivity, allows the heat that is radiated to its surface from above to be transferred through the aluminum to the wood surface below. Such heat transfer is capable of significant heating of the wood below, resulting in the charring of the wood. The wood does not have to burn to produce such damage—it only has to char. In addition, the burning of the base plate below the threshold is precluded by the lack of access of air sufficient to produce flaming combustion. Thus, ignitable liquids would not be capable of producing the charring on the wood base plate.

Testimony about the flammable liquids was repeated several more times. At page 166, Mr. Fogg stated, "The staining left is very characteristic of liquid burning on the concrete." He was asked further, "Did you find evidence of an accelerant in this fire?" and answered, "Yes we did."

At page 167, describing the overall impression from the photographs he was asked,

Q: In your opinion are these clear examples of accelerants?

A: Very clear. Yeah.

It was widely taught that "puddle shapes" and "liquid-type" patterns were unequivocal evidence of accelerants in 1992 when NFPA 921 was first issued. By 2004, it was well known and generally accepted in the fire investigation community that such patterns were subject to misinterpretation in fully involved compartments, and that the only way to credibly identify a flammable liquid induced fire pattern was to obtain a positive laboratory result. What was generally accepted in 1992 is no longer generally accepted, and has not been generally accepted for most of the last ten years, except by a dwindling group of die-hard "experts," who refuse to accept the scientific data in front of them.

Report of the Texas State Fire Marshal

While the report of Fire Marshal Manuel Vasquez was not part of the trial record, an examination of the report aids in the understanding of his testimony. Even when an investigator does not convey all of his findings to the jury, the misinterpretations that an investigator believes may result in stronger, more confident and therefore more believable testimony.

Page 2 of Mr. Vasquez's report is particularly instructive when he describes the hallway. He states:

> The view of the hallway towards the south disclosed that the east and west walls on the north end had burn patterns from the base of the floor to the ceiling. The fire did not burn through the ceiling. The burn pattern on the east and west wall of the hallway disclosed a gradual climb in a 45º angle toward the south end and clearly showed a 'V' pattern. This 'V' pattern is an indicator that the fire originated on the floor near the north end. An examination of the baseboards on the north end on the east and west wall disclosed a low char burn pattern. The examination of the aluminum threshold at the base of the entrance door from the porch into the center hallway disclosed a burn pattern underneath. This is an indication that a liquid accelerant flowed underneath and burned.

'V' patterns are routinely observed in compartment fires during post-fire investigations and are recognized and discussed in NFPA 921. A 'V" pattern only establishes that a fuel package (e.g. upholstered chair) burned during the course of the fire, resulting in the development of an identifiable pattern. The pattern provides no information as to the time of ignition and thus, cannot be used as an indicator of the origin of the fire.

Further, as stated earlier, it is impossible for flammable liquid to flow underneath a threshold and burn, because there is a lack of available oxygen under the threshold to support flaming combustion. The threshold is, however, capable of absorbing thermal radiant energy and conducting that energy downward through the aluminum, resulting in the charring of the wood below. The description of the baseboards being burned all the way to the floor level is a classic indication of a fully involved compartment, wherein one would expect to find irregular patterns

burned into the floor. Instead of interpreting this pattern as the result of full room involvement, however, Fire Marshal Vasquez interpreted it as "a burn trailer, pour pattern, and puddle configuration." Throughout his report, Fire Marshal Vasquez continues to use the phrase "the burn trailers, pour patterns, and puddle configurations" when describing what are nothing more than irregular patterns burned into the floor as the result of full room involvement. His report, however, states that these patterns constitute "evidence that the floor was poured with a combustible liquid accelerant and ignited."

In addition to his misconceptions about the causes of burning on the floor level and the shape that burning might take, Fire Marshal Vasquez held another belief, about crazed glass. He stated at page 4,

> The pieces of broken window glass on the ledge of the north windows to the northeast bedroom disclosed a crazed 'spider webbing' condition. This condition is an indication that the fire burned fast and hot.

Actually, this condition is an indication that the glass was at one time hot and was rapidly cooled. Crazed glass is not caused by rapid heating and cannot be caused by rapid heating. It is **always** caused by rapid cooling. The misconception about crazed glass was widely held in the United States and widely published in fire investigation texts. Additionally, this misconception was taught at the National Fire Academy.[36] In addition, the 'spider webbing' condition can also be the result of the mechanical breakage of window glass, which is consistent with Mr. Willingham's statement that he used a pool cue to break out the bedroom windows on the front porch.

In describing the concrete floor of the front porch, Fire Marshal Vasquez wrote, "The examination of the porch concrete floor disclosed an area of brown discoloration at the base of the north wall and in front of the door to the central hallway. This discoloration, or brown condition, is also an indication that a liquid accelerant burned on the concrete." This statement by Mr. Vasquez has absolutely no basis in fact. The behavior of concrete in fires, including the development of various colors, has been extensively studied.[37] There is no scientific basis for Mr. Vasquez's statement about the brown discoloration being an indication of the presence of accelerants.

Fire Marshal Vasquez goes on to describe his determination that the fire had "multiple origins." It is generally accepted by the public that a fire having more than one origin was intentionally set, because accidental fires almost always begin in one and only one place. The only credible way to determine multiple origins, however (barring the existence of a surveillance video tape), is to find areas of burning that are completely disconnected from other areas of burning in all

[36] The myth of crazed glass indicating rapid heating was published in the NBS *Fire Investigation Handbook* in 1980, in Section 1.1, entitled "Cause and Origin." The only individuals given the "credit" in the list of contributors for this paragraph in the *Handbook* were Steve W. Hill and Victor U. Palumbo, both of whom were employed by the National Fire Academy.

[37] For a more extensive discussion of the mythology of arson investigation, including myths about the behavior of concrete in fires, see Lentini, J. J., *Scientific Protocols for Fire Investigation*, CRC Press, 2006, Chapter 8.

three dimensions. No such separated areas of unconnected burning existed in the Willingham residence.

At page 5, Fire Marshal Vasquez arrives at the ultimate issue in this case by stating that because his determination of the cause of the fire is different from the story told by the survivor, the survivor must be lying. He states:

> Further, based on the more than 20 indications of incendiarism and the behavior of fire the account given by the occupant of how he escaped the fire is not consistent with the facts. The account is determined to be pure fabrication. A fire does not lie."

All of the authors have seen reports like this one. If the Fire Marshal's determination is wrong, his identification of the "lies" told by the defendant is equally wrong. The statement that "a fire does not lie" is true, but we have all seen numerous instances where a fire was grossly misinterpreted. This, sadly, is such an instance.

State of Texas v. Ernest Ray Willis

Trial Testimony of Edward Cheever

On July 28, 1987, Edward Cheever testified in the case of Texas v. Ernest Ray Willis. At that time, he had been certified by the State of Texas as an arson investigator for less than two years. LeRoy Brown was the lead investigator for the State of Texas on the Willis fire, but he was not presented as a witness. The record is not clear as to why Mr. Cheever was presented instead of Mr. Brown, but the record is clear that the prosecution wanted to avoid having the jury see Mr. Brown's report, or having either Mr. Cheever or Mr. Brown cross-examined on its contents.

On the day of Mr. Cheever's attendance at the fire scene, he had been a certified arson investigator for eight months. He was still in training and was not allowed to handle cases on his own. Mr. Brown was his trainer. On *voir dire,* Mr. Cheever did not take responsibility for investigating the fire scene but stated, "I assisted in the investigation." Nonetheless, he was allowed to give opinion testimony. He stated that he concentrated his investigation in the living room and dining room, and did not even take photographs of some of the bedrooms. He stated:

> Initially, when we had finished the view of the exterior of the building and walked into the inside of the structure, there were a couple of things that caught our attention right off. First of all, the low burning on the walls almost to floor level.

Mr. Cheever, having been trained as most fire investigators were at that time, believed that low burning was an indicator of accelerants on the floor when actually, in a room that is fully involved, low burning is simply evidence that the room was fully involved.[38]

Mr. Cheever considered the low burning to be the most significant fire pattern that he saw. The following exchange takes place on page 14 of his testimony.

> Q: Okay. Well, of all the burn patterns, what is the most significant to you, sir?
>
> A: The most highly significant would be the low burning to the floor level on some of the walls, and the burn patterns that I observed on the floor itself.
>
> Q: Low burning on walls?
>
> A: Yes, sir.
>
> Q: And the floor?
>
> A: The burn patterns that I observed on the floor, yes, sir.

[38] See the previous discussion of low burn patterns in post-flashover compartment fires. Such lengthy discussion will not be repeated here.

Q: Alright. Now let me make a note of that, sir. Low burning on walls, what does that indicated to you, sir?

A: The heat source that caused the burn pattern was at a low level.
Q: Okay. So that if you have one room that's burned floor to ceiling and another room that's not, what does that indicate to you?

A: Indicates that the heat level in the room that burned from floor to ceiling was at a much lower level in the room.

Q: Which might support the idea that was liquid combustibles there?

A: That's true.

Q: Alright. Now burn patterns on the floor. Burn patterns on the floor you say are another part of the significant burn patterns on which you are relying to base your opinion; is that correct, sir?

A: Yes, sir.

Q: Alright. What are those burn patterns on the floor? What do you think about those? What do they mean to you?

A: In this particular case they indicate to me the use of a flammable liquid.

Q: How much flammable liquid?

A: I have no idea.

As happened in the Willingham case, the State's investigators in the Willis case relied on their alleged ability to visually interpret the significance of irregular patterns on the floor in a fully involved compartment fire. At the time of his testimony in 1987, such interpretations, although wrong, were common. It is now well known now that in post-flashover compartment fires, irregular patterns on flooring are commonly observed. Examples of such patterns were found in tests conducted for the United States Fire Administration's Burn Pattern Study[39]. As previously discussed, the ability to distinguish patterns produced by ignitable liquids from those in un-accelerated compartment fires was not available at the time of this fire and subsequent experimental testing has shown that it is not possible to correctly evaluate a fire in a fully involved compartment as being the result of ignitable liquids on the basis of the appearance of the floor.

Demonstrating his complete lack of understanding of compartment fire dynamics, the following exchange occurred on page 21 of Mr. Cheever's testimony.

[39] Shanley, J. H., "Report of the United States Fire Administration Program for the Study of Fire Patterns," FA 178, Federal Emergency Management Administration, United States Fire Administration, July 16, 1997.

Q: Assume for a moment, Mr. Cheever, that the fire had started at a high point inside the house.

A: Yes, sir. Inside the house.

Q: Do you have an opinion as to how long it would take for the fire inside the house to reach a point as low as is depicted in that photograph, and to cause the damage it caused, as evidenced by those photographs?

A: Burning from a high level, just burning the fuel level, and coming down to floor level?

Q: Yes, sir.

A: I don't know anything about how long it would take, but there wouldn't be anything left of the house.

Q: Why would that be?

A: Because the fuel above the fire would burn first. And, as it burned up the fuel, there would be nothing left behind.

Q: What do you mean by the use of the word, 'fuel'?

A: Whatever it is that the fire itself is burning.

Q: Could that be the wood in the house?

A: Wood; yes, sir.

Q: Or any of the products inside the house?

A: Yes, sir. Anything that would burn.

Q: So in order for it to burn that low, it would have had to burn the house down?

A: Assuming that it was burning from a high level, and burning the fuel as it went. Yes, sir.

Certainly, the concept of flashover, as well as the characteristics of post-flashover compartment fires was well established at the time of this fire in 1986 as summarized by Drysdale[40] in his book on fire dynamics, first published in 1985. Also, the NFPA video *Fire Power*, produced in 1986, clearly shows the ignition and burning of carpet three minutes after flaming ignition of an upholstered chair. The video also shows the compartment walls and ceiling still intact after ignition of the carpet on the floor and subsequent post-flashover burning conditions within the

[40] Drysdale, D., *An Introduction to Fire Dynamics*, John Wiley & Sons, New York, 1985.

compartment. More recently, the USFA burn pattern tests also showed that the test compartments were still intact with significant burn damage to the floors in fire tests involving both ignitable liquids and no ignitable liquids. Clearly, an accurate understanding of the behavior of compartment fire dynamics was not part of Mr. Cheever's training.

Mr. Cheever later expressed an opinion about a low burn at a doorway, which, although widely accepted at the time, has since been shown to be a false interpretation.[41] At page 27, he testifies as follows:

> A: Okay. This is State's Exhibit 42. In the doorway you will notice that the doorjamb is burned completely down to the bottom of the doorjamb. This would be referred to as a low burn.

Actually, this is a normal phenomenon when one of the rooms on either side of the doorjamb achieves full room involvement. 'V' patterns at doorways, once thought to indicate that the arsonist had trailed liquid accelerant through that doorway, are now known to be the result of normal fire extension.[42]

At page 31, in describing irregularly shaped edges of a fire pattern, Mr. Cheever provided the following testimony.

> Q: What does it appear to be, to you?
>
> A: It appears to be burned areas resembling how a liquid would have run and burned on that surface.

Again, in the context of a fully involved compartment, irregularly shaped patterns have no meaning with respect to the potential of the introduction of an ignitable liquid, although in 1987 it was common for fire investigators to refer to irregularly shaped edges of patterns as evidence of such. Sadly, there still exists a cadre of fire investigators who make similar false interpretations today.

At page 34, Mr. Cheever is shown a photograph of "low burns" on a carpet and is asked if there is an explanation.

> "Q: Do you have an explanation as to what may have caused the low burn on the wall and on the floor level?

[41] The 1992 edition of NFPA 921 at page 24, section 3-7.2, discusses ventilation-generated patterns. It states: "In a fully developed room fire where hot gases extend to the floor, the hot gases may extend under the door and cause charring under the door and possibly through the threshold." This language has appeared in all of the editions of NFPA 921. In the 2004 edition, it is found on page 32, at section 6.2.3.2.

[42] See NFPA 921, 2004 edition at page 32, section 6.2.3.4.2. "Where fresh air ventilation is available to a fire, it is not uncommon to find locally heavy damage patterns on combustible items close to the ventilation opening, patterns which may have no relevance to the point of origin."

> A: Yes, sir. My opinion is that there was a flammable liquid applied to the floor in that location, and, as it burned, the heat and flame rising from it burned the wall in that manner.

Apparently, the constant repetition eventually persuaded the jury to believe the testimony, even though, as previously discussed, it was seriously flawed. Low burn patterns are a normal artifact in any compartment fully involved in fire.

Another question on page 35 was put to Mr. Cheever.

> Q: Do you have an opinion as to how the fire could have burned the doorjamb at that lower point?
>
> A: In my opinion, there was some type of flammable liquid applied there. There was no other fuel source there that would have indicated it would have burned in that manner.

Actually, all that is required to generate this type of pattern is for the room to be on fire on one side of that doorjamb. The only way to conclusively identify the existence of a flammable liquid in the Willis situation is for the laboratory to report a positive result. All of the samples submitted to K-Chem Laboratories, which at the time was one of the leading laboratories in the country, came back negative. (In the Willingham case, all but one sample came back negative. This sample was collected from the front porch, where there was known to be a container of charcoal lighter fluid.) Other than Mr. Cheever's “opinions” and those of Mr. Dailey, who suffered from all of the same misconceptions, there was no credible evidence presented to the jury that flammable liquids were involved in any way in the Willis fire.

At page 37, a line of questioning begins about burning underneath furniture. As previously discussed in the analysis of the Willingham testimony, burning under furniture is actually a normal consequence of full room involvement. Mr. Cheever, however, opined that burning was the result of the flammable liquid running underneath the furniture. His testimony in several places states that he believed the floor was sloped somehow though he neither made any measurement of the slope, nor did he document the behavior of liquids on the alleged slope. He simply assumed that the burning under the furniture was the result of flammable liquid running to that location. In a disingenuous attempt to discredit another hypothesis for the burning under the furniture, the prosecutor asked Mr. Cheever about falling debris, for example burning ceiling tiles. Mr. Cheever of course states “falling debris would have fallen on top of the couch, not under.” Like most fire investigators at the time, Mr. Cheever had no concept that flashover and full room involvement would cause burning underneath a piece of furniture, or that the furniture item may have been made of polyurethane foam which can melt, flow into a pool below the furniture and burn as a liquid on the floor.

Mr. Cheever, at page 46 of his testimony stated that he believed because of the extent of damage on the couch in the Willis residence, someone must have poured liquid accelerant on it. Again, this was never validated by a positive laboratory analysis.

In a shocking admission of an inadequate investigation, Mr. Cheever was asked at page 55 whether he had investigated beyond the living room and dining room.

> Q: How much more investigation did you do into the house?
>
> A: Beyond those two rooms?
>
> Q: Yes sir.
>
> A: We didn't.

The conventional wisdom at the time was that a fire should be investigated from the area of the least burning to the area of the greatest burning. Even though, on cross-examination, Mr. Cheever admitted that photographs of one of the bedrooms indicated damage in excess of the damage to the living room and dining room, he admits that he investigated only the living room and dining room.

In another inappropriate investigative technique, Mr. Cheever failed to document his investigation. At page 57 the following exchange took place:

> Q: Okay. So you are testifying from memory today without the assistance of any notes other than the Fire Marshal's report?
>
> A: Basically, yes sir.

Mr. Cheever stated that he did not take any photographs nor did Mr. Brown take any photographs at the fire scene. Even by 1986 standards, this failure to document his observations evidenced a negligent and unprofessional approach to his work.

At page 66, when the Defense Counsel attempted to cross-examine Mr. Cheever about the contents of Mr. Brown's report, the Prosecutor objected to "any testimony from a document that's not in evidence" and the objection was sustained.

In a remarkable mirror of the Willingham case, Mr. Cheever testified about burning on the porch. He stated at page 76:

> My opinion would be limited strictly to the fact that the porch was burning at floor level, and I saw no evidence of any kind of fuel other than the porch itself that would have burnt at that low level and it doesn't normally do that.

Actually, porches like the Willingham and Willis porches frequently burn at floor level when the rooms adjacent to the porch flashover and the windows break out. The under-ventilated conditions within the adjacent compartment result in the outflow of unburned hydrocarbons through such openings (i.e. the windows). When sufficiently mixed with the outside air, the unburned fuel can ignite, resulting in flames extending from the opening. Such flames can transfer heat to as well as ignite adjacent combustible surfaces such as wood ceilings or floors of

porches. Thus, it is not at all uncommon to see porch and deck floors burned or discolored by fires emanating from adjacent rooms.

During his cross-examination, Mr. Cheever was confronted with the fact that he had not photographed bedroom #2, but someone else had. He was asked:

> Q: If bedroom #2, by photographic evidence, were shown to be at least as heavily damaged as the living room, would that change your opinion about the origin of this fire?
>
> A: No, sir.

He had previously testified that the reason he focused on the living room and dining room was that those rooms were more heavily damaged. It is a serious lapse of basic fire investigation methodology that a room that is arguably as heavily damaged as the living room and dining room was not documented and was simply ignored by the Fire Marshal.

Mr. Cheever's firm but inaccurate belief in the unidirectional flow of heat in a fire was brought out again on cross-examination at page 93 in the following exchange:

> Q: Okay. If there were testimony that there was a magazine rack in that area and if that magazine rack caught on fire, lots of papers and magazines, or whatever, would that contribute to that burning into the floor over there?
>
> A: As far as making the type of pattern that we saw?
>
> Q: Yes, sir.
>
> A: In my opinion, no.
>
> Q: Okay. Because fire burns up, not down?
> A: That's correct."

At page 101, Mr. Cheever reveals his flawed view of radiant heat in the following exchange:

> Q: Radiant heat. And I wonder if you can briefly explain that to me again, sir, that principle.
>
> A: Okay. The principle is, basically, that if you have one burning object close to another one, that the energy of heat will be transmitted by waves of energy, and that the other object nearby will increase in temperature.

The transmission of thermal radiant energy from a hot gas layer to the floor, as well as post-flashover conditions are precisely what cause the irregular patterns and low burning observed by the Fire Marshal, but he fails to make that connection. Defense Counsel apparently had some education in that regard as evidenced by the following exchange at page 103:

> "Q: Alright. That in some house, you would agree with me, wouldn't you, sir, where - - in some situations where you might absolutely know there was not flammable liquid poured, you can get some marks on the floor that are not due to fall down of material but, but are due to what we call radiation. I might call it re-radiation but radiation from the bottom down; is that correct, sir?
>
> A: That would be a possibility, but I have never experienced that."

What the Fire Marshal has admitted to here is a lack of knowledge and experience with the most common cause of low burning in fires. The exchange continues:

> Q: Not within the realm of your experience, but because you recognize the principle, you recognize that it's possible?
>
> A: Yes, sir.
>
> Q: Okay. Alright. Talking about liquid pours, pouring of liquid, material, flammable liquids on carpets and floors, would you agree with the statement, sir, that occasionally extensive and irregular damage to a floor can be an indication of flammable liquid use?
>
> A: Yes; that's possible.
>
> Q: Okay. Can you agree, also, with the statement that occasionally caution should be used because the carpet fabrication or other circumstances can also create the same appearance?
>
> A: I'm not sure that I would use the same terminology in saying the same appearance, but a similar appearance.
>
> Q: Or a similar appearance?
>
> A: Yes, sir.

This could have been a pivotal admission had the jury recognized it. What the Fire Marshal was saying in this exchange was "I know it when I see it." The fact is that the only way to make a valid distinction between an irregular fire pattern caused by an ignitable liquid and an irregular fire pattern caused by radiation is to collect samples and find the residue of the ignitable liquid. In the absence of such a positive finding, the pattern must be attributed to radiation rather than an ignitable liquid, but in far too many cases, fire investigators insist on their ability to recognize arson, even where it does not exist.

In the last question in his cross-examination, Mr. Cheever admits to an ignorance of the statistics that have been collected for decades on fatal fires. The following exchange occurred:

> Q: Okay. We will move on, then. One last question Marshal Cheever. Would you agree with me that smoking materials are the leading cause of fatal fires in home in this nation?
>
> A: I'm not familiar with those statistics, no, sir.

Historically, smoking materials have been the leading cause of fire deaths in the United States.[43] Roughly one in four fire deaths is caused by smoking materials. A fire investigator who is unaware of the leading causes of civilian fire deaths is unlikely to be able to investigate them accurately.

At page 128, in recross-examination, the following exchange took place:

> Q: Okay. Now, in your experience, training, and your reading publications to keep up-to-date, have you or have you not heard of the phenomenon that radiation can cause irregular patterns?
>
> A: I have never run across that, no, sir.

Mr. Cheever again states that he is not familiar with radiation causing irregular patterns, which has a direct bearing on the validity of his opinion concerning the presence of ignitable liquids and the validity of his determination that this fire was the result of arson. As demonstrated in the outcome of the trial in this case, such ignorance conveyed to the jury provides sufficient momentum for miscarriages of justice.

[43] Source NFPA.org.

Trial Testimony of John Dailey

John Dailey was a retired FBI agent, who, at the time of the trial, was working as a fraudulent claims investigator for J.C. Penney Insurance Company. At the time of the fire, he was employed by Cimarron Insurance Company, which insured the residence. He took a 90-hour arson investigation course in May of 1983 and was certified in the State of New Jersey as an arson investigator. Mr. Dailey stated that he spent 2½ days at the fire scene. He stated that he took ten samples from the scene and submitted them to a laboratory, and all of them tested negative for the presence of ignitable liquids. He stated that it was not unusual to receive a negative finding on laboratory samples. His investigation took place after the living room and dining room had been cleaned off and washed down. He hired six individuals to clean the debris out of the rest of the house in order to examine the floors.

Mr. Dailey harbored most if not all of the same misconceptions harbored by Mr. Cheever and by the investigators in the Willingham case. In describing the way fire spreads through a doorway he states:

> A: Okay. This shows that you had a lot of fire coming out of the front door, and you have low burning on the doorjamb all the way down to the bottom. And, usually, when fire comes out of a door, it will come out in the upper areas and you will get a 'V' pattern where it will come out. This shows me we had low burning right in here because the whole thing it burnt from top to bottom.
>
> Q: Mr. Dailey, why would fire necessarily want to come out of the top of the door? Why wouldn't it come out the bottom?
>
> A: Well, it's based on the theory that fire goes up and seeks the nearest exit. So if it's near a door, it will go up and out the upper portions of the window or door.
>
> Q: Is there instances where fire goes down?
>
> A: There could be, but, generally, the pretty basic rule is it goes up.
>
> Q: If it goes down, is it defying the force of gravity.
>
> A: Well, I don't know about gravity, but fire—there could be an instance where fire could bank down in a room if the room were closed, and you had enough fuel, and it would go lower, but it would be unusual.

Actually there is nothing at all unusual about fires occurring in closed rooms as described by Mr. Dailey, nor is it unusual to find burning all the way to the floor level of a doorjamb where ignitable liquids were not introduced. The important point is that Mr. Dailey lacks the fundamental knowledge of compartment fire dynamics. More specifically, he is apparently unfamiliar with the characteristics of post-flashover compartment fires that would explain the "low burns" without the introduction of ignitable liquids.

In yet another mirror of the testimony in the Willingham case, Mr. Dailey describes burning underneath the doorjamb from inside the living room. He states at page 29:

> A: You can see where flammable liquid ran down and really burned underneath the doorjamb here.
>
> Q: Why wouldn't the fire just have got in under there?
>
> A: Well, sir, fire just does not travel up under, does not make those patterns.
>
> Q: Fire doesn't have the ability to go underneath that doorjamb and burn on the inside?
>
> A: No sir, not and leave patterns like this."

The damage to the wood below the doorjamb does not have to be the result of a fire burning underneath. Wood will char and create patterns when heated to temperatures below those required for flaming ignition to occur. The rise in temperature of the wood below the doorjamb is the result of heat transfer from exposure to the fire conditions above the sub-floor. It is the lack of oxygen to sustain combustion that precludes both fire and flammable liquids from "going underneath" a doorjamb and causing damage to the wood subsurface, which is a concept that Mr. Dailey unquestionably failed to take into account in the course of his investigation.

On pages 32 and 33, when describing the condition of the couch, Mr. Dailey states:

> A:…and, on the couch, it unusual that a piece of furniture will be that totally consumed. Usually the fire—a normal fire will burn off the top of the furniture and go down some, but you will have quite a bit left of the bottom frame. … The significance of this is that on the south end of the couch toward the door, the springs were annealed. And when I say, "annealed," I mean that all of the tension was gone out of them. They were real flat. And that is generally only—that only occurs when you have intense heat on the springs of a couch….
>
> And when I see a couch like that in a fire—you can see how flat the springs are. They have annealed, or lost their temper. That is generally an indication that an accelerant had been placed on there that caused this intense fire. Like I say, furniture generally will not burn like that. Furniture will burn the upper portions of it. And whenever an investigator sees a piece of furniture like this where the springs have been annealed, or distempered, then there is a very strong indication that an accelerant had been put on the couch.

It is not unusual for upholstered furniture to be totally consumed in a compartment fire. Upholstered furniture, like other fuel packages, can be totally consumed if post-flashover conditions continue for a time sufficient to burn all of the materials. Thus, the fuel loading in the room, the ventilation conditions, as well as the timing of fire suppression activities play a

significant role in the duration of post-flashover conditions and thus, how much of the fuel item is consumed.

The testimony concerning the annealing of the springs was given in 1987, two years before Tobin and Monson, two scientists at the FBI laboratory debunked most of the mythology about annealed springs providing fire investigators any information about the intensity of a fire. If one end of a sofa is exposed to more heat than the other, certainly, the form of the springs may change, but one cannot make a valid conclusion about whether the fire was "fast" or "slow" based on the condition of the springs.[44] Ironically in the 1980's the same spring conditions were sometimes interpreted to indicate a "smoking" fire, although that fact was apparently unknown by Mr. Dailey at the time.

Further misinformation about the meaning of the condition of the couch was conveyed to the jury in the following exchange:

> Q: What if someone was to go to sleep on a couch and drop a cigarette? Would it cause that type of damage to that item of furniture?
>
> A: No, sir.
>
> Q: Would you also be able to determine a point of origin in that couch as to where the fire started?
>
> A: No. All I can say is, there was more fire on the south end than on the north end.
>
> Q: Okay. And you don't believe it was caused by a cigarette?
>
> A: No, sir. I have been in schools where we have tried to ignite furniture with cigarettes, and it's very, very difficult. And if you get them ignited, you get a little smoldering fire."

This is simply false[45], but unfortunately, the jury had no way of knowing that this expert was wrong. If all that happened when cigarettes ignited furniture was a "little smoldering fire," logic dictates that smoking materials would not be the number one cause of fire deaths. As a result of such statistics, extensive research, in the last three decades[46, 47, 48], has been performed with

[44] Tobin, W. A. and Monson, K.L., Collapsed Spring Observations in Arson Investigations: A Critical Metallurgical Evaluation, *Fire Technology*, 25(4), 1989, 317.

[45] The Bureau of Fire Research (BFRL) at the National Institute of Standards and Technology (NIST) reports in a study on fire safe cigarettes: "The most recent statistics (1997) from the U.S. Consumer Product Safety Commission indicate that about 25 percent of all U.S. fire fatalities occur when a smoker falls asleep in bed or a lighted cigarette is dropped on a couch or chair." The full report is available at the BFRL website: http://www.bfrl.nist.gov/info/fire_safe_cig/questions_and_answers.htm

[46] Damant, G. H., "Cigarette Induced Smoldering in Flexible Polyurethane Foams," *Consumer Product Flammability* Vol. 2, 140 -153, June, 1975.

[47] Babrauskas, V., and Krasny, J. F., "Fire Behavior of Upholstered Furniture," NBS Monograph 173, National Bureau of Standards, Gaithersburg, MD, November 1985.

respect to the propensity of ignition of upholstered furniture. Cigarettes in the crevices of upholstered furniture can and do cause fires. The cigarette first produces a smoldering fire, as testified by Mr. Dailey. The significant knowledge that Mr. Dailey failed to mention to the jury is that smoldering fires in upholstered furniture can transition to a flaming fire that behaves no differently than if the upholstered furniture had been ignited by a flaming ignition source.

Prior to actually showing the photograph of the couch to the jury, the following exchange took place:

> Q: Okay. Is there any significance to the fact that that pour pattern seems to run underneath the couch there?
>
> A: Yes, sir. There is a significance. Actually, two possibilities: one, that the flammable liquid pour pattern shows that a flammable liquid was poured under the couch. The other possibility, not as strong, is that enough was poured on the couch to where it might have dripped through and caused that damage to the floor. There are two possibilities."

In a completely involved room, there is a third dominant possibility, which explains the condition of the couch: its condition is nothing more than a part of the natural progression of a compartment fire, as previously discussed. That possibility was not put before the jury. Essentially, the State gave the jury two incendiary scenarios from which to choose, not even suggesting the possibility of a naturally occurring fire.

As if constant repetition would make the assertion true, Mr. Dailey goes on at page 37 to state:

> A: As I said, fire ordinarily will not burn down but, in this instance, I was struck by the fact that the wooden portion, including the two legs of the chair, were burned at floor level. Of course, here, part of that liquid burn pattern is in front of the chair, which, no doubt, caused the damage to the lower portion.
>
> Q: Is it unusual for you to go into a structure where there has been a fire and find so many items or articles of furniture burned at floor level?
>
> A: It's not very usual.
>
> Q: Does that cause you suspicions?
>
> A: That's one of the things we look for is low burning; yes sir."

Mr. Dailey's misinterpretations of the fire patterns on the floor also allowed him to infer a motive of the person pouring the alleged ignitable liquid.

[48] Ohlemiller, T. J., Villa, K. M., Braun, E., Eberhardt, K. R., Harris, R. H., Lawson, J. R., and Gann, R. G., "Test Methods for Quantifying the Propensity of Cigarettes to Ignite Soft Furnishings," NIST SP 851, National Institute of Standards and Technology, Gaithersburg, MD, August, 1993.

> Q: Do you have an opinion on whether or not the effective escape routes from that back area were closed off, Mr. Dailey?
>
> A: Yes, sir. I would say so. You definitely couldn't go out the front door or the back door.

Mr. Dailey's testimony continues for many pages repeating assertions not validated by laboratory analysis that there was flammable liquid on the floor.

Showing a surprising lack of knowledge about compartment fire dynamics, Mr. Dailey described the fire's behavior at the ceiling as resulting from the relative quantity of flammable liquids on the floor.

> A: Well, the worst burning was in the living room and dining room. And when I first went into the house—we always—of course, one of the things—you check the ceiling. And I noticed that in the living room and dining room it had penetrated the ceiling, which indicates that you had an intense fire on the floor. And in the kitchen the ceiling was not penetrated, and it was - - obviously, less flammable liquid had been placed in there, and the fire damage was as I showed you on the kitchen cabinets, they were not severely burned. So the main damage was in the living room and dining room where it penetrated the ceiling.

Ceilings, whether constructed of gypsum wallboard, plaster lath, or combustible ceiling tiles can and do fail in compartment fires that have achieved post-flashover conditions without the introduction of ignitable liquids. It is the burning of a significant fuel load that causes a compartment to achieve flashover. While the burning duration of the flammable liquids on the floor is insufficient to achieve flashover conditions in the absence of other significant fuel packages, their presence allows more fuel to become involved in a shorter time frame (i.e. accelerated) and thus, the onset of flashover conditions is achieved sooner than without ignitable liquids. An example of a compartment fire that was initiated with flammable liquids within a compartment and where the ceiling was not penetrated is included in Test 6 of the USFA Fire Pattern Tests[49].

Mr. Dailey, at page 77, evidences a lack of understanding of the concept of fuel load, when he states:

> but the fact remains, there was no fuel load in these two rooms to create such a fire as to penetrate the ceiling and to destroy the furniture.

In this case, the furniture itself was the fuel load, and Mr. Dailey's statements that another fuel load would be required to destroy the furniture evidences either a lack of understanding of compartment fires or else an extreme bias in favor of finding arson. Many pieces of upholstered furniture incorporate polyurethane foam, which is capable of releasing tremendous amounts of energy. A typical sofa can release two to three megawatts of heat energy. It is not uncommon for

[49] Shanley, J. H., "Report of the United States Fire Administration Program for the Study of Fire Patterns," FA 178, Federal Emergency Management Administration, United States Fire Administration, July 16, 1997.

a single burning sofa to bring a traditionally sized residential room to flashover in less than five minutes.

Later in his testimony, when asked about the dining room table, Mr. Dailey stated:

> I didn't consider it a fuel load. My experience on these house fires that your heavier pieces of furniture like that, you can have a really good fire going, a normal progressive fire, but a solid oak or heavy wood table will sustain charring, but it will not be consumed. You just do not get that kind of heat generated, particularly at floor level.
>
> Q: Would there be something left of a piece of furniture that's that heavy or that well made?
>
> A: Ordinarily, there would be, yes, sir.
>
> Q: Well, what does the complete consumption of that dining room set indicate to you Mr. Dailey?
>
> A: It indicates to me that we had an accelerant present around it, which caused total consumption of it."

As is typical in this type of case, Mr. Dailey then compares the defendant's story to his own flawed interpretation based on the fire patterns. Mr. Willis stated he had been asleep on the couch and woke to find fire. Mr. Dailey was asked:

> Q: Okay. Do you think it's possible to run through flames like that and live?
>
> A: Well, I think you would be burned. I don't know about if it would be fatal or not.
>
> Q: The degree of intensity of that fire, Mr. Dailey, would it be possible for someone to have done the feat that this defendant did without having - - … without suffering some indication of burns on their body? …
>
> A: All I can fall back on is common sense and just say that if you run through a very flammable area, flames coming up, I would think you would get burned.

Thermal burns to bare skin are a function of the intensity of the exposure and the duration of the exposure.[50] In order to determine the ability of an occupant to escape from a fire without injury requires knowledge of the fire conditions (i.e. the location and size of the fire or the exposure). The assumption that Mr. Dailey makes is that at the time Mr. Willis awoke, the fire was of a size and location that would require him to run through flames. There is no evidence to support such an assumption. Since, in general, fires grow in size with time and start with a "no fire" condition.

[50] SFPE, "Engineering Guide: Predicting 1st & 2nd Degree Skin Burns from Thermal Radiation," Society of Fire Protection Engineers, Bethesda, MD, March, 2000.

Thus, the time he awoke relative to the size and location of the fire are required elements in order for Mr. Cheever to accurately assess the conditions to which Mr. Willis would have been exposed. Mr. Dailey's testimony did not include such an analysis. Any assumption on Mr. Dailey's part as to the size and location of the fire at the time of discovery would have been based on misinterpretations of the evidence and, thus unreliable.

Report of the Texas State Fire Marshal

LeRoy Brown, who was the senior investigator on the scene with Edward Cheever, authored this report. Mr. Brown did not testify at the trial; however, because the prosecutor did not want him to be subject to cross-examination on the contents of this report.

The report provided conclusions, but no bases for those conclusions. To the extent that the report described the scene, important details of the description were reported inaccurately. Mr. Brown wrote "The exterior walls were slate. The interior walls and ceiling were sheetrock." Actually, the exterior walls were asbestos shingles that had recently been re-covered with combustible pressed-wood paneling, and the interior walls were covered with thin, highly combustible paneling.

Mr. Brown's failure to accurately assess the interior finish severely impaired his ability to assess how a fire would normally be expected to behave in such a structure. Had he testified, his credibility would have been destroyed because of his lack of care on the fire scene. He stated in his report "Upon arrival, this investigator and investigator Edward Cheever conducted a thorough and systematic fire scene investigation." Presumably, Mr. Cheever also failed to make the necessary observations about the interior finish, but because he did not sign his name to this report, he was able to avoid cross-examination on this serious error.

Nowhere in the report are the fire patterns described. Nowhere in the report is any mention of the fuel packages that burned, the condition of the doors and windows, and nowhere in the report is there a discussion of samples collected, sent to the laboratory, and analyzed and found to contain no ignitable residue. In short, the report provides the reader with very little information other than the opinion of the investigator, which is based on a seriously flawed investigation.

Report of John Dailey

Mr. Dailey's investigative report covered 18 pages, and was certainly more descriptive than the Fire Marshal report prepared by Mr. Brown.

Interestingly, Mr. Dailey stated that he believed that there was a separate origin of the fire with the use of flammable liquids in bedroom number 3, a finding which he found it necessary to take back during his direct testimony. Further, he opined in his report that he believed that methanol was the ignitable liquid used, thus explaining the lack of positive laboratory results. Nowhere in his trial testimony was this opinion elicited.

The report begins with a description of the risk followed by a section entitled *Fire Officials*. It was noted that in this section that both of the Willis cousins, Billy and Ernest, were barefooted

when the Fire Department arrived. Mr. Dailey apparently found it significant that neither Billy nor Ernest showed any emotion, as he mentioned it three times in the space of one page of text.

A description of a suspect's failure to display what an investigator considers an appropriate amount of emotional distress is an unfortunate common theme in wrongful prosecutions and convictions. Generally, people in this situation are in shock, and the emotional display is not predictable, nor should it form the basis of any conclusions. Furthermore, the assessment by the State's witness of the "proper" amount of distress to be shown by a fire victim lacks any scientific validity.

Mr. Dailey's description of the fire scene inspection runs from page 4 to page 10 of his report. He noted that all the circuit breaker switches were in the off position but failed to comment on that observation other than to state that "The circuit connectors did not show any signs of overheating or shorting."

Typically, but with a few exceptions, circuit breakers have three positions: on, off and tripped. Finding all breakers in the off position suggests that they had been moved since the fire. Mr. Dailey's characterization of the condition of the circuit breakers, and the lack of specific "overheating" or "shorting" evidence, demonstrates his lack of knowledge to properly assess and eliminate electricity as a potential fire cause. The lack of either condition does not in any way preclude the electrical system from causing the fire. Looking at the circuit panel does not eliminate anything electrical in the structure. One needs to look at the entire system including the loads and the distribution system.

By the second page of his description of the fire scene inspection, Mr. Dailey is describing severe flammable liquid burn patterns that had gone through the carpeting, the foam rubber padding, the asphalt tile covering and into the plywood sub flooring. From this point on, he constantly refers to flammable liquids. On page 6, he refers to his interpretation of the burning damage in bedroom number 3, "Along the north edge of the bed was a burn pattern in the rug which appeared to be consistent with a flammable liquid having been poured along the bed in a trail towards the door leading into the kitchen."

All this suggests is that Mr. Dailey, like every other fire investigator, is incapable, by visual observation, of distinguishing ignitable liquid patterns from patterns produced by thermal radiant heat transfer in fully-developed compartment fires.

Mr. Dailey, on page 7, indicates that he believes that flammable liquids cause more intense burning than other types of fuel packages, another appealing notion that is simply untrue. The popular reason a fire setter utilizes a flammable liquid is to spread the fire quickly, thinking that it burns more intensely. In fact, in most set fires, the flammable liquid is largely consumed within the first few minutes. He stated, at page 7, while describing the dining room set, "No trace of this dining room set could be found in the debris and it was presumed that the fire was so intense on the floor at this point that the entire dining room set was completely consumed. There was also a small china closet, which the tenants stated had been completely consumed by the fire as he could not find any remnants of it.

On page 8, he again returns to bedroom number 3 and describes a flammable liquid pattern running along the north edge of the bed. He states “Photographs 53 through 97 were made after the complete cleanup of the house and clearly show the burn patterns in the carpeting in bedroom number 3. In the linoleum in the kitchen as well as those already described in the dining room and living room.” He later on page 8 refers again to the flammable liquid burn patterns in bedroom number 3.

Mr. Dailey’s improper methodology for eliminating accidental fires becomes clear in the fourth paragraph on page 9 where he states, “Any accidental fires are considered to have been eliminated as the fire obviously started on the floor.” Later he states, “It is felt that one contributing factor to the spread of the fire was the type of wall paneling used throughout the house which is the highly flammable type.” He apparently (and selectively) did not consider this highly flammable paneling to have played a significant role in the spread of the fire, instead choosing to blame the spread on the presence of methanol or some other flammable liquid.

He continues on at page 9 to state, “Other factors which substantiate an unnatural and set fire are the complete consumption of the sofa in the corner of the living room against the south wall, the severe burning of the easy chair which was in the northeast corner of the living room, and the severe burning and uneven burning of the couch which was found on the west wall of the living room.” All of these artifacts, in fact, occur in accidental fires. He then goes on to describe the annealing or collapse of springs on the couch, which “Showed that a flammable liquid may have been poured on that end of the couch.”

At page 17, Mr. Dailey provides his conclusion in a section entitle *Determination of Origin and Cause* where he states, “Based on investigation to date it is believed that the origin of the fire probably started in bedroom number 3 where a small amount of flammable liquid had apparently been poured along the bed. This is so because there was no complete connecting trail of a flammable liquid pattern from bedroom number 3 directly into the kitchen where a large amount of flammable liquid had been poured by the arsonist.”

It is not clear what caused Mr. Dailey to change his mind about the origin in bedroom number 3, although the testimony of fire fighter Robbie Dominguez, who attempted to enter the room and saw no fire on the floor, may have persuaded him that his original interpretation of the floor patterns was wrong.

The State of the Art in Fire Investigation Prior to 1992

Prior to 1992 the state of the art in fire investigation was, in a word, dismal. Fire investigators, by and large, were, and continue to be, individuals without any serious training in scientific methodology. More experienced fire investigators would mentor less experienced fire investigators, and pass on what became a collection of myths. Many investigators, who obtained their "basic training" before 1995,[51] were trained with misinformation and misconceptions. Some of those investigators have taken very little additional training since then, and of those, many refuse to recognize how flawed their early training was.

No one would contend that there was any malice involved—most investigators, including most of the undersigned, were simply misinformed. Fire investigators were generally law enforcement officers or fire marshals whose job was to "catch arsonists." They learned to "recognize arson" from their experienced mentors, and by attending weekend seminars involving "test" fires, typically set using a flammable liquid, that were not allowed to burn beyond flashover. Most fire investigators begin their careers with little, if any, formal education in the science of fire. Through the process of training, investigators have been provided analysis tools in the form of "rules of thumb" (i.e. if this, then this) that are simple to apply and are easily understood by those with little scientific background. Unfortunately, these rules of thumb are the result of the extrapolation of previous experience and, therefore, may not be applicable to the next fire scene, because extrapolation that is not based on science can often lead to erroneous conclusions. Fire protection engineers, who were gaining fundamental knowledge of physics, chemistry, thermodynamics, fluid flow and heat transfer, and learning about post-fire artifacts, did not interact with fire investigators, and thus many opportunities for remedial learning were lost.

The Law Enforcement Assistance Administration collected some of the myths about fire investigation in a 1977 study entitled "Arson and Arson Investigation: Survey and Assessment."[52]

The arson investigators surveyed cited interpretation of "burn indicators" as the most common method of establishing arson. Some of the burn indicators used are alligatoring, crazing of glass, depth of char, lines of demarcation, sagged furniture springs and spalled concrete. The LEAA report, after listing the indicators, provided the following caution:

> Although burn indicators are widely used to establish the causes of fire, they have received little or no scientific testing. There appears to be no published material in the scientific literature to substantiate their validity.
>
> It is recommended that a program of carefully planned scientific experiments be conducted to establish the reliability of currently used burn indicators. Of

[51] Although NFPA 921 was first published in 1992, it encountered stiff resistance, and training in fire investigation did not really begin to improve significantly until the mid-1990s. Proponents of the scientific method for fire investigations, or those who believed in alternate interpretations of "low burning" were often treated as heretics.

[52] Boudreau, J.F., Kwan, Q.Y., Faragher, W.E., and Denault, G.C., *Arson and Arson Investigation: Survey and Assessment*, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, October 1977.

> particular importance is the discovery of any circumstances, which cause them to give false indications (of, say, a fire accelerant). A primary objective of this testing would be to avert the formidable repercussions of court ruling on the inadmissibility of burn indicators on the grounds that their scientific validity had not been established. In addition, the research might well uncover new methods of value to fire and arson investigators. A handbook based on the results of the testing program should be prepared for field use by arson investigators."

This well reasoned recommendation was only partially followed. Without any of the recommended scientific testing, the National Bureau of Standards in 1980 released NBS Handbook 134, *Fire Investigation Handbook.*[53]

Based on contributions of material from officials at the National Fire Academy (which was responsible for teaching most of the public sector fire investigators in the U.S.), this *Handbook* gave the imprimatur of the National Bureau of Standards to the indicators that the previous study had stated had "received little or no scientific testing." The NBS *Handbook* further entrenched the errant mythology of arson investigation in the fire investigation community. It has taken decades to undo the damage.

In both the Willingham and Willis cases, one of the myths from the NBS *Handbook* was repeatedly cited, to wit,

> Floors seldom receive damage similar to that of ceilings, even in the case of total burnout, as the heat of the fire will be concentrated at the ceiling. In addition, as ceiling materials are damaged and fall, these materials protect the floor below. If, on the other hand, a large area of floor is extensively damaged, the use of accelerants may be indicated.

The NBS *Handbook* communicated myths regarding crazing of glass, "alligatoring," lines of demarcation, and the angle of 'V' patterns. The myths printed in the NBS *Handbook* were cited and repeated in many other textbooks for fire investigators.

In 1985, the National Fire Protection Association Standards Council recognized the lack of reliability of fire investigations, and formed the Technical Committee on Fire Investigations to prepare a standard document. Unfortunately, the first edition of NFPA 921, *Guide for Fire and Explosion Investigations*, was not published until shortly after the Willingham fire. Even if it had been published, there is little chance that it would have been accepted. The fire investigation community resisted this document and the principles it espoused for most of the 1990s.

Fire investigators who were trained at the National Fire Academy prior to 1995 are likely to harbor a whole host of misconceptions about the proper interpretation of post-fire artifacts. Many of these individuals still practice fire investigation, and many of them resent the fact that the fire investigation profession is moving toward a more scientific approach and that a "benchmark" has

[53] Brannigan, F.L., Bright, R.G., and Jason, N.H., Editors, *Fire Investigation Handbook*, U.S. Department of Commerce, National Bureau of Standards, August 1980.

been established to measure their performance. Such individuals are likely to be highly critical of this report.

The State of the Art in Fire Investigation Since 1992

With the introduction of NFPA 921, the fire investigation profession began a movement toward the implementation of scientific principles in fire investigation. This change has been met with sometimes-fierce resistance, and it is only since 2000 that the scientific method can be said to have been "generally accepted" by the relevant community. The first serious challenge to the "old school" of fire investigators came in 1996 in a case titled *Benfield v. Michigan Millers Mutual*.[54] In that case, a fire investigator who failed to properly document his observations was excluded from testifying, and in the appeal from that exclusion, the International Association of Arson Investigators (IAAI) filed an *amicus curiae* brief, in which they contended that fire investigators should not be held to a reliability inquiry because fire investigation was "less scientific" than the kind of scientific testing discussed in the *Daubert* decision of 1993. For a time, fire investigators were advised by certain attorneys to avoid using the term "science" in their testimony. Eventually, there were enough court rulings, including the Supreme Court decision in *Kumho v. Carmichael*, to convince the majority of fire investigators that it was necessary to accept the scientific method as the basis for fire investigation. Thus, in the year 2000, the IAAI formally endorsed the adoption of the 2001 edition of NFPA 921. Currently, most fire investigators will acknowledge that NFPA 921 is an authoritative guide, and most fire investigators purport to follow the scientific method, if only out of fear that they will be excluded from testifying.

A modern investigator, who keeps up with developments in the field, gains the fundamental knowledge required to understand compartment fire dynamics, and who follows the guidance of NFPA 921 is more likely to reach a technically valid determination of the origin and cause of a fire than in the past.

Recommendations

In order to avoid miscarriages such as occurred in the Willis and Willingham cases, first and foremost, individuals conducting investigations of fire incidents must be provided with fundamental scientific knowledge of the physics and chemistry of fire as a prerequisite for the practical application of fire dynamics within the context of the Scientific Method.

The significant lack of understanding of the behavior of fire, as evidenced by the expert opinions in the Willingham and Willis cases, can and does result in significant misinterpretations of fire evidence, unreliable determinations, and serious miscarriages of justice with respect to the crime of arson. Continuous (and in some cases, remedial) education and professional development of fire investigators is required. There is a wealth of published fire research that routinely goes unused in the analysis of fires. One of the benefits of fundamental scientific knowledge is that it allows investigators to continue gaining knowledge throughout their careers through the understanding and the practical application of the available scientific literature on fire behavior. A scientific background will improve the quality of fire investigations, allow a greater number

[54] Michigan Millers Mutual Insurance Company v. Janelle R. Benfield, 140 F.3d 915 (11th Circuit 1998).

of individuals in the fire investigation community to contribute to the available scientific literature, provide better quality educational programs that will advance the profession, and help investigators self-police through quality control. Furthermore, there should be an initial and on-going technical review of the methods and curriculum being used as instructional materials for fire investigators, on a local and state level as well as nationally to insure that scientifically based information is being widely disseminated.

Some changes in the interaction between fire investigators and the criminal justice system are in order. As stated earlier in this report, if a fire is miscalled as incendiary, there is frequently only one viable suspect. Criminal defense attorneys, who are accustomed to focusing on the identity of the perpetrator, are generally unaccustomed to discussing whether or not a crime has, in fact, been committed, and are generally not trained to distinguish between a correct arson determination and an incorrect one. Frequently, counsel simply accepts the assertion that a fire was incendiary, when the evidence might not support that assertion. Education of defense counsel is, therefore, critical. Even more critical, however, is the education of prosecuting attorneys. It is they who decide whether to bring an arson case forward in the first place. They need to exercise appropriate skepticism when presented with an arson determination that was not arrived at using accepted scientific methodology as set forth in NFPA 921. When a fire investigator opines, as all of the State's experts did in Willis and Willingham, that irregular patterns on a floor were caused by the application of an ignitable liquid, there should be laboratory confirmation of that opinion. Laboratory testing today is much more sensitive than it was in the 1970s and 1980s, when "false negatives" were common. Using sensitive methodology developed by the Bureau of Alcohol, Tobacco and Firearms in the 1980s, fire debris analysis laboratories can routinely detect less than one microliter of ignitable liquid residue in a kilogram of fire debris. In fact, most laboratories can easily detect 1/10 of a microliter, or 1/500 of a drop. The possibility that a building was doused with sufficient ignitable liquid to cause large "pour patterns" and then all of that ignitable liquid was consumed to a level below the detection limit of today's laboratories is indeed a remote one.

Even with a positive laboratory report, however, there must be a logical connection between the burning and the alleged ignitable liquid. Because of the extreme sensitivity of today's laboratories, background petroleum products, such as those from insecticides or furniture polish applications, credit card slips, adhesives in shoes, and petroleum products in building materials, may be detected and misinterpreted as foreign ignitable liquid residues, when, in fact, those residues are naturally occurring.

Because of the increasingly "scientific" approach to fire investigations, and because scientific evidence is held in such high regard by juries, defendants in arson cases should be afforded the opportunity to retain an independent fire investigation expert to evaluate the State's expert's fire analysis. Without expert assistance, defense counsel is unlikely to be in a position to render effective assistance to his client.

Alternatively, the court could appoint a fire expert as a special master to advise the court on the validity of the State's fire cause determination. This alternative is rarely used. Although other scientific endeavors have encouraged the judiciary to equip itself with a source of knowledge, the trier of fact in arson cases apparently is content with allowing almost any self-professed fire

expert to testify and the fire investigation community apparently sees no reason to change this practice. The lack of recognition of inept fire experts by the courts and the lack of self policing by the fire investigation community may be the most formidable obstacle to improvement in the prosecution of arson cases.

There is no crime other than homicide by arson for which a person can be sent to death row based on the unsupported opinion of someone who received all of his training "on the job." All that is necessary for a conviction is that the jury accepts that opinion. If an incompetent witness renders a false opinion in a confident manner, how is a jury to know? The false convictions in the Willis and Willingham cases illustrate the danger of the current situation. These two individuals were convicted on nearly identical evidence. It is likely that the only reason Mr. Willis is still breathing is that he had better access to the effective assistance of counsel. The State should seriously consider reviewing similar cases, i.e., where people have been sent to prison for intentionally lighting fires based solely on the opinion of a State Fire Marshal or other investigator, with no supporting laboratory analysis. There are likely other individuals in prison in Texas and elsewhere falsely accused and convicted using invalid indicators.

Finally, the justice system should recognize that just because a person has been incarcerated based on bad science, that is no reason to keep them incarcerated. New knowledge, or the belated acceptance of old knowledge, should be acknowledged for what is: "newly discovered evidence." If an investigator is willing to admit that a citizen was convicted based on bad science, then the only civilized course of action is to reopen the investigation. It was resistance to this concept that allowed the state to execute Mr. Willingham, even though it was known that the evidence used to convict him was invalid. When interviewed by the Chicago Tribune about the Willingham case, Mr. Cheever (who was involved in the case but did not testify) acknowledged the validity of published criticism of the conviction. He stated, "At the time of the Corsicana fire, we were still testifying to things that aren't accurate today, They were true then, but they aren't now. **Hurst,** [55], **was pretty much right on**. ... We know now not to make those same assumptions."[56]

Actually, the behavior of fire is no different in 2006 than it was in 1986, so Mr. Cheever's statement that "They were true then, but they aren't now" is very far wide of the mark. The laws of physics did not change between 1986 and 2006. What is false today was false in 1986 and 1992. The fact that some poorly trained fire marshal believed it does not make it any more true, although it may make the fire marshal feel better about his errors.

The justice system has no right to take such a "feel good" approach to miscarriages of justice. Inevitably, when a convict like Ernest Ray Willis is exonerated, someone remarks, "See? The system worked!" Even by that low standard, the system failed to work for Cameron Todd Willingham.

To the extent that there are still investigators in Texas and elsewhere, who interpret low burning, irregular fire patterns and collapsed furniture springs as indicators of incendiary fires, there will

[55] A reference to Dr. Gerald Hurst, who reviewed both the Willis case at the request of the State of Texas, and who also reviewed the Willingham case at the request of Mr. Willingham's appellate counsel.

[56] Mills, S., and Possley, M., "Texas Man Executed on Disproved Forensics," *Chicago Tribune*, December 9, 2004.

continue to be serious miscarriages of justice. The authors sincerely hope that this report will help to undo similar miscarriages, and help prevent future ones from occurring.

The Authors

John J. Lentini is a certified fire investigator and chemist with 32 years experience in forensic science and fire investigation. Since 1978, he has managed the fire investigation division of Applied Technical Services, Inc., an independent consulting firm in Marietta, Georgia.

Mr. Lentini has personally investigated more than 2,000 fire scenes, and has been accepted as an expert witness on more than 200 occasions. He is the immediate past chairman of ASTM Committee E30 on Forensic Sciences. Since 1996, he has been a member of the National Fire Protection Association (NFPA) Technical Committee on Fire Investigations, where he represents ASTM Committee E30. His textbook, *Scientific Protocols for Fire Investigation*, was published by CRC Press in January 2006. Mr. Lentini's resume can be downloaded at www.atslab.com.

Daniel L. Churchward has been investigating fires since 1972 as a sheriff's deputy, fire fighter, insurance company Special Investigations Unit member, and privately employed forensic engineer. He is a graduate of Purdue University with a B.S. in Electrical Engineering Technology.

Since 1995, he has been the owner and president of Kodiak Enterprises, Inc. He is a charter member and the current Chairman of the NFPA Technical Committee on Fire Investigations responsible for NFPA 921, *Guide for Fire and Explosion Investigations.* Mr. Churchward has qualified as an expert in fire investigation in both state and federal courts and has served as an expert for the court as well. He has investigated approximately 2500 fires in his 34 years as a fire investigator. Mr. Churchward's resume can be downloaded at www.kodiakconsulting.com.

David M. Smith is a certified fire investigator with over 35 years of experience. He began his career in law enforcement in 1968 and served as a bomb technician and arson/homicide detective. Since 1981 he has owned and managed Associated Fire Consultants, Inc., a private firm specializing in fire and explosion investigations in Tucson, Arizona.

Mr. Smith has been accepted as an expert witness numerous times throughout the United States and Canada and actively lectures regarding fire investigation matters in Australia, New Zealand, the United Kingdom and the United States. He is a past-president of the International Association of Arson Investigators (IAAI) and has represented the International Fire Service Training Association as a Principal member of the NFPA Technical Committee on Fire Investigations since 1992. Mr. Smith's resume can be downloaded at www.assocfire.com.

Douglas J. Carpenter has been investigating fires since 1996 as a fire protection engineer. He holds an A.S. in Mechanical Engineering from Vermont Technical College, a B.S. in Mechanical Engineering from the University of Vermont with and an M.S. in Fire Protection Engineering. from Worcester Polytechnic Institute. He is a registered Professional Engineer (P.E.) in the State of Maryland and a Certified Fire and Explosion Investigator.

Since 1998, he has been vice president and principal engineer with Combustion Science & Engineering, Inc., an independent consulting firm in Columbia, MD. He is an alternate member of the NFPA Technical Committee on Fire Investigations responsible for NFPA 921, *Guide for Fire and Explosion Investigations.* Mr. Carpenter has qualified as an expert in the areas of fire origin and cause investigation, fire dynamics, fire reconstruction, and computer fire modeling, in both state and federal courts. He has numerous publications in the areas of fire protection engineering and fire investigations, and has developed and frequently teaches courses for the Society of Fire Protection Engineering and other professional organizations. Mr. Carpenter's resume can be downloaded at www.csefire.com.

Michael A. McKenzie is a trial attorney licensed to practice law in the State of Georgia. He received his J.D. from the Mercer University Walter F. George School of Law in 1977. He has coordinated the investigation of fires for clients since 1979 and has tried to verdict approximately 35 alleged arson cases. He provided the fire litigation expertise for the defense in the case of *Georgia v. Weldon Wayne Carr.*

Mr. McKenzie practices with the firm of Cozen O'Connor in Atlanta, Georgia. He has lectured frequently on topics involving arson and fraud throughout his 29 years of law practice. Mr. McKenzie's resume can be downloaded at www.cozen.com.

STATE OF MARYLAND

COUNTY OF HOWARD

I swear under the penalties of perjury that the statements in the foregoing Report on the Peer Review of the Expert Testimony in the Cases of State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis are true and correct to the best of my knowledge and ability.

Douglas J. Carpenter

4/3/06
Date

SWORN AND SUBSCRIBED before me
On this 3rd day of April 2006

Melissa dewitt
Signature

Melissa dewitt
Printed Name

MELISSA DEWITT
NOTARY PUBLIC
BALTIMORE COUNTY, MD
MY COMMISSION EXPIRES SEPT 1, 2007

STATE OF INDIANA

COUNTY OF

I swear under the penalties of perjury that the statements in the foregoing Report on the Peer Review of Expert Testimony in the Cases of State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis are true and correct to the best of my knowledge and ability.

Daniel L. Churchward

5 APRIL 06
Date

SWORN AND SUBSCRIBED before me
On this 5 day of April 2006

Christine L. Yoakum
Signature

CHRISTINE L. YOAKUM
Printed name

CHRISTINE L. YOAKUM
Notary Public, State of Indiana
County of Allen
My Commission Expires Jun. 1, 2012

STATE OF GEORGIA

COUNTY OF COBB

I swear under the penalties of perjury that the statements in the foregoing Report on the Peer Review of Expert Testimony in the Cases of State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis are true and correct to the best of my knowledge and ability.

John J. Lentini

4/3/06
Date

SWORN AND SUBSCRIBED before me
On this 3rd day of April 2006

Signature

DANIELLE M. DUQUETTE
Printed name

Notary Public
Paulding County, Georgia
My Commission Expires Feb 6, 2010

STATE OF GEORGIA

COUNTY OF

I swear under the penalties of perjury that the statements in the foregoing Report on the Peer Review of Expert Testimony in the Cases of State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis are true and correct to the best of my knowledge and ability.

Michael A. McKenzie

4-11-06.
Date

SWORN AND SUBSCRIBED before me
On this 11th day of April 2006

Mary Joann Leone
Signature

MARY JOANN LEONE
Printed name

Notary Public, Jasper County, Georgia
My Commission Expires March 27, 2009

STATE OF ARIZONA

COUNTY OF PIMA

I swear under the penalties of perjury that the statements in the foregoing Peer Review Report, State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis are true and correct to the best of my knowledge and ability.

David M. Smith

3-28-2006
Date

SWORN AND SUBSCRIBED before me
On this 28 day of March 2006

Signature

TONI N SHOOTS
Printed name

OFFICIAL SEAL
TONI N. SHOOTS
NOTARY PUBLIC – ARIZONA
PIMA COUNTY
My Comm. Expires Sept. 14, 2007

Texas Forensic Science Commission

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Alan Levy
Tarrant County District Attorney's Office

Dr. Sridhar Natarajan
Biodynamic Research Corporation

Aliece Watts
Integrated Forensic Laboratories

August 31, 2009

VIA REGULAR MAIL

City of Corsicana Fire Chief's Office
Mr. Donald McMullen
200 N. 12th Street
Corsicana, Texas 75110

RE: Texas Forensic Science Commission - Willis/Willingham

Dear Mr. McMullen:

The Texas Forensic Science Commission is in the process of investigating the Willis/Willingham matter. We recently received the enclosed report from Dr. Craig Beyler. The Commission respectfully requests a response from the Corsicana Fire Chief's office on the report prior to our October 2nd meeting in Dallas.

If you have any questions, please feel free to contact our office.

Sincerely,

Samuel E. Bassett by permission

Samuel E. Bassett
Commission Chair

cc: TFSC members
Dr. Craig Beyler

Commission Office
Leigh Tomlin
Commission Coordinator

Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296
816 17th Street
Huntsville, TX 77341-2296

Phone: 1 (888) 296-4232
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Texas Forensic Science Commission

Justice Through Science

February 11, 2009

Samuel E. Bassett, Chair
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Dr. Garry Adams
College of Veterinary Medicine
Texas A&M University

Dr. Arthur Jay Eisenberg
University of North Texas
Health Science Center

Dr. Stanley R. Hamilton
The University of Texas
M. D. Anderson Cancer Center

Dr. Jean Hampton
College of Pharmacy & Health Sciences
Texas Southern University

Dr. Sarah Kerrigan
Forensic Science Program
Sam Houston State University

Alan Levy
Tarrant County District Attorney's Office

Dr. Sridhar Natarajan
Biodynamic Research Corporation

Aliece Watts
Integrated Forensic Laboratories

Mr. Paul Maldonado, State Fire Marshal
Texas State Fire Marshal's Office
333 Guadalupe
Austin, Texas 78701

RE: Texas Forensic Science Commission Complaint

Dear Mr. Paul Maldonado:

In accordance with our previous correspondence, The Texas Forensic Science Commission is beginning their investigation of the two arson cases as listed below:

1. State of Texas v. Cameron Todd Willingham: The Willingham fire occurred in Corsicana, Texas on December 23, 1991.
2. State of Texas v. Ernest Ray Willis: The Willis fire occurred in Iraan, Texas on June 11, 1986.

I am enclosing the Texas Forensic Science Commission complaint form submitted for the above cases. The Commission respectfully requests any comments or response to the complaint from the State Fire Marshal's office that may assist in this investigation by March 15th, 2009.

You are also invited to send a personal representative for the State Fire Marshal's office to the next Commission meeting in Austin, on March 27th, 2009. This is not a requirement to have input into the investigation, but an invitation. We will update you on the specific location for the meeting at least two (2) weeks prior to the next meeting date.

Your cooperation in this matter is greatly appreciated.

Sincerely,

Samuel E. Bassett by permission sms
Samuel E. Bassett
Commission Chair

cc: TFSC members

Commission Office
Leigh Tomlin
Commission Coordinator

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CORSICANA FIRE DEPARTMENT
AN EQUAL OPPORTUNITY EMPLOYER

September 29, 2009

Samuel Bassett, Commission Chair
Leigh Tomlin, Commission Coordinator
Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296, 816 17th Street
Huntsville, Texas 77341-2296

VIA EXPRESS MAIL

Re: Willingham Matter

Dear Mr. Bassett and Ms. Tomlin:

Enclosed please find my response to Dr. Craig Beyler's report, which you requested in your letter of August 31, 2009. I trust you will circulate copies of this response to those individuals who need it.

If you have any questions, please feel free to contact me.

Very truly yours,

Donald McMullan, Fire Chief
City of Corsicana

200 N. 12TH STREET, CORSICANA, TEXAS 75110 (903) 654-4956

CORSICANA FIRE DEPARTMENT
AN EQUAL OPPORTUNITY EMPLOYER

September 29, 2009

Leigh Tomlin, Commission Coordinator
Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296, 816 17th Street
Huntsville, Texas 77341-2296

Re: Willingham Matter

Dear Ms. Tomlin:

Thank you for providing me with a copy of Dr. Craig Beyler's report on the Willingham and Willis criminal arson cases. I have not studied his findings regarding the Willis case. You have asked that the Corsicana Fire Chief's office respond to the report and, to the extent that I am able, I will do so. However, because of my lack of firsthand knowledge of the incident, I don't believe my response will be as complete or thorough as you might want.

I have been the Corsicana Fire Chief since January 1999. I wasn't employed by the City of Corsicana at the time the Willingham incident occurred or at the time it went to trial. My knowledge of the case is very limited. I have only recently (after we received your letter of August 31, 2009) attempted to review the trial transcripts and the witness statements involved in the investigation. I don't have access to Fire Marshal Vasquez's report, Assistant Chief Fogg's report, the physical evidence or the video and audio tapes. The video tapes and photographs might be very helpful. Because of the short time I was given to respond, I had to get some assistance in drafting this response. I will focus on Assistant Chief Fogg, but may comment from time to time on issues regarding Fire Marshall Vasquez.

GENERAL OBSERVATIONS

1. Dr. Beyler is correct that NFPA 921 is a reliable source of information for the documenting and investigating incidents involving fire and arson (p. 1-2 of his report). But, by Dr. Beyler's own admission, NFPA 921 wasn't published until after the Willingham incident (and trial) occurred. Dr. Beyler says that even though NFPA 921 was well established by 1995, it was not universally acknowledged until more than three years after that. That is probably true. Therefore, it is not remarkable that the investigators did not employ a methodology that was not yet

published or accepted. Having said that, it may very well be that the fire investigators did use many or some of the principles stated in NFPA 921, since some of those specific principles were known in 1991.

2. Dr. Beyler continually uses the phrase "standard of care." NFPA 921 speaks in terms of Recommended Practices and Standards. As I understand it, the phrase "standard of care" is usually used by lawyers and judges when talking about medical care. Corsicana runs an EMS service and that phrase is used to describe what a reasonably prudent EMT (or nurse or physician) would do under the same or similar circumstances based on accepted medical practices. The use of the phrase in this context leaves the impression that Dr. Beyler's report is being written much like an expert witness report in a lawsuit – that is, Dr. Beyler is assuming the role of an advocate and not acting as an objective, independent voice. Given some of Dr. Beyler's distortions of the trial record, as described below, it may be that he has assumed the role of an advocate.

3. On page 2 of his report, Dr. Beyler says that Assistant Chief Fogg and Fire Marshal Vasquez admitted there were other possible hypotheses that were consistent with the facts of the case, but those alternative hypotheses did not "alter" the investigator's opinions. A fair reading of the trial testimony establishes that the investigators were asked about alternative causes of the fire. And, in fairness to the investigators, they gave reasons as to why those alternative causes were considered to be remote.

4. Dr. Beyler makes the statement that because the Willingham case was "finalized" in 2004, it is appropriate to examine the case using "current and contemporaneous" standards. (p. 5). Is he suggesting that it is appropriate to judge the adequacy of the 1991 investigation using 2009 methodology?

5. Although Dr. Beyler talks a great deal about a "contemporaneous standard of care," the attorneys who defended Willingham have stated in newspaper stories that they were unable to find an expert who would contradict Fire Marshal Vasquez. Thus, the "contemporaneous standard of care" in 1991 referred to by Dr. Beyler appears in the real world to have supported Assistant Chief Fogg and Fire Marshal Vasquez, not contradicted them.

6. Although Dr. Beyler concludes that the fire investigators did not satisfy the "contemporaneous standard of care" (p. 51), Dr. Beyler nowhere succinctly states what the contemporaneous standard of care is, if there is such a thing. He simply makes a conclusory statement. I haven't undertaken the research necessary to establish what the "standard of care" was in 1991.

7. Contrary to what has been reported in the media, Dr. Beyler did not conclude that the cause of the fire was accidental or natural and he didn't conclude that the fire was not arson. In addition, Dr. Beyler did not prove (or apparently attempt to prove) that Todd Willingham did not murder his children.

8. Dr. Beyler's suggestion, which he makes several times, that fire investigation prior to NFPA 921 was "folklore" seems a bit strong (p. 3). If that were the case, every arson case investigated prior to the late 1990s would be without a scientific basis. I don't believe that to be the case. In addition, the assertion that the science was "folklore" is inconsistent with his assertion that there was a "contemporaneous standard of care." I guess he would call it a contemporaneous standard of "folklore?"

9. Also, I have been told that since 1991, the United States and Texas Supreme Courts have held that expert opinions in a wide variety of cases have to pass certain milestones or meet certain criteria to be admissible. Those cases include: *Daubert v. Merkell Dow*, 509 U.S. 579 (1993) and *E.I. du Pont de Nemours v. Robinson*, 923 S.W.2d 549 (Tex. 1995), and many others. These cases apply these evidentiary rules to all cases, not just fire science cases, and they provide a way for a lawyer to challenge expert evidence the lawyer believes is unreliable. If Mr. Willingham were tried today, there would be a procedural way for him to challenge the admissibility of an expert's testimony in order to make sure it is reliable and scientifically sound.

10. I have no way of knowing whether Dr. Beyler's assertion regarding opinions being phrased in terms of "more likely than not" as opposed to "beyond a reasonable doubt" has any impact or bearing on this particular case (p. 3). I did find in my review of the trial transcript that the investigators' opinions were **not** phrased in terms of "more likely than not." It is an interesting legal question whether every opinion offered in a criminal case has to be "beyond a reasonable doubt" or whether the entirety of the evidence offered at a criminal trial needs to prove guilt "beyond a reasonable doubt." I must leave that for criminal lawyers and District Attorneys to argue. It isn't a fire science issue, although Dr. Beyler comments on it.

11. I agree in general that fire investigation has in the past relied upon a process of elimination to identify a cause or causes of a fire. And, of course, the elimination of accidental and natural causes is part and parcel of that process. What constitutes "elimination" is, to some degree, a matter of the investigator's judgment, which I believe should be based on reasonable scientific principles.

12. On page 9 of the report, Dr. Beyler cites a National Fire Academy study which found

that burning on bottom edges of doors is "unusual" in accidental fires. From that, Dr. Beyler concludes that it is not a strong indicator of an arson fire. That sentence seems confusing. If burning on the bottom edges of doors is unusual in accidental fires, then, conversely, the presence of burning on the bottom edge of a door suggests that the fire might not be an accidental fire. If it isn't accidental, it is intentional.

13. Dr. Beyler goes to great lengths to argue that V-patterns, floor patterns, crazed glass, spalling, low burn, burn intensity and ventilation effects **are not necessarily** indicative of arson or the use of accelerants. Modern fire science validates that conclusion. On the other hand, the presence of those effects is sometimes found in cases involving arson, including cases of arson where accelerants are used.

14. In several places, Dr. Beyler takes exception to statements by Fire Marshal Vasquez to the effect that "a fire does not lie," and the "fire tells a story," etc. These comments aren't necessarily "mythologizing" or comments characteristic "of mystics or psychics" (p. 49). They may simply be a colloquial way of expressing what physical facts can tell an experienced investigator about what happened during a particular fire. When Dr. Beyler refers to Vasquez as a fortune teller or mystic, he may be demonstrating a personal bias. It is not hard to be critical of a man who is no longer alive to explain his statements and what he intended by those statements.

15. Dr. Beyler's criticism of Fire Marshal Vasquez for testifying that Todd Willingham intentionally set the fire to kill his children has more validity. A witness testifying from a fire science perspective is not a mind reader. At least one of the bits of that testimony appears to be in the context of a heated exchange between Fire Marshall Vasquez and a defense attorney. Things sometimes are said in a trial that witnesses and lawyers later wish were handled differently. Perhaps Fire Marshal Vasquez reached that conclusion because he relied on other evidence which does tend to prove that the fire was intentionally set by Todd Willingham, perhaps to kill his children. But I agree Fire Marshal Vasquez could not read Todd Willingham's mind.

FACTUAL STATEMENTS IN DR. BEYLER'S REPORT

16. Dr. Beyler's factual descriptions of the Willingham incident appear to overlook or contradict many of the known facts regarding this incident. Some of those facts were known to Fire Marshal Vasquez and Assistant Chief Fogg and may (or may not) have been part of the basis for these opinions. Dr. Beyler doesn't quite capture the import of the eye witness statements which he reviewed in his report. Because the fire investigators would likely have had access to this evidence as part of their investigation, it is worth summarizing some of those statements:

a. Mary Barbee said on 12/27 that before the house became engulfed, Mr. Willingham stayed on the front porch of the house. When the fire engulfed the house, she heard "electricity started popping." That is when Mr. Willingham ran up to the porch and pushed his car back out of the way. To Ms. Barbee's knowledge, Mr. Willingham "did not try and go back in the house." Later, on the day of the fire, Ms. Barbee heard Mr. Willingham say that "he came out the back door" after his 2 year old daughter woke him up. She said that he said his 2 year old daughter then ran back into the twins' room and he was unable to find her.

b. Brandice Barbee said on 12/27 that she told Mr. Willingham in his front yard to "go get the babies" because when she was there, all she could see was smoke coming from the house and she thought there was still time to rescue the children. After that, Mr. Willingham said "Oh no, my car" and then he went and moved the car. She says that "not once" did Mr. Willingham attempt to go back into the house and get his children.

c. George Monaghan stated on 12/31 that Mr. Willingham was wearing only pants when Mr. Monaghan arrived. Mr. Monaghan was a volunteer chaplain who stayed with Mr. Willingham while the firemen were putting out the fire. When the fire was out, or about out, Mr. Monaghan had to restrain Mr. Willingham from going back into the house. Mr. Monaghan also believes that when he first arrived and escorted Mr. Willingham to the rear of the fire truck, before the firemen had found the bodies of the children, he said "his babies were dead."

d. Ron Franks said on 12/30 that he was the first fireman on the scene. When he got there, flames were rolling out of the front door, front windows and the porch and a window on the northeast corner of the building. The porch ceiling was fully involved. Fireman Franks put on his SCBA gear and entered the front room through a window. Thereafter he exited the same way and went in through the front door. He went down the hall to the back of the house and found the back door blocked by a refrigerator. When Fireman Franks entered the children's room, they were lying face down next to the entrance hall doorway leading into the bedroom. Several days after the fire, Mr. Willingham told Fireman Franks that he thought the fire started on the south wall of the children's bedroom because when he came in, the fire was "over there" and "on the ceiling." Mr. Willingham also told Fireman Franks that day that he tried to go out "the front door, but the heat and smoke was too bad." He then said he went out through the kitchen.

Fireman Franks also said that after the fire, Mr. Willingham came back to his house and poured a large bottle of British Sterling cologne on the floor from the bathroom to the room in which the twins had died and said that if any more samples were taken from the floor, those samples would have cologne on them.

e. Jason Grant stated on 12/31 that when he saw Mr. Willingham at the scene of the fire, he was wearing only a pair of pants and no shirt or shoes. At that time, Mr. Willingham was yelling he wanted to see his baby girl (Amber, the 2 year old). He told Officer Grant that he woke up after hearing his little girl scream "Daddy, Daddy". He also told Officer Grant that after searching for his children, he found the front door and escaped.

f. Todd Willingham said on 12/31 that at 9:20 a.m., he got out of bed to give the twins a bottle. He then put them back down by leaving them on the floor in the same room as Amber, his 2 year old, who was in her bed.

He then says the next thing he heard was "Daddy, Daddy" and he woke up with the room full of smoke. He says he told Amber to get out of the house and that he found a pair of trousers he had on the night before. He says he went out of the bedroom into the hall and then down and opened the kitchen door. He says he found there wasn't as much smoke there. From the kitchen, he could look back down the hall towards the front of the house and he said it was "worse" towards the front door. He said the same thing in his interview with the fire investigators.

He then says he went back towards the front of the house and into the twins' room. He said at that time, his hair caught on fire and he got down on his hands and knees and felt "all around the room." He says he couldn't find his children and he exited the room and went to the front door. He then says he yanked at the front door several times and then went out the front door and down the steps. He then says he attempted to reenter the home but could not. Then he broke out two windows. The fire got worse and he then went to the neighbors to get help. He then claims to have stood by a telephone pole for a few minutes until the fire department got there. He says that when he saw his 2 year daughter on the ground being attended to by the firemen, he tried to get to her and had to be restrained.

g. His mother-in-law, Mildred Kuykendall said on 1/3 that Mr. Willingham told her he was asleep when he heard his 2 year daughter calling "Daddy, Daddy."

He said he didn't know where her voice was coming from and that he had to go outside because of the heat. Ms. Kuykendall also said Mr. Willingham told her that he tried to kick the front door open "but it was on fire." She interpreted that to mean that he tried to kick the door open when he was trying to get back in. Remarkably, Mr. Willingham also told his mother-in-law that the firemen had found "unusual marks on Amber's neck and guessed that they would say that he choked her and let her burn up."

h. His father-in-law, J. D. Kuykendall, said on 1/3 that Todd told him that Amber came into the bedroom and woke him up and that he told Amber to get out the door. He also told his father-in-law that in order to get out, he kicked the front door down and that the door was on fire.

Mr. Kuykendall says that Mr. Willingham later told a different story. He said that Amber called him and that he jumped up and couldn't find her and the house was full of smoke. So, he ran out the back and went around the front and tried to kick the front door in trying to get back in.

i. Fireman Ricky Crenshaw, said on 1/4 that it wasn't until Mr. Willingham saw his 2 year old daughter, that he had to be restrained. Later, while assisting in the fire investigation, Mr. Willingham told Fireman Crenshaw that he overheard people at the funeral home saying "I wonder if he (Todd) had done this." At the same time, he told Fireman Crenshaw that he couldn't figure out what "caused the fire to be burning so bad in the children's bedroom."

j. Mary Barbee said on 1/4 that when she first came out of her daughter's house, she saw Todd Willingham crouched down with his arms folded across the front of his chest yelling "my babies are burning." She says she saw smoke coming from the front of the house and it was not real thick. At that time, the smoke was coming from "lower down" on the front of the house and was not coming out around the top or eaves of the house. She then went back inside for a moment and when she came back out, Mr. Willingham had not moved.

She then ran down the street to get someone else to call 911 and then when she came back, Mr. Willingham was still holding his arms in front of him. Mrs. Barbee then says she asked Mr. Willingham "Where are the babies?" Mr. Willingham responded that "Amber woke me up and the house was full of smoke and she ran into the twins' room and I couldn't find them." She says that Mr. Willingham then said "I ran out the back." Even at this time,

Mrs. Barbee says she could not see any flames, but there was heavy black smoke. She and her daughter then approached the Willingham house to see if they could get in and when they approached, a large fire suddenly bellowed out from around the front of the house and the windows blew out and she heard a crackling sound. It was at that time that Mr. Willingham ran back to his driveway in order to move his car away from the fire. She says from the time she came out of her house until the time the fire department arrived, she never saw Mr. Willingham attempt to enter the house. Mr. Willingham's eyebrows and hair were singed and his eyes were red. He was wearing pants but his feet were white and did not appear to be burned or smoky. The next day, Mr. Willingham said that while Mrs. Barbee was trying to get help down the block, that was when Mr. Willingham "went back into the house."

k. Burvin Terry Smith said on 1/4 that he first heard the call on the scanner at 10:34 a.m. He arrived on the fire scene two minutes later and saw fire coming out of the front door. He said the fire "appeared to come from the bottom or close to the floor and went up to the ceiling." The fire did not "go to the right or the left of the door." He also saw that there was fire "very low between the door and window on the porch." While he was there, he never saw Mr. Willingham try to go inside the house.

l. Brandice Barbee said on 1/4 that when she saw him standing in his front yard before the Fire Department arrived, she told him to go back in and get his babies. He didn't reply. She thought at that time that he had time to go back because there were no flames, just smoke.

m. Kimberly King says Mr. Willingham told her that he was asleep and Amber woke him up screaming "Daddy, Daddy." Mr. Willingham said he woke up, and grabbed the 2 year old but the 2 year old jerked away and he lost her in the smoke.

n. Curtis McAfee said on 1/9 that Mr. Willingham told him that his daughter Amber woke him up by yelling "Daddy, Daddy" and that he grabbed her by the arm but that she got away.

o. Randy Petty and his wife Penny said on 1/9 and 1/10 that Mr. Willingham told them the cause of the fire was "probably electrical because he smelled wires burning." He also told them that he kicked the door open and got out.

p. Margot Hess said on 1/10 that Mr. Willingham told her that after he gave the

twins' their bottles and went back to bed, a short while later, his 2 year old woke him up by "getting on my bed."

q. Lisa Brinkley said on 1/10 that Mr. Willingham told her that after putting the twins on the floor to go to sleep, he asked the 2 year old if she wanted to sleep with him or in her own bed. She chose to sleep in her own bed. He awoke when Amber yelled "Daddy, Daddy."

r. Multiple witnesses say Todd Willingham told them that while he was on his hands and knees in the children's room, he was able to find stuffed animals while he was searching on the floor but couldn't find the twins or Amber.

s. Sherry Cooley said on 1/15 that Mr. Willingham told her that after he was awakened by his 2 year old, he made his way to the twins' room and that as he was stepping over the gate, he leaned against the door and was burned. He then left the twins' room and had to kick the front door open to get out of the house. She also said that Mr. Willingham told her that he thought that the fire started electrically because sparks were coming out of the sockets.

t. Shelby Minyard said on 1/16 that Mr. Willingham told her that he originally thought Amber woke him up but now he wasn't so sure and that it could have been one of the twins.

u. Eugenia Willingham said on 1/16 that Mr. Willingham told her that they put the children in the twins' room with a child gate and that he went back to sleep. All the children were in the twins' room at that time. He also said that he woke up when his 2 year old daughter yelled "Daddy, Daddy" and that when he woke up, the room was filled with smoke. He also told his stepmother that he wasn't sure if it was his 2 year old that woke him up or one of the twins.

v. Gene Willingham said on 1/16 that Todd Willingham told him that after being woken up, he yelled to Amber to get out and that he stepped over child's gate going into the twins' room and crawled around on the floor. He said Todd Willingham also said that he couldn't find any of his children and that pieces of the ceiling began to fall and that he had to get out. He said Mr. Willingham told him he then went out the front door and after getting some fresh air, he tried to get back inside but couldn't.

w. Jerry Long said on 1/21 that on the morning of the fire, he heard Todd

screaming. When he went around to the front of Mr. Willingham's house, Mr. Willingham said that his children were inside the home and that the home had been having electrical problems. Mr. Long never saw Mr. Willingham attempt to go back in the house. When he said he was having electrical problems, he pointed to his electrical meter.

x. Fireman Steve Vandiver said on 1/22 that the call first came in at 10:34 a.m. and he responded with his engine to the location. Fireman Vandiver discovered Mr. Willingham's 2 year old child in Mr. Willingham's bed in the middle bedroom. She was lying face down in the bed and had the sheet pulled up around her shoulders. He picked her up and carried her out and handed her over to EMS personnel who started CPR on her. He then went back into the house and sprayed a fine mist over the front bedroom and saw the bodies of the twins.

y. Fireman Charles Ray Dennis said on 1/23 that he entered the structure with Fireman Vandiver and that when he entered the front hallway, the hallway was "fully involved" about halfway down (the hallway) in addition to one room to the left. He knocked the fire down so Vandiver could get to the back of the house and then he backed up and entered the room that was fully involved. He knocked most of the flames down and found the two children on the floor under what looked like a spring to a baby crib.

z. Mr. Willingham gave an interview to Doug Fogg and Manuel Vasquez on December 31, 1991. At that time, he was not under arrest and was not a suspect in any criminal action. Mr. Willingham said that his wife left the house at 9:13. He got up, gave the twins a bottle, leaving them on the floor, and left his 2 year old daughter in her bed in the same bedroom. The next thing Mr. Willingham remembers was hearing "Daddy, Daddy" and that when he woke up, the house was full of smoke. He said he put his pants on and then hollered to Amber to get out of the house. Mr. Willingham said he knew that Amber was in her bedroom and that was the first place he tried to get to. He also said that the burning smell was like electrical wiring and that the plug ins and light switches and stuff were popping. He eventually made his way to the twins' room by crouching down. While in the twins' room, he says he called his 2 year old's name and tried to find the babies but couldn't. He found a baby bottle but could not find the children. He says he went back out of the twins' room and went to the front door, which was already smoking and was about to catch fire. He says he got out of the front door and screen and into the front yard. He said he was unable to get back into the house

because of the flames and smoke. Mr. Willingham further stated that he never had trouble with the gas and the only electrical trouble he had in the house was from a fuse in the kitchen.

Mr. Willingham also said in response to a question asking "where did you go," that after he searched the room and things began falling off the ceiling, he made his way back to the front door and checked to see whether the door handle was hot. It wasn't, so he yanked it and ripped the door open and went through the screen outside the house. He then says he went back up to the porch but couldn't get back inside because of flames and smoke. He then busted out a window in the bedroom, which caused flames to come through.

In answer to specific questions, he replied that he stepped over the child's gate getting into the room and that he also stepped over the child's gate coming back out of the room. He says he remembers because he burned his hand when he came out.

He claims that he searched the room, touching the dresser, the slide, his 2 year old's bed, and other areas.

On January 7th, Mr. Willingham was re-interviewed by police officers. He told the police officers that after he left the children's room, he went to the front door of the house, took hold of the door knob on the front door, which was not hot, and opened the front door and went out through the screen door. During that interview, Mr. Willingham suggested someone else could have possibly come in and set the fire while he was sleeping but Mr. Willingham could not give any ideas as to who would want to do such a thing.

aa. On that same day, the fire investigators interviewed Stacy Willingham. In answer to the question of what Todd Willingham told her, she replied, in part, that he went out through the front door. She also said that he said he kicked the front door down. She described the door saying that if you are in the house, the door opens to the inside. She also told the fire investigators that he kicked the door down because he couldn't open the door, it was on fire. She then said that Mr. Willingham said he kicked it down and went through it.

She later told police detectives the same story – that Mr. Willingham had said he kicked the front door down while it was on fire.

17. Some aspects of the trial testimony were not recognized or emphasized by Dr. Beyler. The following are of at least of some importance:

a. Johnny Webb, a Navarro County jail inmate, testified that Mr. Willingham told him he started the fire. He also testified that he was not working for a law enforcement agency when the statement was made. He wasn't asked to find out what Mr. Willingham knew about the crime and that no one threatened or coerced him in any way to give his testimony. He did not receive any sentencing deal for giving his testimony.

He said Mr. Willingham told him that one of the babies was injured or dead and that the fire was set to hide the injury. He also testified that Mr. Willingham told him that he didn't go back in the house when he had the chance because he knew that he would find out that one of the children was injured. Mr. Webb also testified that Todd Willingham told him that he poured the lighter fluid on the floor in the children's room in an X-pattern (which may be consistent with the diagram of the Willingham house prepared by Fire Marshal Vasquez and displayed on p. 34 of Dr. Beyler's report). Nothing in the record suggests that Mr. Webb had seen Fire Marshal Vasquez's drawing of the bedroom. Mr. Webb was the first witness who testified in the trial.

b. Mary Diane Barbee testified that she was unable to convince Mr. Willingham to go back into the house and try to rescue his children. At that time, there were no flames coming out of the house, only smoke, including smoke from the lower part of the structure. Ms. Barbee also testified that Willingham told her Amber woke him up and she jumped off the bed and he couldn't find her. He also told her that he ran out the back of the house, not the front.

c. Brandice Barbee, Diane Barbee's daughter testified that she came out of her house after her mother alerted her that the Willingham's house was on fire. She was present at the scene and never saw Todd Willingham attempt to go back into the house at any time. She didn't notice that Mr. Willingham was coughing or injured.

d. Doug Fogg testified that during his investigation he eliminated all potential electrical and gas causes of the fire by examining wiring and testing gas lines. The gas to the space heater was in the "off" position and the line was tested for leaks but none were found. He also described what he called pour patterns and puddling effects. They were interlinked beginning at the

threshold of the front door into the hallway and then into the front bedroom. He says they were "interlinked." After identifying the interlinking pour patterns on the floor, he looked at all the contents in the room to determine whether they could have left that impression. He went through the debris on the floor and found clothes and toys and determined that they had not melted to produce the pour patterns.

He also was able to identify a burn area that was underneath the threshold plate on the front door. He attributed that to a liquid that had dripped down and ran under the threshold plate. He thought this was very unusual because the threshold plate should have protected the floor from the flame under the baseplate.

Assistant Chief Fogg also conceded that a child starting the fire was a remote possibility. He also testified that he didn't believe that the glue or the tar paper were responsible for the puddling effect.

e. Fire Marshal Vasquez testified that deep charring or a complete burning through of the flooring is not per se indicative of an accelerant and that investigators must eliminate other possible causes of the deep charring. Marshal Vasquez testified that falling and burning debris lying on a floor can sometimes cause patterns and marks that could be mistaken for accelarant puddles and trails. Vasquez didn't testify that the brown stains on the concrete were charcoal lighter fluid. The lawyer's question assumed that the brown stains on the concrete were where charcoal lighter had been. Marshal Vasquez testified that there was a flash over in the bedroom, which Dr. Beyler concurs with. Vasquez testified that he eliminated the accidental causes, including electrical and gas.

Also, it was in answer to argumentative cross examination questions that Chief Vasquez talked about always being right. He was asked the question had he ever been wrong in a conclusion he made. His answer was "not to my knowledge." The next question asked was "So you're always right?" He answered by saying "I said not to my knowledge."

f. Unless it appears in a picture which I don't have access to, there was no evidence that the barbecue grill was on the front porch. The only evidence regarding the barbecue grill was that it was turned upside down in a picture. There was no evidence of any grilling activity (recent or otherwise) on the porch or that the firefighters moved the grill.

18. Dr. Beyler's reliance on Todd Willingham's testimony and statements is puzzling because Mr. Willingham gave materially inconsistent accounts of what happened:

a. He said he went out the front door. He also said he went out the back door. He said he went out the front door by kicking it in (against the jamb, which would be very difficult to do) and by opening the front door. He also stated he went out the back door, came around the front and kicked the front door in from the outside.

b. He says that the front door was on fire when he exited the house. He kicked it in (against the jamb) because it was on fire. But then he says that the door knob was not hot when he touched it to open the door (which seems inconsistent).

c. He says he woke up when he heard his 2 year old daughter crying and that he was certain that she was in the other bedroom. He also says he woke up when the 2 year old jumped on his bed and woke him up and that he tried to hold on to her but she ran off.

d. He says he tried to go back in the house to rescue the children but the eyewitness accounts do not support it. The eyewitness accounts seem to support the idea that he tried to get to his 2 year old daughter after she was brought out of the house while the fire was about out.

e. No one has been able to explain how the 2 year old got out of the bedroom with the child's gate being in place. Mr. Willingham said he stepped over it going into the child's room and he stepped over it coming back out of the child's room. He was certain his 2 year old daughter was in the children's bedroom when the fire started (except when he says she woke him up by jumping on his bed) but her body was found in the master bedroom.

f. No one has been able to explain how Mr. Willingham did not sustain injuries to his feet (although his 2 year old daughter did) even though he was in the hall and, according to at least one of the versions of his escape, he kicked the front door down **while it was burning** in order to get out of the house.

g. Prior to January 3rd, Mr. Willingham was already telling his mother-in-law that he thought he was going to be blamed for Amber's death because of some unusual marks on her neck. Also, Mr. Willingham told Fireman Crenshaw on or before January 4th that he had overheard people at the funeral

home wondering whether Todd had "done this."

h. He says he saw sparks coming out of the electrical outlets, but Assistant Chief Fogg examined the electrical wiring and didn't find any problems (plus, if the wiring was on fire, the breaker would likely have been tripped – hence no sparks).

OTHER POINTS

19. The liquid pour patterns in the front hallway could not have been melted children's toys because Willingham indicated that the only thing in the front hallway were pictures and decorations.

20. Dr. Beyler is critical of the fire investigators because both the Assistant Chief and the Fire Marshal admitted that there were other possible causes of the fire. If any crime, including arson, had to be proven with absolute certainty, criminal convictions could not be obtained. The alternative theories suggested by Dr. Beyler are the sorts of things that fire professionals can readily discount. For example, neither the Assistant Chief nor the Fire Marshal believes that the fire could have been started by Amber, the Willingham's 2 year daughter. In support of his position, Dr. Beyler notes that cigarette lighters were found in the house. It is not an issue of fire science to decide whether a 2 year old is capable of finding a lighter, and lighting it so that a serious fire results. But, importantly there is no evidence that the lighters were found anywhere near the area where the fire burned or near where the 2 year old child was found. The fire investigators were free to discount that particular theory as being remotely possible, but not likely. The jury could evaluate that evidence. Also, the fire investigators could not completely discount the possibility that an unknown third party ran into the house, unbeknownst to the occupants, and started the fire – either with or without the use of accelerants. However, there is simply no evidence that such a thing occurred and Mr. Willingham refused to cooperate in answering questions on that issue.

The fire investigators discounted the possibility of a natural gas source. The gas to the space heater was in the "off" position and the line was tested for leaks but none were found. Similarly, the fire investigators noted that there were no problems with wiring that could have been a cause of the fire. Assistant Chief Fogg inspected the wiring and didn't find any problems. Dr. Beyler attempts to make much of the fact that appliances weren't mentioned. Based on the limited information I have available to me, I am unable to discern if there were appliances located anywhere near the burned area and, if so, what those appliances were. Mr. Willingham didn't list them

as contents of the room or hallway when he was asked about it. It is reasonable to conclude that the appliances, **if there were any**, were examined at the same time the wiring was examined and it was concluded that an appliance malfunction was not the cause of the fire. Finally, although Mr. Willingham attributed the cause of the fire to "squirrels" in his attic, the investigative reports reveal that the fire never propagated into the attic.

21. Dr. Beyler also mischaracterized much of the actual testimony, for reasons known only to him. For example:

a. Assistant Chief Fogg testified that he eliminated all contents of the room as being the cause of the pour patterns that he saw. Dr. Beyler simply ignores that statement.

b. Contrary to what Dr. Beyler says on page 44 of his report, Assistant Chief Fogg did not testify that the plastic toys "had not melted." He testified that "to eliminate the plastic toys melting and running, we looked at the area around the **remains** of the plastic toys to determine whether they had ran and produced [these pour patterns] and we found that they had not." Obviously, the toys melted and Assistant Chief Fogg determined that the melted plastic did not cause the pour patterns.

c. Assistant Chief Fogg didn't testify that glue only causes puddle patterns once poured on the floor, as Dr. Beyler asserts. In context, his testimony is that the glue was uniformly applied and it was a very thin layer of glue and those two facts caused him to conclude that the burning of the glue wouldn't have caused the puddle configurations he saw.

d. I don't have the photographs to know exactly what the attorneys and witnesses were talking about, but it appears that Assistant Chief Fogg ruled out the possibility that charcoal fluid could have been spilled on the porch and then migrated under the threshold into the hallway. The testimony seems to describe the house as being a wood frame house with a concrete front porch. Based upon the testimony, there appears to be a significant gap or hole between the front porch and the front door. Any spilled lighter fluid flowing from the front porch would have traveled down between the gap between the concrete and the doorjamb, not into the house. In any event, Assistant Chief Fogg also said he observed water (from fire fighting) on the porch flowing away from the threshold and toward the front of the porch. So the charcoal lighter fluid, if it were spilled, would have flowed away from the

fire, not towards it.

e. Contrary to Dr. Beyler's statement, Chief Fogg did not opine that latex paint "isn't flammable." The context of the testimony on cross examination is when Assistant Chief Fogg is being questioned as to whether the threshold was painted. He testified he didn't recall seeing any paint on the threshold itself. He was then asked whether paint will burn "off" wood – without actually consuming the wood itself (the threshold didn't burn up). Assistant Chief Fogg testified that an oil based paint could burn or blister and could "burn off" the wood. On the other hand with respect to latex paint (water based paint), Assistant Chief Fogg said he didn't think the paint would burn "off." He doesn't, however, testify that latex paint won't burn or that a wood surface painted with latex paint would not itself burn, which is the impression Dr. Beyler leaves in his report.

f. On page 33 of his report, Dr. Beyler says that the door between the kitchen and hallway was closed. The trial testimony does not support that conclusion. And, the witness statement given by Todd Willingham suggests the opposite – he said from the kitchen, he could look back down the hallway towards the front door. It is unclear to me where Dr. Beyler gets information that the door between the kitchen and the hallway was closed during the fire. Willingham said he opened it.

g. Dr. Beyler says on page 36 of his report that Todd Willingham was restrained from reentering his home. That is not exactly what the witnesses said. On balance, it appears that witnesses described that Mr. Willingham had to be restrained from going to his 2 year old daughter when they brought her out as the fire was being extinguished. Prior to that time, several witnesses appear to have encouraged Mr. Willingham to reenter the home before the smoke and flames got very bad, but he wouldn't do it.

h. Dr. Beyler says that an arriving witness noted low fire on the porch between the door and the window. Dr. Beyler is unclear about whether the witness was referring to the child's bedroom window or the window from the living room onto the porch. In context, the low fire and smoke were probably coming from underneath the window to the children's room. It doesn't appear from the materials I have reviewed that the front living room was ever fully involved.

i. On page 38, Dr. Beyler says Mr. Willingham heard a loud crash while he was

on the porch and Mr. Willingham thought it was the ceiling fan falling from the children's bedroom ceiling. Mr. Willingham did not list a ceiling fan as being one of the contents of the child's bedroom and he doesn't mention it in his written statements. In one of his statements, he was asked to list the contents of the room and he did not list the ceiling fan or any other appliances. Also, Assistant Chief Fogg has said there was no ceiling fan. And, it is highly unlikely that the ceiling fan would actually be in use (to be a fire source, it needed to be on) in a drafty wood frame house in December. According to an Internet site, the temperature in Corsicana at 9:00 a.m. that day was around 50° Fahrenheit. Also, Mr. Willingham said the fire in the children's room was high on the south wall and ceiling, not in the center of the room where a ceiling fan would be located, if it existed.

j. On page 41 of his report, Dr. Beyler is critical of Vasquez for not ruling out gas or the space heaters as being a potential cause of the fire. During the trial, it was established that Assistant Chief Fogg ruled out gas and the gas heaters on the day of the fire. So, Dr. Beyler's criticism of Fire Marshal Vasquez really is that he didn't say he was relying upon Assistant Chief Fogg's inspection of the scene on the day of the fire. The gas to the space heater in the children's bedroom was "off" and the line was later tested for leaks, with none being found.

k. On page 42 of his report, Dr. Beyler is critical of Fire Marshal Vasquez for not being aware that there was a charcoal grill on the front porch at the time of the fire "that was moved away during operations by the fire department." There is no evidence in the trial record that the grill was moved away. The only testimonial reference to the grill is that it was behind a fireman in a picture and turned upside down. I don't have the picture so I don't know where the grill was located, but there is no evidence that the grill was moved during the fire fighting operations.

l. On page 45 of his report, Dr. Beyler is critical of Assistant Chief Fogg for not mentioning or examining any electrical appliance or the ceiling fan in the children's bedroom. No electrical appliances were identified in Mr. Willingham's description of the contents of the room. And, as mentioned above, no ceiling fan was listed either and none was found by Assistant Chief Fogg. There was no evidence at trial that the ceiling fan ever existed. Assistant Chief Fogg said he went through all the contents of the room. Plus, according to Tod Willingham, the fire was on the south wall and ceiling, not in the center of the room where a ceiling fan would be found. To be a fire

source, the fan would have to be "on" which is not likely on a 50° December day.

m. Dr. Beyler is critical of Assistant Chief Fogg for not taking samples of the concrete for analysis and for further testing. Perhaps he should have.

n. Dr. Beyler incorrectly states that there was evidence that the charcoal lighter would have been used routinely on the porch to ignite a grill. There was no testimony regarding the use of the charcoal grill on the front porch, if it ever was used. The only mention of grilling is in a hypothetical question posed by defense counsel about the fact that "someone could have been barbecuing." Dr. Beyler makes it sound as though there was evidence in the trial record that the Willingham's regularly barbecued on the front porch using their charcoal grill. There is no such evidence in the record.

o. Dr. Beyler also implies on page 46 that a spill of charcoal lighter fluid on the concrete front porch could account for the presence of lighter fluid under the threshold in the house. The testimony regarding the slope of the porch (away from the front door) and the fact that there was a hole or crack separating the concrete porch from the front door appears to rule out that possibility.

p. Dr. Beyler is critical of Assistant Chief Fogg because he could not rule out evidence that an outsider was the one who started the fire. There was no evidence that an unknown third party was the cause of the fire and, in his statement, Mr. Willingham refused to cooperate in identifying people who could testify about that.

q. Also, Dr. Beyler is critical of Assistant Chief Fogg for not completely ruling out the hypothesis that Amber could have started the fire. Assistant Chief Fogg said that it is a remote possibility. But the notion that she started the fire doesn't appear to be supported by the facts. No lighters were found near Amber or near where the severely burned areas were found. And, exactly where Amber was before and during the fire is open to a great deal of speculation. Mr. Willingham was sure she was in the twins' bedroom, sleeping when he went back to bed. Later, she was found in his bed even though there was a child's gate blocking exit from her bedroom. Hypothesizing that a 2 year old child did start the fire simply requires the assumption of too many facts that have no basis in the trial record.

r. Once again, Dr. Beyler is critical of Assistant Chief Fogg for allegedly

testifying that the toys in the children's bedroom had not melted. As described above, that was not Assistant Chief Fogg's testimony at all. Dr. Beyler grossly distorts Assistant Chief Fogg's testimony.

s. Dr. Beyler is critical of Assistant Chief Fogg for allegedly testifying that glue could not have thermally decomposed without direct access to air. That is not what Chief Fogg said. He testified that the glue wouldn't **burn** in the absence of air. Thermal decomposition wasn't mentioned.

t. Again, on page 47, Dr. Beyler asserts that Assistant Chief Fogg testified that water based paints are not flammable. That is a gross distortion of what he said. As mentioned above, what he said was that the latex will not burn "off" of wood, leaving the wood unburned itself. In that series of questions, the defense attorney appears to be attempting to establish that the threshold may have been painted and that fire had "burned off" the paint. Assistant Chief Fogg simply testified that he didn't know if the threshold had ever been painted. Oil based paint can burn "off" a piece of wood but that would not happen with a water based paint. That makes sense because with water based paint, the paint is actually absorbed into the wood. The painted wood would burn, but the paint would not burn "off" the wood and leave the wood charred or unburned.

22. Dr. Beyler suggests that the fire may have started in the bedroom, growing to involve the hallway. Dr. Beyler doesn't offer any support for why the fire turned right, rather than left, if it started in the front bedroom. The presence of an accelerant in the hallway is certainly some explanation as to why the fire, if it did start in the bedroom, turned right rather than left when it entered the hallway. Traces of an accelerant were found in the front door area, under the threshold. And, according to Todd Willingham, there was fire in the hallway before he opened the front door. The front door was on fire. So, the fire had already turned right into the hallway before the front door was opened. And, Mr. Willingham said he had already opened the hallway door into the kitchen. Why did the fire turn right and not left, or not burn in both directions?

23. If I had the video tapes and pictures I could offer more insight into the cause or causes of the pool or puddle configurations and the trailers identified in a diagram on p. 34 of Dr. Beyler's report. At this point, I have a hard time concluding that a flash over could have caused what is described on the diagram. And, I have doubts about whether a flash over could have caused the fire and damage to the floor of the hallway. The firefighters said the floor was burning when they entered the house

which is unusual. Fire burns up, not down. I also would be interested in seeing what the ceiling looked like in the hallway and the bedroom. I don't know what the ceiling was made of or whether pieces of burning ceiling could have dropped to the floor and caused patterns on the diagram. The use of an accelerant would explain the findings on the diagram and the path of the fire.

While I understand the job the Texas Forensics Science Commission has to do, I hope you will appreciate the difficulty I had in trying to comment upon an event that happened eighteen years ago, without having access to the physical evidence, the audio and video tapes and the photographs. It would also have been especially helpful to be able to question Fire Marshal Vasquez to better understand some of the things he said and why he said them. It would also have been helpful to have access to all of the test results from the samples taken in the front bedroom and front hallway. The only one mentioned in detail in the trial record is the sample taken near the threshold. I don't know if it is possible or not, but it might be worthwhile to try to determine whether the samples from the hallway and the front bedroom are still existence, and if so, apply 2009 testing techniques to those samples. Perhaps newer testing methods might provide additional information which would be helpful.

In summary, I hope the foregoing comments have been helpful. I encourage the Commission to read the trial testimony and police report (with witness statements) to establish the actual testimony. Please keep in mind that I did not have access to the tapes, photos or physical evidence and that my responses are based upon a reading of Dr. Beyler's report, the police report and file and the trial testimony.

Very truly yours,

Donald McMullan, Fire Chief
City of Corsicana

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October 22, 2009

Mr. John Bradley
Chairman, Texas Forensic Science Commission
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Chairman Bradley:

Mr. Samuel Bassett, previous chair of the Texas Forensic Science Commission, requested a response from the State Fire Marshal's Office (SFMO) regarding Dr. Beyler's August 2009 report on the Willingham case. We are happy to assist the Commission in its review of that report, but we respectfully request some clarifications by the Commission or Dr. Beyler be made to help us provide a more thorough response.

1. Our reading of the Commission's enabling legislation requires it to "investigate, in a timely manner, any allegation of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility, or entity." Under Texas law, "professional negligence or misconduct" involves either a violation or breach of some set standard or duty, or an intentional or knowing violation of a law by a public servant while acting in an official capacity.

It is not clear to us in the Beyler report what specific actions on the part of Deputy Vasquez would constitute a professional breach of standards or violation of law.

We request that Dr. Beyler identify the actions on the part of Deputy Vasquez that *constitute* professional negligence or misconduct.

2. The nationally recognized standard for fire investigations is currently National Fire Protection Association (NFPA) 921 (first issued in February 1992 but not in widespread use until the mid-1990s).

The fire in question occurred December 23, 1991. The SFMO investigation conducted by Deputy Vasquez took place on December 30, 1991 and January 2, 1992. The organization of the Beyler report is such that it is not clear which standards, either pre- or post-NFPA 921 or a mixture, are being used to determine Vasquez's alleged misconduct.

We request that Dr. Beyler clarify the professional standard, pre-NFPA 921 or post-NFPA 921, which he used in his review of Deputy Vasquez's investigation.

3. While forensic evidence is a component of an investigation, the human element is also considered. This premise is found in the investigation literature at the time and the current NFPA 921 (19.1.1). Deputy Vasquez considered testimony by both Willingham and eyewitnesses in making his professional determination of arson. However, the Beyler report is unclear in how *it* evaluates the use of testimony and statements used by Vasquez in the course of developing his investigation report.

Please clarify the extent and methodology by which Dr. Beyler evaluated Vasquez's report for the inclusion of non-forensic evidence.

The State Fire Marshal's Office appreciates the work being undertaken by the Commission and stands ready to assist in any way requested now and in the future.

Sincerely,

Paul Maldonado
State Fire Marshal

Cc: Leigh Tomlin, Commission Coordinator
Texas Forensic Science Commission

Mike Geeslin
Commissioner, Texas Department of Insurance

Analysis of the Fire Investigation Methods and Procedures Used in the Criminal Arson Cases Against Ernest Ray Willis and Cameron Todd Willingham

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Analysis of the Fire Investigation Methods and Procedures Used in the Criminal Arson Cases against Ernest Ray Willis and Cameron Todd Willingham

This report evaluates the fire investigation methods and procedures employed by fire investigators in the criminal arson cases against Ernest Ray Willis and Cameron Todd Willingham. The goal of the report is to evaluate the fire investigations as documented by the fire investigators in the form of reports and their trial testimony. The objective is to assess the methods and procedures with respect to the contemporaneous fire investigation standard of care and the contemporaneous knowledge in fire safety science. In addition, this report assesses the methods and procedures with respect to the current fire investigation standard of care and the current state of knowledge in fire safety science.

The Willis fire occurred in Iraan, Texas, on June 11, 1986, and the Willingham fire occurred in Corsicana, Texas on December 23, 1991. On October 6, 2004 Mr. Willis was released from prison and on February 17, 2004 Cameron Todd Willingham was executed by lethal injection.

STATE OF THE ART

The current standard of care in fire investigation is expressed by NFPA 921, *Guide for Fire and Explosion Investigations*, published by the National Fire Protection Association (NFPA). Work on this document was begun in the mid 1980s, but formal publication did not occur until 1992. Even after the initial publication date, there was a natural period of time before it had fully achieved the status of the standard of care. By 1995 when the second edition was published, the status of 921 as a standard of care was well established, but not yet universally acknowledged. NFPA 921 provides a core methodology, methods for planning and conducting the investigation, and methods for collecting, interpreting, and documenting evidence. Most modern fire investigations texts mirror or amplify upon NFPA 921 (e.g., Icove and DeHaan (2004), DeHaan (2002), Lentini (2006)).

The core of the 921 methodology is the application of the scientific method to fire investigation. In the context of fire investigation this involves the collection of data, the formulation of hypotheses

from the data, and testing of the hypotheses. Conclusions can only be drawn when only a single hypothesis survives the testing process. None of the investigators employed this methodology. Indeed, in no case was any methodology identified. The testifying investigators admitted on the stand that there were possible alternate hypotheses that were consistent with the facts of the case. In no instance did this cause the testifying investigator to alter his opinions in the least. The overall standard that seems to be in use by the investigator is that his professional opinion with regard to cause was simply the explanation of the case facts that the investigator was personally most comfortable with. Of course this provides no basis for finding reproducible and defensible conclusions, an absolute requirement for rational use of fire investigation in the criminal justice system.

In testing hypotheses, the basis for evaluation is consistency with the case facts and consistency with our knowledge of fire science. A significant function of NFPA 921 has been the evaluation of methods and indicators historically used by fire investigators. NFPA 921 has sought to identify scientifically defensible methods and indicators, and provide suitable limitation to the use of these methods and indicators. Finally, NFPA 921 provides an educational resource to investigators in modern fire science in a manner that can be understood and applied by the fire investigation community.

Prior to NFPA 921 there was no single document that described the standard of care in fire investigation. For purposes of this analysis the standard of care before NFPA 921 was taken from fire investigation texts that were published before NFPA 921 was published in 1992 as well as from the articles published in *The Fire and Arson Investigator* in the 1980s. Because there are many sources that contribute to the definition of the standard of care, the standard is less clear and well defined than in the post-921 period. It is also important to distinguish the community standard of care from the norms as practiced in the field. In many instances the norms are well below the standard of care. That is fire investigation as actually practiced fell well short of the teachings of texts, courses, and articles of the day.

During the 1980s, fire investigation was in the early stages of maturation and change. The literature reflects some use of and impact of fire science, though the tradition of fire investigation as

an art based solely upon personal experience and the associated folklore was certainly still in place. The greatest impacts of science on fire investigation were in analytical chemistry and actual fire science was only beginning to be used. The status of fire science influence varied among different texts and within texts.

The status of fire science in the 1980s was sufficiently developed that its limitation did not pose problems for fire investigators. Much of the knowledge is older than most acknowledge and is chronicled in a history text (Richardson 2003). The knowledge of fire dynamics was strong and described in textbooks like Lie (1972) and Drysdale (1985). Thermal decomposition knowledge of the day is well described by Cullis and Hirschler (1981). Many aspects of fire science were in textbooks intended for college classes in fire service degree programs like Tuve (1975) and Friedman (1989). There was excellent information available about furniture fires in the monograph by Babrauskas and Krasney (1985) and later followed up by Krasney, Parker, and Babrauskas (2001). The fire science basis for fire protection engineering was reduced to handbook form in the late 1980s (SFPE 1988).

While fire science was beginning to have an influence, it must be said that the tradition of fire investigation as an art based upon experience and folklore remained dominant. Before NFPA 921, fire investigations texts did not include discussion of an overall methodology. The explicit notion of formulating and testing hypotheses was generally a foreign notion in the fire investigation community. Consequently, there was no rigor in the means of reaching conclusions from the data and its interpretation. Opinions were generally based upon the investigator's personal judgment, based on the information available and in the light of his experience. While never explicitly stated, certainty in opinions did not need to be any better than "more likely than not". This, of course, is well below the "beyond a reasonable doubt" standards that juries are instructed to employ. This should be viewed in the light of the low reliability of fire indicator evaluation possible at the time based on the very limited fire science impact. Together these created great potential for juries to treat fire investigators' opinions as being more reliable than they actually were, based upon the fire investigation upon which the opinions were to have been based.

The overall methodology in arson cases, as practiced in the 1980s, is the process of elimination. This approach is generally adopted in fire investigation texts. Specific examples include Kennedy (1977, 1985), DeHaan (1983, 1991), Roblee and McKechnie (1981), Bates (1975), Cardoulis (1990), Patten and Russell (1986) and Carroll (1979). The process of elimination requires that all other causes be eliminated except the determined cause. In particular, if a fire is to be determined to be arson, then all accidental and natural causes must be eliminated. A cause would be eliminated if it was inconsistent with known case facts or was not physically possible. An undetermined cause would result if more than one candidate cause could not be eliminated. This method is also consistent with the idea that all fires should be presumed to be accidental (Carroll (1979), Bates (1975), Kirk (1969)). A finding of arson would require that the evidence show that this presumption is not consistent with the facts.

Hobson (1992) characterized the situation as follows: "Up to now, most fire investigators have been taught to look for results, not to determine reasons. This is based on rote memory of indicators with little or no understanding of why or how they were formed and what they can actually mean."

One means of assessing the standard of care in fire investigation is to examine the teaching materials of the National Fire Academy, the focus of fire service training in the US. Teaching resources such as National Fire Academy (1988), National Fire Academy (1992), and National Fire Academy (1996) make use of the various editions of Kirk's Fire Investigation by DeHaan with little additional materials in the area of scene examination. In the post-921 era, NFPA 921 is also included as a course reference. National Fire Academy (1983) does not make use of Kirk's, but the content is similar to materials reviewed below.

Common characteristics of incendiary fires have been summarized as: 1.) multiple origins, 2.) point of origin where there is no rational ignition potential, 3.) accelerant used as indicated by smell, pour patterns, chemical analysis, or dogs, 4.) presence of trailers, 5.) deliberately arranged fire load, 6.) missing personal items, 7.) extra items of contents added to fire load, 8.) unusually fast consuming fire and a very high burning temperature in areas where the fire load is to all respects very ordinary. 9.) tampering with FP devices, 10.unnatural fire pattern, 11.) timers or incendiary devices found, 12.) tampering with HVAC equipment to enhance fire spread, 13.) tampering with

utility systems to start fires. (Noon (1995)). These are generally agreed upon as indicators, but the difficulties come in applying them and recognizing their limitations. Many myths have grown up that have no scientific basis. Some of these are addressed here and Lentini (2006) deals with such myths directly. The following discussion of the understanding of specific fire indicators is intended to include the indicators that investigators made use of in the cases included in this analysis. It is in no sense a comprehensive list of indicators nor is the discussion of any individual indicator in any sense exhaustive. The goal of the discussion is to understand the use and validity of these indicators in the fire investigation community and how that understanding has evolved from the 1980s to the present. For purposes of analysis, the understanding of fire indicators is separated into two general time periods; post-921 and pre-921. The post-921 period includes 1992 to the present and does not attempt to deal with the evolution of NFPA 921 during the period. The standard of care in the post-921 period is sometimes described as the current or modern understanding of fire indicators. The pre-921 includes the general period 1980–1992 and the standard of care in that period is often described as the contemporaneous understanding of fire indicators. The term contemporaneous is used to denote that it is the standard of care at the time of the initial investigations of the Willis and Willingham fires. Of course, both the Willis and Willingham cases were only finalized in 2004, so that both the current and contemporaneous periods are relevant.

V-Patterns

The general notion that V-patterns are formed by fires against wall surfaces is widely accepted and consistent with our knowledge of fire science. However, there are myths that the width of the V-pattern is a direct indicator of the rapidity of fire growth (Cardoulis (1990), Brannigan, Bright, and Jason (1980)). NFPA 921 recognizes that the width of the pattern is dependent on many variables such that simple conclusions are difficult. The presence of a V-pattern is indicative of burning occurring at the base of the V which in some instances may be the origin of the fire. The general trend over time is that the V was first recognized as likely the origin of the fire but may be caused by secondary ignitions to the simple current view that it simply indicates burning at the base of the V at some time in the fire. Low V-patterns are favored as origins due to the general tendency of fire to spread primarily upward.

Floor Patterns

Floor pattern analysis was the primary method used to substantiate that the fire was arson in these cases. At this time, the fire science and fire investigation communities are clear that floor patterns cannot be reliably used as an arson indicator in fully developed fires. The full scale fire test series reported by Shanley (1997) is the primary evidence used to substantiate that the fully developed fire and the associated radiation creates floor patterns and destroys preexisting pour patterns. This study was designed specifically to develop an improved understanding of fire patterns. In the fire science community it has long been recognized that the temperatures and radiation associated with fully developed fires is sufficient to ignite floor covering (Lie (1972), Blackshear (1974), Fang (1981)). Tu and Davis (1976) showed that carpeting did not play a significant role in pre-flashover fires. In some sense one can say that arsons using accelerants that are unsuccessful in creating a fully developed fire may have patterns that persist after the fire. This has been shown by Wolfe et.al. (2009).

Studies of spill fires have given insights into the patterns formed and the quantity of liquid required to create the patterns. Putorti (2001) studied spill fires on hard surfaces and carpets specifically to investigate these fires in the context of arson. Gottuk and White (2008) summarize the wider literature on spill fires, which of course are also of interest in the context of accident scenarios as well. The spill area per unit volume of liquid fuel is given by Gottuk and White as 57 square feet per gallon. In a normal room of 100–200 square feet, this requires 2–4 gallons to cover a hard surface, corresponding to a liquid depth of about 0.7 mm. For carpeted surfaces, Putorti found coverage areas of about 6–12 square feet per gallon. For both hard and carpeted surfaces, lower application rates are possible if the fuel is splashed around rather than simply poured. For context, a typical accelerant has a density of about 6 pounds per gallon and its heat of combustion is similar to plastics. A normal residential fuel load density is about 5 pounds per square foot so the actual energy contribution of even a massive accelerant application is very low compared to the typical fuel load of the room in which it is used. Its hazard is in its ease of ignition and fire spread, not its total energy contribution.

Modern fire investigation resources like NFPA 921 are now in line with the fire science community. NFPA 921 acknowledges that floor patterns are created by fully developed fires and

that signatures, like burning cracks and vinyl tile edge curling, can occur in the absence of accelerants due to radiant heating. NFPA 921 suggests that if an accelerant is suspected, then samples for laboratory analysis should be taken. Suggestions of accelerant use can include the patterns, smell, portable gas detector results, or canine identifications. The former methods are field methods that guide sample collection. Laboratory analysis is the method to determine if there is accelerant present and its identity. Melting plastics can create patterns that look like liquid spills.

The earlier views of floor patterns in the fire investigator community are both different from the fire science community and quite diverse. However, most urge caution in the identification of accelerant use solely based upon visual examination.

Cardoulis (1990) offers "while the inkblot, puddle and flow pattern left by a spilled liquid accelerant is very distinctive, fire investigators must be careful not to confuse it with a very similar pattern caused by the fire itself and heat itself." He further offers that "the center of a burn configuration involving a flammable liquid puddle may exhibit no char at all because the fuel was consumed before reaching this point." An example of a clean puddle pattern can be seen in tests conducted by Mealy and Gottuk (2006).

Hobson (1992) had a very modern view of floor patterns. "One of the more common burn patterns and one which is most often misinterpreted is the floor burn pattern. If one were to do a little study of the statistics that have been derived from many of the tests conducted, you will find that in 99 percent of the fires involving flashover there will be serious floor burn patterns." "Far too many fire investigators, specifically those still involved in the old firemen's tales school of thought, immediately, on seeing the floor burn pattern, conjure up the fact that it is a pour pattern resulting from a liquid accelerant." He does offer that there are no fingers in burn pattern with innocent floor patterns and that fingers are characteristic of ignitable liquids. Hobson (1992) notes that ignitable liquid protects the floor so damage occurs at the edge of the pour and moves inward only as pour area reduces. He also recognizes that burning foam rubber yields a melt that gives patterns like ignitable liquids, though foam burns tend to yield more uniform patterns than ignitable liquid can display. He observes that asphalt tiles or vinyl tiles may reveal irregular patterns and discoloration

and blister in the absence of liquids due to the fire environment. He also points out that wood and carpet floors can show patterns in normal fire that result from wear patterns.

DeHaan (1983) suggests that patterns on floors may be apparent and not related to the origin of the fire. At the same time he offers that "any area which has a floor burned or a wall burned right down to the floor should be considered suspicious and deserving of further investigation. Such a burn does not mean by itself that the fire is incendiary in origin. It means only that the fuel load and the configuration of the fire environment were such that high temperatures were being produced at the floor level. Something normal to the room may have caused it to burn in this fashion." With regard to "Ghost Marks", DeHaan offers "Depending on the fire conditions and the nature of the floor tile, it has been observed in experimental room fires that the tile will shrink, exposing the floor to higher general temperatures and producing very similar effects; so it should not be considered absolute proof of the presence of a flammable liquid, but it is certainly a very strong indicator of such an accelerant."

DeHaan (1983) has an interesting perspective with regard to ultimate opinions by the investigator. "In the final analysis it is always the experience of the investigator that determines what importance is to be made of such patterns. The prudent investigator, when all indications are that a flammable liquid has been used, will recover samples of the flooring and nearby debris for laboratory testing no matter what odors are present." Thus, while DeHaan is very cautious about visually observable patterns, he still is in some sense willing to ultimately rely on the experience (read judgment) of the investigator. In 1983 he is cautious and encouraging of the use of science, but he has not yet abandoned the experientially based model of fire investigation.

DeHaan (1987) discussed that floor charring can occur due to radiant heat in normal fire or due to normal fuels on floor or due to drop down (including draperies and melting plastics). He identifies that intense local burn patterns on the floor can be created without ignitable liquids.

Bates (1975) acknowledges that low burn under furniture could indicate an accelerant, but that drop down can create patterns on floor. As such an inventory of items in the room is essential. Hobson (1992) talks about foam rubber furniture giving intense burning and heavy char on the floor

and melting onto the floor. Noon (1995) indicates that pour patterns may not be from a liquid pour, but may be secondary due to existing liquids or fall down burning.

Phillipps and McFadden (1986) recognized that ignitable liquids protect the floor while the liquid is present so that heat damage occurs at the edge of the existing spill area. More central damage occurs as the spill recedes. They state that flows of ignitable liquids under doors create patterns on bottom edge of door that ordinary combustibles cannot. This is inconsistent with our modern understanding. They also state that fire issuing from a room into another room would not normally involve burning of flooring in the adjacent room, so that if there is a pattern in the adjacent room it is an indicator of an ignitable liquid pour. At the same time they acknowledge that the presence of a floor pattern does not always mean that an accelerant was used. Their general views are somewhere between the historical myths and our modern understanding. Harmer et.al. (1983) studied flammable liquids on linoleum floors and found that patterns of bubbling and charring result. These tests were done without compartment effects. National Fire Academy (1983) describes burning on bottom edges of doors as unusual in accidental fires, indicating it is not a strong indicator of an arson fire.

Ettling (1990) studied the ability of gasoline to flow under objects in contact with the floor. He found that gasoline did not flow under 2 x 4 lumber when gasoline was spilled around it. This indicates that the protected area not including residue of the accelerant does not mean that it was not present in the area. This was an investigation taken on by a single investigator no doubt in response to an issue in a case. In the 1980s and before there was little direct funding of fire investigation research and this type of contribution represents all that was being done.

The role of plastics in fire was evolving in the 1970s, though by 1980 plastics were widely used in furniture and furnishings (Zicherman and Allard (1989)). Part of the confusion about the potential role of plastic melts arises out of lack of fire science input to fire investigation and part of it results from a slow response to the changing character of materials in use, moving away from cellulosics to plastics. Fire (1985) recognized that plastic melt patterns look like ignitable liquid patterns, and called out polyethylene in particular. Roberts (1982) focused on splatter and trailer patterns associated with ignitable liquids. His discussions reflect views associated with cellulose

dominated fires, but shows some appreciates of polyurethane foam (in furniture and beds) and asphalt.

Stickevers (1982) identified that char depths are greater at outer edge of a spill due to recession during burning. He noted that falling drapery, foam rubber padding, and air flows can cause patterns that have nothing to do with accelerants. He also noted that the depth of a gasoline spill is about ⅛ inch and the duration of burning is about 40 seconds. This is generally consistent with more formal research by Putorti (2001) and reviewed by Gottuk and White (2008) conducted many years later. At the same time Stickevers asserted that uniform damage with height is not normal and indicates the use of a flammable liquid and that spalling is an indicator for flammable liquids. Neither of these is consistent with our current understanding.

Almirall and Furton (2004) indicated that thermal damage or a burn pattern on a combustible floor can be the result of ventilation, radiant energy from a nearby flame, radiation from hot gases, dropping or falling materials that burn on the floor, or the burning of an ignitable liquid. This comports with NFPA 921.

Overall, the 1980s' views of floor patterns were in transition from the experiential based rules to the modern science based understanding. There were many cautions available to discourage the reliance of investigators on floor patterns to indicate accelerant use. An astute investigator could have recognized that the volume of liquid required to explain room size patterns is beyond what is most often reasonable and available. Clearly, there was ample guidance to take and analyze samples to identify accelerants and many warnings about the potential for error in the absence of laboratory analysis. Nonetheless, it was clearly the case that investigators in these cases did not understand the importance of having more than visual evidence of accelerant use and were satisfied to base their opinions almost solely upon this and other equally unreliable indicators.

Crazed Glass

NFPA 921 does not accept crazed glass as an indicator of the use of an accelerant. Cardoulis (1990) and DeHaan (1983) indicate that crazed glass indicates rapid heat buildup, but do not uniquely associate this with arson scenarios. Roblee and McKechnie (1981) identify that crazing can occur due to hose stream application to hot glass, as may well have occurred in these fires,

given the stage of the fire on fire department arrival. Phillipps and McFadden (1986) indicate that large crack areas on glass indicate a slow growth fire, while small crack areas indicate a fast growing fire. Fire science research has not found a basis for these rate dependent crack areas or the crazing argument (Pagni (2003), DeCicco (2002)), though crack initiation temperatures have been identified and additional cracking occurs with additional temperature increases.

Spalling

NFPA 921 does not accept spalling as an ignitable liquid fire indicator. While high heating rates are associated with spalling, this is in no way uniquely tied to arson fire. Cardoulis (1990) indicates that spalling may be an indicator of rapid heat buildup and as such could indicate the presence of a flammable liquid. Brannigan, Bright, and Jason (1980) discuss that spalling indicates an intense fire, though no direct link with arson is suggested. Canfield (1984) reported testing of small concrete floor samples exposed to accelerant fires which did not result in spalling. Smith (1981) indicates that spalling can occur with ordinary fuels, but does not occur with ignitable liquids. He indicates that spalling is not a good arson indicator. Lentini (1982) criticized the above small scale testing and documentation and provided evidence that a floor in an arson fire had spalled. Notably, Lentini cited Lie (1972) an early fire science text not widely read in fire investigation circles. Clearly, even in the 1980s, there was no clear indication that spalling was a good arson indicator.

Low Burn

Cardoulis (1990) indicates that low burn patterns may be an indicator of accelerant or may be the result of drop down burning. Brannigan, Bright, and Jason (1980) discuss the role of layer radiation in igniting objects and carpeting, thus refuting low burn as an indicator of accelerant use. Hobson (1992) identifies that in fully developed fires, high temperatures can exist low in the compartment and as such create low burn patterns. Roblee and McKechnie (1981) and Carroll (1979) state that low burn indicates the origin, but caution about drop down burning. Roblee and McKechnie (1981) indicate that burning ignitable liquids on flat surfaces forms an ink-like blob outline and that burning along the wall down to the floor level and under the edge of molding is characteristic of ignitable liquid fires. They indicate that Class A (normal fuels) materials tend to burn above the floor level and are rarely fully consumed without an accelerant. The notion that low burn on walls is a good indicator of ignitable liquids is not accepted by NFPA 921, or the fire

science literature. The notion ignores the role of radiation heat transfer in fire. The notion that ordinary combustibles do not burn completely is wholly without merit, based upon the fire science literature regarding fully developed fires.

Burn Intensity

The idea that the intensity or temperature of the fire is an indicator of accelerant use is not accepted by NFPA 921 or the fire science literature. Flame temperatures for normal vs liquid fuels are very similar, and compartment temperatures cannot be used to distinguish if ordinary or liquid fuels are involved. Roblee and McKechnie (1981) indicate that severe burning in a corner of a room or along a wall can indicate the possibility of an accelerant. This is in direct contradiction of the modern fire science understanding that radiation enhances burning intensity in corners and at walls.

Bates (1975) states that "the intensity of heat generated by the fire may indicate that some additional fuel has been added to the normal contents of the area." This suggests that foreign fuels such as liquids can intensify the fire, but he makes no direct claim that liquids create temperatures not obtainable by normal fuels. However, tests by Mealy and Gottuk (2006) have shown that the exponential fire growth from both class A and accelerant ignition scenarios of sofas were similar with the difference being in the initial development stage before exponential growth. Noon (1995) does indicate that flammable liquids burn at higher temperatures than ordinary flammable contents, and have higher heat release rates. The former is untrue, while the latter is most often correct. He also suggests that flammable liquids on a wood floor would yield higher char rates on floor than ordinary char rates experienced elsewhere on the same flooring. This is not consistent with our fire science understanding.

Ventilation Effects

NFPA 921 and the fire science literature are very clear on the role of ventilation influences on burning and the resulting patterns. Shanley (1997) showed clear evidence of this effect and documents that enhanced burning occurs proximate to the vent. A number of earlier works indicate the role of ventilation, burning, and patterns. Cardoulis (1990) states that ventilation influences burning, and that fire will normally burn in the direction from which it is receiving oxygen. Casto

and Wright (1984) recognized the role of ventilation in pattern generation. Overall, however, the 1980s' literature did not often describe ventilation effects on burn pattern formation.

Floor Sampling

Needless to say, NFPA 921 and modern fire debris analysis books (Stauffer et al (2008)) are not supporters of the wash the floor with a fire hose and then collect samples school of thought. NFPA 921 treats all field based accelerant methods as means of identifying samples for laboratory analysis. Cardoulis (1990) suggests that samples for analysis must be taken before the floor is washed with water and points out the potential for normally occurring petroleum products or pyrolysis products being confused with an accelerant. DeHaan (1983) indicates that successful cases have been prosecuted without any conclusive laboratory results for incendiary materials. Four years later DeHaan, J. (1987) strongly encourages laboratory analysis for accelerant residues. Gohar (1983) reported on room testing with hard wood flooring with nylon carpet and jute backing that indicates that accelerant traces will survive totally involved room fire conditions Stone and Lomonte (1984) reported that in only 107 of 310 cases (suspicious) they found evidence of hydrocarbon accelerants. They also point out the need for chemical analysis to avoid possible interpretation of pyrolysis products as accelerants. In more recent work, Lentini (1998) discusses analytical methods to avoid misinterpretation of materials, such as asphalt, as accelerants. It is fair to say that in the 1980s, investigators widely accepted positive laboratory results for accelerants if it was available. However, they also considered such evidence as entirely unnecessary in reaching conclusions that a fire involved intentional use of an ignitable liquid.

Annealed Furniture Springs and Other Furniture Effects

Based upon full scale and laboratory testing, Tobin and Monson (1989) and Tobin (1990) concluded that observation of the "collapsed" state of coiled furniture/bedding springs is not a reliable indicator of whether a fire was initiated by a smoldering cigarette or accelerated by the presence of a hydrocarbon. They also review the prior literature and the conflicting conclusions found in the fire investigation literature. Tobin's findings are consistent with NFPA 921.

Bates (1975) observed that smoldering couches lead to annealing of springs and rapid fires do not. DeHaan (1983) offered that annealed springs are an indicator of smoldering if localized, but

that this can also be produced by external fire, or by debris falling onto furniture. Clearly he does view it as a good indicator. Hobson (1992) opines that annealing springs occurs due to deep seated smolder and not from flaming fires initiated on the surface of the furniture. Phillipps and McFadden (1986) suggest that when flames travel to upholstered furniture, the damage is usually confined to the surface material. The fire will not burn down into the padding or drop down below the furniture. These things will occur if the furniture item is the origin. If springs retain their elasticity, then the fire could not have started there. They regard this as quite reliable! These views are not consistent with the modern fire investigation literature or the fire science literature.

Multiple Points of Origin

Multiple points of origin may indicate that a fire is intentionally set. However, there are means by which multiple origins may occur accidentally and more commonly multiple apparent points of origin may exist. In NFPA 921, such alternate means of creation of apparent points of origin include drop down burning, radiant ignition, and embers. DeHaan (1983) points to several obvious indicators of arson as separate multiple points of origin, the presence of trailers of flammable liquids, paper or rags, or igniting devices. These, he says, point to incendiarism. Bates (1975) notes that "in order to develop sufficient evidence to prove that the crime of arson did occur, it is necessary to overcome any possible accidental or providential origin of the fire. One method of developing such evidence is by proof of the existence of "separate" fires." Carroll (1979) cautions that multiple low points does not mean arson as they may occur due to fall down or spillage of flammable liquid in the course of the fire. Gudmann and Dillon (1988) identify radiation and drop down as causing the appearance of multiple origins. Clearly, this indicator has always been recognized to be fraught with difficulties.

WILLIS CASE

The Willis fire occurred in Iraan, Texas, on June 11, 1986. The Iraan Fire Department received notification of the fire at 4:44 am. Upon arrival, the front of the home was fully involved with flames extending from windows on the front of the home and with fire involving the front porch.

At the time of the fire, the home was occupied by Billy Don Willis, Ernest Willis, Gail Jo Allison. and Elizabeth Grace Belve. The tenants of the home, Michael Thomas Robinson and wife

Cheryl Lynn Robinson, had been arrested by police the evening before the fire as a result of noise complaints by neighbors. The unarrested temporary occupants of the home were warned that if they did not remain quiet, they too would find themselves in jail.

At the time of fire department arrival, Billy Don Willis and Ernest Willis were outside the front of the home. Gail Jo Allison. and Elizabeth Grace Belve were still within the home and their bodies were later found within the home.

Brown Report

A four page June 20, 1986 (nine days after the fire) report was prepared by Texas State Fire Marshall (FM) Le Roy Brown, based upon his investigation performed with Edward Cheever, a new Fire Marshall receiving on the job training with FM Brown. The report provides a brief narrative of the discovery of the fire which included Ernest Willis discovering the fire, attempting unsuccessfully to alert and rescue other occupants, leaving the home and phoning the fire department.

The report describes the construction of the home which includes numerous incorrect descriptions of the home. Among the significant disparities is that the wood paneling that existed in most of the home was described as sheetrock and the cellulosic ceiling tiles were described as sheetrock. The combustible wall and ceiling surfaces which FM Brown misidentified had a marked effect on fire growth rates within the home.

The report concludes that there were multiple points of fire origin within the living room and dining room. No bases for this conclusion are provided. The report further identifies that an unidentified flammable liquid had been applied to a large portion of the living room and dining room. The report indicates that the flammable liquid was ignited by an unknown means.

In the section entitled “Involved Subjects,” only Ernest Willis was identified. None of the other occupants or tenants was identified.

FM Brown interviewed Ernest Willis who stated that he was asleep on the couch in the living room and was awakened by smoke. Mr. Willis stated he ran through the fire in the living room and

the dining room to the kitchen and into the back bedroom and tried to get Elizabeth Grace Belve out, but was overcome by smoke. Mr. Willis stated he then turned around, bypassing the back door in the kitchen, ran through the fire in the dining room and the living room and out the front door. Ernest Willis then advised that he went around to the side of the structure and started knocking out windows trying to get individuals out of the residence. FM Brown also interviewed Billy Don Willis, who stated he was in the bed with Gail Jo Allison in the southwest bedroom of the residence, when he heard a loud popping and crackling sound. Billy Don Willis advised he got up and opened the bedroom door to investigate. When Willis opened the bedroom door, fire and smoke came into the room from the hallway. Mr. Willis advised that he then ran through the bedroom, jumped on the bed and out through the window. Mr. Willis advised he then turned around and tried to get Gail Jo Allison out, but could not because the window was too high. No mention of the state of the occupants due to their partying was included in the report. There is no indication that FM Brown had reviewed any hospital records or autopsies with respect to drug or alcohol levels of occupants.

The report does not document any photography or other documentation of the scene prepared by FM Brown on the fire scene and does not reflect any collection of samples for laboratory analysis. The report does not reflect the fact that FM Brown was on the scene for less than a day and that the scene had been severely altered by Deputy Sherriff Jackson and County Fire Marshall Kenley prior to FM Brown arriving on scene.

Both Billy Don and Ernest Willis voluntarily took polygraph examinations. Based upon the results, FM Brown concluded that Bill Don knew nothing of the fire and that Ernest Willis had knowledge of the fire and did start the fire. No basis for this conclusion is provided in the report.

The report concludes that based upon the physical evidence at the scene, the fire was incendiary. The nature of the physical evidence is nowhere described or provided.

This report provides conclusions about multiple fire origins, the use of flammable liquid as an accelerant, and the party responsible for the fire and provides no bases for any of the conclusions. As such, this report asserts conclusions based solely upon the personal judgment of the investigator. It provides no basis for a rational review of the report, its methods, or findings. Neither the

scientific method nor any other methodology is employed to develop hypotheses and evaluate identified hypotheses. There is no evidence in the report that any other potential fire causes were considered. The report amounts to the unsubstantiated personal belief of the investigator.

Dailey Report

Insurance investigator John Dailey prepared an 18 page reported dated 24 June 1986 (13 days after the fire). Mr. Dailey's report reflects that he interviewed members of the Iraan Volunteer Fire Department who responded to the call. These included Cynthia Green, Dina Collins, Randy Peterson, and Robbie Dominguez. He also interviewed Deputy Sheriff Larry Jackson, who had arrived shortly after the first arriving fire department units. Deputy Sheriff Larry Jackson also investigated the fire directly after the fire was extinguished and found the bodies of Gail Jo Allison. and Elizabeth Grace Belve. Apparently, it is Deputy Sheriff Larry Jackson who initially determined that the fire was suspicious and requested the assistance of Crockett County Fire Marshall Steve Kenley. Both Kenley and Jackson were present at the fire scene on 12 June 1986 when Dailey arrived and no other investigators were present.

The fire department eyewitnesses describe a consistent picture of the fire scene upon arrival and the actions taken by the fire department, though each person has their own vantage point on the activities. Upon arrival they indicate that the front of the home was fully involved and flames were issuing from windows and the porch gable. Breaking windows could be heard. Both Billy Don and Ernest Willis were observed outside the home and it was quickly learned that two victims were still inside. Both Willis's had bare feet and did not suffer burns. Firefighter Dominguez described his attempt to rescue the victims and his attempt to enter Bedroom #3. He did not observe fire in that bedroom, though he saw flamelets at the door between Bedroom #2 and #3. On numerous occasions Dailey reports in these narratives that the Willis's were unemotional and further noted at length the emotional upset of FF Dominguez upon realizing he had not succeeded in rescuing the victims. Dailey portrays by his treatment of the eyewitness statements that the Willis's were uncaring or indifferent to the fates of the victims. Notably, Dailey does not report having interviewed the Willis's.

In his walk around the home upon arrival on the scene, Dailey reports that no flammable liquid containers were visible outside the home. He noted that both the front and back doors had been burned off entirely, with severe external damage to the home in the front. The living room and dining room had been entirely cleaned out and washed down before Dailey arrived. The remnants of the contents of these rooms were on a pile on the front porch.

Upon examining the breaker box, all circuits were in the off position, indicating that firefighters or investigators had turned off the breakers and no information was available if circuits had tripped during the fire. The only furniture in the living room or dining room was the remnants of a couch and an upholstered chair that had been replaced by investigators after the cleaning out and washing out process. No remnants of the dining room table and chairs or a small china closet were found.

The front door of the home was entirely consumed with heavy damage to the door frame. The door sill showed evidence of heavy burning. The ceilings of both the dining room and living room had been penetrated by the fire and damaged the rafters above. The ceilings were sheetrock with cellulosic ceiling tiles installed over furring strips. The walls were noted to have been wood paneling throughout most of the home, which Dailey recognized as being significant with respect to fire growth rates.

Dailey noted that the cleaned and washed floors showed severe and extensive flammable liquid burn patterns which had gone through the carpeting, the foam rubber padding, the asphalt tile covering, and into the plywood subflooring. Dailey cites no methodology for this determination and apparently made the determination of the extensive application of flammable liquid solely on the basis of visual patterns of damage to the cleaned floor. At that time other rooms had not been excavated.

Dailey noted that low burning only occurred in the living room in the southeast corner where a couch had been. He attributed this low burn pattern to pouring of flammable liquid onto the couch. He attributed a similar fire pattern in the southeast corner of the dining room to flammable liquids as well. In examining bedroom #3, Dailey opined that rug damage at the foot of the bed and trails of damage toward the door leading to the kitchen were due to flammable liquid pour.

Dailey took samples from the living room, dining room, kitchen and bedroom #3 for analysis for evidence of accelerants. At the time of the writing of the report, lab results were not yet available. Ultimately, the samples proved negative. Dailey reports that he and FM Kenley each used his respective portable gas detector (sniffer) and found no indications of accelerant within the home.

Dailey reported that Deputy Sheriff Jackson became suspicious of the fire based upon his initial questioning of the Willis's. It was this suspicion that caused Jackson to clean out the living room and dining room immediately to examine the floor and of course found the severe burn patterns in these two rooms before FM Brown arrived. On June 13–14, Dailey oversaw the cleaning out of the entire house. Once again, they washed the floors in the kitchen, dining room, and living room with water. Dailey retained samples of the carpeting and padding from the living room/dining room and shag carpet from bedroom #3 for future use. However, neither the report nor his trial testimony indicates that these samples were used in the investigation.

Dailey examined the electrical outlets in the living room, dining room, and kitchen, finding no evidence of overheating or shorting. It is presumed that any appliances plugged into these outlets had been cleaned out with the general floor cleaning as no mention of analysis of these is presented.

Dailey cited the presence of low burn in the living room, dining room, and kitchen as consistent with the use of flammable liquids. He further opined that the complete consumption of the sofa, the severe burning of the easy chair, and the severe and uneven burning of a second couch further substantiated an "unnatural and set fire." He made reference to the extent of smoking of the glass windows broken out, but drew no direct conclusion from this evidence though he did note that such smoking could result from a hydrocarbon-based accelerant.

Dailey reported that the Pecos County Sheriff stated that Deputy Jackson was in charge of the fire investigation. Sheriff Wilson stated that he had gone to the scene to collect the bodies of the deceased. Sheriff Wilson notified the State Fire Marshall's Office of the fire deaths and FM Leroy Brown arrived on the scene on June 11, 1986. Apparently, FM Brown was on the scene only on June 11.

Dailey's report recounts portions of Deputy Sherriff Jackson's investigation and the events leading up to the fire. At 9:45 pm the evening before the fire, police received a complaint about noise at the home. The account is written using the personal pronoun, he, apparently referring to Jackson personally. He arrived at the home and found the four guests (Billy Don Willis, Ernest Willis, Gail Jo Allison, and Elizabeth Grace Belve) and Mr. and Mrs. Robinson, the tenants, drinking and making noise. Mrs. Robinson had been shoving a car down the street and Sherriff Jackson instructed them all to remain in the home and be quiet. About 30–40 minutes later, a further complaint call was received. He responded and took Mr. and Mrs. Robinson to the county jail, warning the others to go back into the hose and not come back out or he would arrest them as well. The police received no further calls.

Sheriff Wilson and Deputy Sheriff Jackson took the Willis's to Midland Texas where they were given polygraph examinations by the Texas Department of Public Safety regarding their knowledge of the fire. Deputy Sheriff Jackson advised that Billy had passed the test and Ernest failed the test badly indicating that he actually did set the fire at the home. Subsequently, Ernest continued to deny any knowledge of the fire, sticking to his original story that he spent the night on the couch and was awakened by smoke and fire. As a result of the polygraph results, Deputy Jackson went ahead the next morning to hire a crew of men to completely empty and clean the home so that all of the floors could be examined. It was at this time that the floors were seen to exhibit burn patterns from the front to the back of the home. The patterns were interpreted to indicate that an arsonist had poured flammable liquid from the foot of the bed in bedroom #3 through the home from the back to the front in such away as to seal off escape from the home. These patterns were taken to make Ernest's story unbelievable, because his story included him moving to bedroom #3 in a rescue attempt. If such an arson fire had been set, he would be expected to have injuries to the lower extremities, especially portions of the feet.

Dailey recorded that Mr. Robinson, the tenant, informed Deputy Jackson that Robinson had left four one-quart bottles of methanol on the front porch. Dailey reports that he and Jackson agreed that the volatility and water soluble nature of methanol was the reason that the sniffers did not respond. There are pictures in the file of one-quart bottles of malathion, but no bottles of methanol. It appears that there was a miscommunication regarding the identity of the liquid. Malathion is an

insecticide that uses petroleum distillates as a carrier/diluent. Thus, the product is not water soluble, is not highly volatile, and would be expected to be detectable by portable gas detectors if present. Jackson advised that a neighbor had a bottle of "methanol" on his front porch which apparently could have been used and replaced by the arsonist. This glass jar was sent to the laboratory for fingerprint analysis. No results of the test were provided in Dailey's report. Dailey and Jackson agreed that Ernest Willis is the person that set the fire in the home that morning based upon the above evidence and Ernest Willis' story.

Michael Robinson told Dailey that Billy Willis had been staying with them temporarily and that they had met Ernest only a few times. Mr. Robinson also reported that there was drinking beginning in the afternoon before the fire through the time the Robinson's were arrested around 10:30 pm. Mr. Robinson reported that Cheryl Robinson was diabetic and when she drinks she sometimes goes crazy. This is consistent with the disturbance involving pushing cars around out of doors.

Dailey interviewed a number of neighbors about the fire. The observations of the neighbors were consistent with the observations of the first responders' interviews with respect to the fire appearance and the Willis' actions.

Dailey concluded that the origin of the fire was the foot of the bed in Bedroom #3 where a small amount of flammable liquid had been poured along the bed. He found no evidence of a connecting trail of flammable liquid to the kitchen, dining room and living room where large amounts of flammable liquid had been poured. He opined that ignition occurred at the front door. He further opined that the two couches and an easy chair had also been doused with flammable liquid. He found no evidence of an accidental fire cause and opined that the four quarts of "methanol" stored on the front porch were used in the arson. None of the bottles were found and this was attributed by Dailey to the bottles falling down from the porch and being broken during firefighting.

Cheever Testimony

On direct examination FM Cheever indicated that he had become certified in fire investigation in November 1985, eight months before the fire, and that he had prior experience as a policeman and a firefighter. He indicated that he was working for FM Brown at the time, getting acclimated to

the territory and his new job, and that he was assisting FM Brown in the investigation. He indicated that he supervised some of the scene clean up and instructed the cleaners to pile the salvageable furnishings in a pile. He did not inventory any of these items.

FM Cheever provided the following list of evidentiary items that formed the basis of his opinion: 1) low burn on the walls, burn patterns on the floor, and general burn patterns, 2) the intensity of the damage to the ceiling of the living room and dining room, 3) the damage patterns and severity of damage to furniture, and 4) exclusion of one electrical outlet he examined. FM Cheever indicated that the low burn on the walls indicated that the heat source that caused the damage was low, consistent with flammable liquids on the floor. He also indicated that damage patterns on the floor indicated flammable liquids but had no idea how much flammable liquid would be needed to explain the evidence. The damage to the porch indicated low burn on the porch as well. He admitted his opinion that the fire was arson was solely based upon his own personal observations of damage to the home during his less than one day examination. He did not rely upon any outside sources of information nor did he rely upon the report prepared by FM Brown. He relied solely upon his training and observations. He took no photographs, took no samples or evidence, did not use a portable gas detector, and had no investigation notes. He was unaware of others collecting samples and apparently felt no need to consult the results of sample testing in formulating his opinions.

He told the jury that the damage patterns on the front of the house were indicative of the fire source being at very low level. He opined that if the fire had started high in the home, that the entirety of the home at that higher level would be consumed before such low level burning could be observed. He told the jury that the heaviest damage was in the living room and dining room, and to a lesser extent the kitchen, and that they focused on these areas as a result.

FM Cheever recounted that there was still debris on the floors of the living room and dining room when he arrived on the scene and that later the location of furnishings was provided by Mr. Robinson. The carpet remnants were removed with all other contents in the process of removing debris to evaluate patterns at the lowest level. The debris removal was ordered by FM Brown and was carried out using Deputies pressed into service. There was no evidence given that the removal

of the debris was done as part of the examination of evidence. Unskilled Deputies (i.e., not fire investigators) were the bulk of the work force and detailed examination of the debris seems to not have been the goal of the debris removal team. Cheever admitted that his investigation was limited to the dining room and living room only.

In his testimony FM Cheever explained the concept of radiation to the jury and its role in fire. The explanation involved item to item radiation heat transfer and gave no indication of the role of radiation from the hot gas layer in a room. He opined that the burning of the carpet was indicative of the use of a flammable liquid. He did not address the role in radiation from the hot gas layer to the floor as a potential cause of carpet burning. He further opined that the charring of the door jamb was due to flammable liquid burning and that no other fuel source could explain the damage. During his direct testimony he did not know the material that comprised the ceiling and never acknowledged that the walls were wood paneling. He also indicated that he did not examine the carpet padding closely and did not know what type of material it was. While he did not know what the ceiling material, he opined that if a ceiling tile fell down, it would fall directly down and could not fall under furniture. Apparently, he believed that falling items are incapable of falling on their edge and move horizontally. He opined that burn marks on the floor under the couch were the result of flammable liquid application, apparently unaware that polyurethane creates liquid melt during the course of a couch fire (see e.g., Wolfe et.al. 2009 for a photo).

The electrical examination was limited to one outlet that had apparently had problems historically, the light switches, and the breaker box. No other outlets were examined and no appliances were examined.

In examining the remains of a couch, the differential in damage from one end to the other was taken to be indicative of the use of flammable liquid on one end of the couch and the associated burn patterns on the floor were taken to indicate the burning of flammable liquid associated with the couch. He opined that the pattern of floor damage from the kitchen to the front of the house was indicative of a flammable liquid pour through the three rooms. He indicated that based upon his understanding of the pour patterns, the couches would have been involved immediately and that anyone on that couch at the time of ignition would have been burned.

In discussing the condition of the dining room, FM Cheever noted the complete consumption of the dining room table and chairs, which he opined was inconsistent with drop down burning. In his testimony he alluded to the possibility of flashover in the dining room. He never explained the concept to the jury and focused in his testimony on drop down burning as the alternative to a flammable liquid pour.

While FM Cheever opined that there was a flammable liquid pour from the front to the rear of the home, he had no idea the quantity of liquid that was poured and no idea what liquid was poured. He opined that flammable liquid poured in front of a couch onto a carpet and padding could flow under the couch despite the sponge-like nature of the carpet and pad. He seemed unaware of wicking phenomena and the effect of carpet and padding upon burning rates. During his cross examination, he reported arriving on scene between 1 and 3 pm. Since we know from Dailey that FM Cheever and Brown were not on the scene the next day, the duration of the scene examination was nominally only half a day.

Under cross examination, when posed with a hypothetical including evidence of floor to ceiling burn patterns in one or more bedrooms; FM Cheever indicated that such burn patterns would not have influenced his opinions. This is inconsistent with his own acknowledged methodology of association of severe burning with the potential for early involvement. FM Cheever also associated the angle of damage into the floor as indicative of a flammable liquid fire. While he believes this myth of fire investigation, he did nothing to document the pattern in the form of photos or notes. In discussing his opinions on damage to the front door jamb, he persisted in the view that the damage was either flammable liquid or the result of drop down. He did not consider radiation from the hot gas layer or emerging flame at the front door as a potential source of the thermal energy required to damage the door jamb sill. On cross examination he admitted that radiation from above could scorch or ignite carpeting or other materials, but this realization did not seem to play a role in his formulation of opinions regarding the fire. He indicated that he had never seen a fire where radiation from above played a role in damage to the floor. He also acknowledged that patterns on the floor similar in appearance to flammable liquid pours could occur in the course of an accidental fire, but provided no basis for his determination that these patterns were due to flammable liquids.

While FM Cheever was aware of different flammability classifications for carpet, he knew nothing of the properties of the carpet in this home.

On redirect, FM Cheever cited that the uniform damage to the upper portions of the porch could not have come from flames issuing from the interior of the home. The unstated assertion was that something additional, like flammable liquids on the porch would be needed. Again on redirect, FM Cheever asserted that damage to the floor if ignited by radiation would be different below the dining room table. Apparently, he thought that the table burning would not have substantially the same radiative effect as other surfaces above like the ceiling. He was also unaware that radiation to the floor could cause irregular damage patterns.

Dailey Testimony

Mr. Dailey discussed his training and experience as a fire investigator and an FBI agent before that. His training as a fire investigator was completed in 1983, three years before this fire. He indicated that when he arrived at the scene, it had been significantly disturbed, including all contents removal from the living room and dining room and subsequent water washing of the floor. While FM Cheever spent only half a day on the scene, Dailey reported spending 2 ½ days on scene.

Mr. Dailey discussed his interviewing, consistent with his report, and told the jury that he did photograph the scene and collected 10 samples for laboratory analysis. The laboratory analysis was negative for any accelerant/ flammable liquid. He indicated that a negative finding in an arson incident was not unusual and this could be impacted by the fire department firefighting operations or simply the intensity of the fire. He failed to note that the removal of all floor coverings and washing down the surface by investigators might have an effect. He did not interview either of the Willis's. His investigation using his portable gas detector yielded negative results.

Mr. Dailey testified that he hired six guys to remove everything from the house (beyond the two rooms cleaned by the public sector investigators). Clearly, these individuals did not and were not qualified to examine debris evidence. The goal of this activity was simply to expose the floor.

In discussing fire patterns Mr. Dailey focused on the fact that fire goes up and only acknowledged banking down of heat in closed compartment fires, but regarded such banking down as unusual. He regarded the damage to the front door jamb as not consistent with a non-arson fire and as an indicator of a suspicious fire. At the same time, he acknowledged that charring to the porch deck was the result of radiation from burning above.

In examining the front door jamb sill, he noted severe charring as well as flammable liquid patterns on the underside of the jamb board. He believed the patterns on the underside could not have occurred due to heating from above and must have been the result of flammable liquid. He did not address the potential role of the carpeting or padding. He did describe the patterns on the jamb as similar to patterns on the living room floor. Mr. Dailey considered the patterns on the floor of the living room and dining room to be flammable liquid pour patterns. He considered the extent of damage to the furniture to be inconsistent with an accidental fire, indicating that the damage was due to the use of a flammable liquid. He noted the annealing of the couch springs and opined that this was characteristic of an accelerant being placed upon the couch. He eliminated a cigarette ignition of a couch as the cause, indicating that such ignitions are difficult and infrequent. As anyone who has followed the safe cigarette movement knows, this is far from the truth.

Dailey sees pour patterns underneath the couch that he attributes to the flow of flammable liquid under the couch through the carpet and pad. He seems not to recognize that when polyurethane burns, a liquid melt is formed which often burns beneath the couch in the same manner as a flammable liquid might, nor does he generally acknowledge that the carpet and padding also form liquids during decomposition, nor does he acknowledge that accidental fires generally can produce floor patterns. He also denies that upholstered furniture will burn completely in the absence of an accelerant (see e.g., Mealy and Gottuk, 2006, as an example of complete consumption of a couch). At the same time, Dailey acknowledges that low burn patterns are not unusual.

Dailey considers burning of linoleum as unusual in a fire and indicative of a flammable liquid fire. He ignores the fact that the back door was fully consumed in the fire and that this source of air would enhance local burning in this area.

Interestingly, at trial Dailey changed his mind about flammable liquid in bedroom #3. While his direct observation of bedroom #3 led him to believe that there was a pour pattern, on reviewing his photos he reconsidered this opinion and considered the damage due simply to drop down burning. It is notable that his photo was deemed more instructive than his direct observation during his scene investigation. While Dailey correctly understood the interior finishes to be wood panel walls and cellulosic ceiling tiles, he did not believe the cellulosic ceiling tiles were flammable. Rather he thought the tiles were glued to the ceiling and it was only the glue that was flammable. Later in his testimony he contradicted this construction and asserted that the ceiling tile was nailed into furring strips. Interestingly, Dailey took samples of the wood subfloor in the dining room and living room but did not take samples of the carpet or pad that had been in those rooms because the debris pile left to him by the public sector investigators included debris from both rooms together. Without being able to identify which room the sample came from, he declined to have the carpet and pad sampled at all.

While Dailey was clear in his own mind that flammable liquid had been poured in the living room, dining room, and kitchen, he had no idea how much liquid would be required to cause the observed pattern. He also opined that in his experience flammable liquid did not run horizontally in carpeted floors and burned only where poured. He also opined that the fire would not spread to the adjacent carpet where no flammable liquid was present. At the same time, he actually had no idea how much carpet had burned because he essentially ignored the debris pile on the porch as a source of evidence. He did not use his portable gas detector to investigate the debris pile.

While Dailey did inspect the breaker box in the home, he did not dissemble the outlets in the dining room and living room to evaluate electrical activity in these areas that may have caused the fire. He did no examination of electrical appliances in these rooms.

Dailey's direct testimony ended with him opining that the fire was in fact arson. He testified that no fuel load was present that could explain the burn patterns on the floor, could burn through the ceiling into the attic, and completely destroy the furniture items in the dining room and living room. Apparently, he did not recognize the carpet and padding as a fuel load, the wood paneling and cellulosic ceiling tiles as a fuel load, and the furniture as items fully capable of complete

consumption in accidental fires. Indeed, he directly testified that the dining room table was not part of the fuel load and he did not expect it to burn, only char. He opined directly that the consumption of the table was direct evidence that an accelerant was involved.

Dailey opined that Ernest Willis's statement of his actions upon discovering the fire were not possible because they did not comport with his view of the fire and the flammable liquid pour. Dailey spoke of the rapidity of the fire spread along the path of the flammable liquid, but nowhere in his testimony does the identity of the flammable liquid ever come up.

On cross examination Dailey acknowledged the rapid flame spread that is expected on the wood paneling present in the living room and dining rooms. Dailey was clear in his own mind that radiation from above could not create the burn patterns on a carpeted floor. He was unaware of any view in the profession that floor patterns could be created by radiation from above.

Willis Analysis

In the Willis case, the investigation included a number of organizations and individuals. The reports and testimonies of individuals do not generally reflect a team investigation approach. Deputy Sherriff Jackson seems to be the center of the investigation in terms of the time spent on the scene and interacting with the various investigators. The writer was not provided any documents that were produced by Sherriff Jackson and his trial testimony was similarly not available to the writer. The State Fire Marshalls made only a brief site visit and appeared to not have done any other form of investigation. While it is common for insurance investigators to cooperate with the public sector, in the Willis case, the private sector provided the most detailed report and overall documentation.

FM Cheever

In the Willis fire, we find the unusual combination of a very new and junior FM Cheever and an only slightly more experienced insurance company fire investigator, Investigator Dailey. The absence of FM Brown from the stand is notable. FM Cheever provides the most basic fire investigation deficiencies and problems. Beyond his inexperience, he spent less than a day on the fire scene and did no other form of investigation to develop his opinions. During his site work he

took no notes, no photos, collected no evidence, and collected no samples for laboratory analysis. The process of debris removal was performed without fire investigative purpose. Debris should have been carefully removed in a layering process with full documentation via photography. In the process, evidence of the original room contents, evidence of potential accidental causes, evidence of incendiary devices, or remains of foreign materials should have been sought and documented. In many fire scenes it is not uncommon to perform this process in a matrix with cells of 1-3 feet in dimension, using hand trowels and sifting screens. Contrast this process with the wholesale shoveling out of two entire rooms and piling it all together on the porch without examination. The evidentiary value of the two rooms was seriously compromised by the methods employed. FM Cheever was only interested in uncovering the subfloor that he imagined would be a map to the fire. He was indifferent to the carpet, to the carpet padding, and only found value in well attached floor tiles and the subfloor.

FM Cheever examined only one electrical outlet and no electrical appliances. One cannot legitimately eliminate all electrical causes with such a cursory examination. No other accidental causes were investigated. Indeed, any evidence which would have led to a testable hypothesis was shoveled out and put in a pile.

The indicators used by FM Cheever for an incendiary fire were low burn, the intensity of the fire damage, and the damage levels on furniture items. None of these are considered reliable indicators for the use of an accelerant. He had no idea what quantity of accelerant was needed to explain the damage, he had no idea what the liquid was, and he had no idea where the liquid came from.

His knowledge of fire science was significantly below current standards for fire investigators. He incorrectly thought that carpet could not burn in a room unless an accelerant was used. He thought that patterns under a furniture item were the result of an accelerant placed on the furniture. He apparently did not understand that polyurethane foam creates a melt while it burns which often burns as a spill on the floor beneath the furniture item. He did not understand that differential damage on a couch from end to end is a normal pattern (e.g., Mealy and Gottuk, 2006). He had no appreciation of the role of radiation in compartment fires which led to great misunderstandings of

the floor damage. He contended that he had never seen a fire where radiation from above played a role. That is a reflection both of his inexperience and his lack of understanding of what he had seen.

The investigative work by FM Cheever was well below modern standards as was his knowledge and insights into fire. His work could not be found to be anywhere near the standards anticipated by NFPA 921.

The investigation conducted by FM Cheever did not meet the standards of the day. Books of the 1980s were very clear with respect to the important role of interviews, which FM Cheever failed to do or consider. The books of the day were also clear about the need for documentation of the investigation in the form of notes, photos, logs, sketches, and reports. FM Cheever failed to provide any form of documentation of his investigation and relied solely upon his personal memory of what he observed. The books of the day were equally clear about the need for evidence collection and sampling for the presence of accelerants. FM Cheever did not examine most of the debris removed, retained no evidence, and failed to sample for the presence of an accelerant. He was further uninterested in the results of laboratory analysis of samples taken by others.

In terms of his use of indicators, the literature of the day was full of cautions about low burn and burn intensity indicators, indicating that these indicators could result from non-arson related causes. His interpretation of furniture damage patterns was at odds with many 1980's sources. His examination of only a single outlet and his failure to examine electrical appliances was not consistent with the standards of the day. FM Cheever did not go through a process of elimination of other causes, the widely accepted methodology at the time.

The investigation by FM Cheever did not meet the process requirements of the day, and failed to consider the widely disseminated warnings about misinterpretation of low burn and burn intensity indicators. His investigation was sufficiently flawed that no conclusions could be justified with reference to the standards of care of the day.

Investigator Daily

Investigator Daily performed a reasonable investigation as an insurance investigator based upon the time spent and the documentation developed. Since the two most important rooms had been

destroyed from an evidentiary viewpoint before he arrived, he was at a distinct disadvantage. Nonetheless, he repeated the mistakes by others when he examined other rooms. Untrained crews were used to empty and clean the rooms without any eye toward examination of the debris as it was discovered and removed. He did use a portable gas detector to search for indications of ignitable liquids and he did collect samples for laboratory analysis. Most samples seem to have been taken after washing the floors, limiting the likelihood of finding a positive sample. He also ignored the debris pile from the rooms of origin in terms of taking samples. These are exactly the materials that could have had residues of ignitable liquids. Dailey did not dissemble electrical outlets and did not find or examine any appliances. Dailey also did interview eyewitnesses to the fire. His trial testimony was entirely devoid of any discussion of the identity of the accelerant, the quantity used, and the source of the accelerant. In his report, he opined that it was half a gallon of methanol, based upon his belief that this was on the front porch before the fire. He never located any bottles or fragments of bottles.

Dailey's fire science knowledge was severely limited. He did not believe the normal fuel load of the home was capable of creating floor patterns. He considered the complete consumption of furniture items to be abnormal and as such an indicator of arson. He believed that only an arson fire could anneal furniture springs. Remarkably, he eliminated smoking as a cause because he felt ignition of furnishings by a cigarette was highly unlikely. He thought that a pattern under a couch would be the result of a liquid poured on the carpet spreading under the couch and burning there, seeming to not understand that polyurethane foam creates a spill fire when it burns. He believed floor patterns could only be created by an arson event. He considered cellulosic ceiling tiles to be not flammable, but he did recognize the hazards of wood paneling. He did not think that a fire based upon the normal materials present in the home could create a fire that would breach the ceiling. Overall, his knowledge of fire phenomena was well below modern investigator standards.

By modern standards, Investigator Dailey's investigation relied upon incorrect understanding of fire indicators. He failed to use the scientific method and he attributed the fire to arson without identification of any accelerant via laboratory or field method. He failed to identify the accelerant used, its quantity, or the source of the accelerant. Under modern standards, his findings and conclusions cannot be sustained.

Investigator Daily performed a reasonable investigation as an insurance investigator based upon the time spent and the documentation developed. Since the two most important rooms had been destroyed from an evidentiary viewpoint before he arrived, he was at a distinct disadvantage and ultimately could not reach defensible conclusions due to the inability to adequately examine the apparent rooms of origin. He compounded the error by his unwillingness to examine the debris pile from the two rooms simply because the pile contained debris from two rooms. His electrical examination was so limited that it could not form the basis for excluding electrical ignition sources.

He relied significantly upon fire indicators that the texts of the day provided cautions about their reliability. He ultimately concluded that Willis started the fire because according to Dailey's understanding of the fire, had Willis been on the couch when the arson occurred, he would have died. Dailey never confirmed the presence of any accelerant, did not identify the accelerant in his testimony, and had no idea how much accelerant would be needed to spread accelerant over two entire rooms as he believed occurred. In essence he relied entirely upon floor patterns and the severity of burning as the basis for his finding of arson by Willis. At the time of his investigation, it was recognized in texts that these indicators were inconclusive. His investigation did not comport with the standard of care for arson investigation at the time of the investigation.

WILLINGHAM CASE

The Willingham fire occurred on December 23, 1991 at 10:34 am. Stacy Willingham had left the house at about 9:15 am, leaving husband Cameron Willingham and the three children, Amber, Karmon, and Kameron, sleeping. Cameron awoke as Stacy was leaving, heard the twins crying and gave them each a bottle. They were in their bedroom on the floor. Amber was asleep in her bed. Upon being alerted to the fire by Amber, he instructed her to leave the home and went to rescue the twins. Only Cameron was able to escape the fire and the three children died.

Vasquez Report

Manuel Vasquez, of the State Fire Marshall's Office, conducted his scene investigation on 30 December 1991 and 2 January 1992, about a week after the fire. Other persons present during the examination were: Doug Fogg, Corsicana Assistant Fire Chief; James Palos, Corsicana Fire

Marshal; James Hensley and Rex Givens, Corsicana Police Detectives; Edward Cheever and Donald Turk, State Fire Marshal Deputy Investigators.

The report described the damage and patterns observed at the fire scene, and included two diagrams of the scene (see Figure 1 for a scene plan indicating damage) and 81 captioned photos. The home was a three bedroom single story structure. There was severe fire damage in the northeast bedroom where the children slept with flame extension from all windows of that room. There was severe damage in the hallway outside the bedroom and out the front door. Both the children's bedroom and the front door abutted the front porch of the home, which was severely burned as well. The rear portions of the hallway had heat damage and smoke damage. The living room (northwest) and the master bedroom (west) had heat and smoke damage. The door between the kitchen and the hall was closed during the fire and the kitchen and the rear bedroom (southwest) were subjected primarily to smoke damage. Fire did not propagate into the attic in any room of the home, but some damage above the ceiling of the porch was evident.

Both the children's bedroom and the front of the hallway had been fully involved in fire with burn damage over the full height of the spaces. There was a child's gate at the children's bedroom but this was wholly consumed and no door was present. The front door of the home was fully consumed and the screen door frame was fully consumed at the top and charred at the base. The aluminum threshold of the front door disclosed a burn pattern underneath, which was taken as an indication that a liquid accelerant flowed underneath and burned. There were burn patterns on the floor of the front part of the hallway that were taken as an indicator of combustible liquid pour. The floor tiles were fully consumed in portions of the area and the wood below was damaged. The floor damage and a V pattern in the hall were taken to indicate an area of origin. A space heater in the rear portion of the hall was examined and was deemed a victim of the fire rather than the cause.

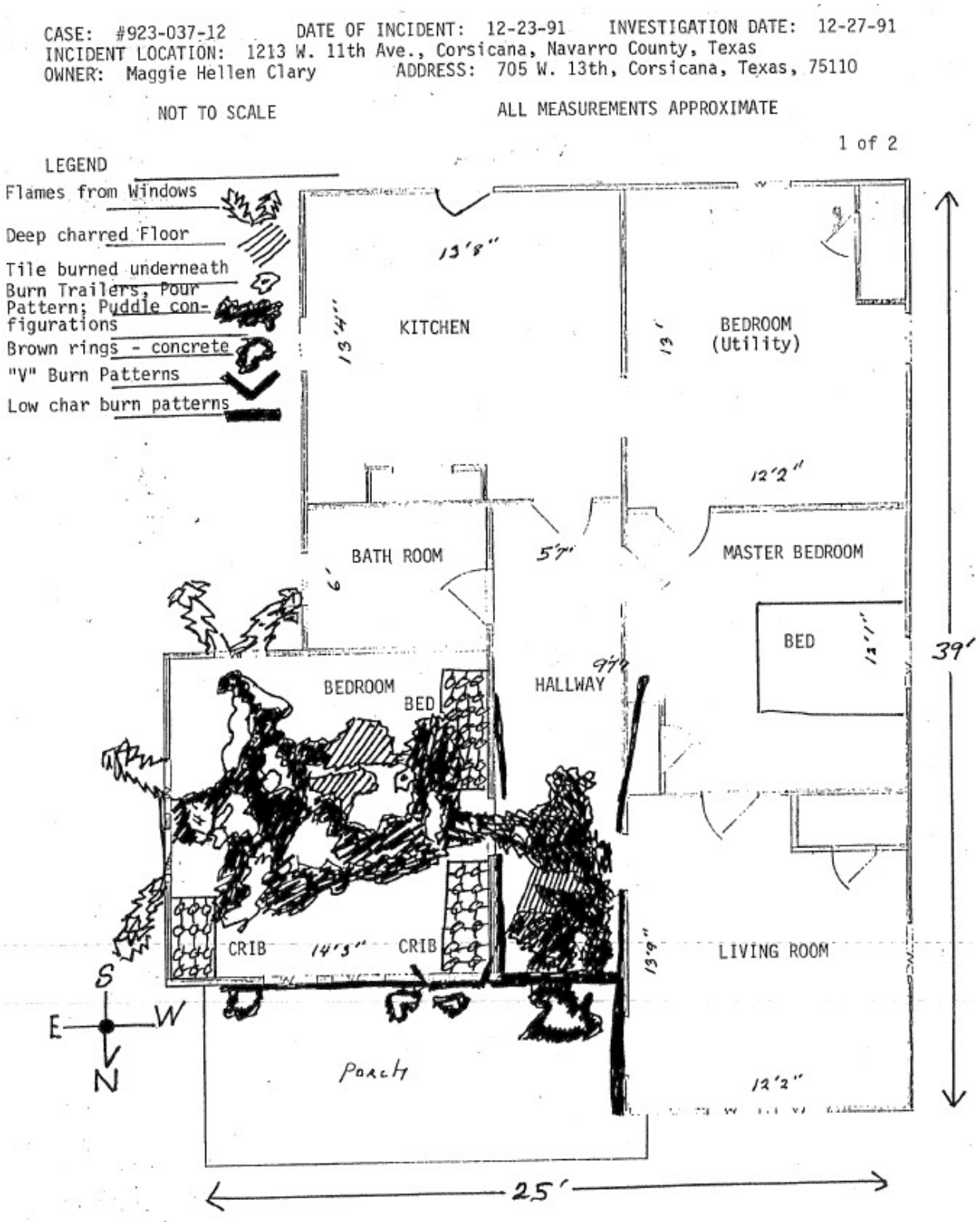

Figure 1. Scene diagram from the Vasquez report.

Floor damage patterns taken to be indicators of combustible liquid pour extended into the children's bedroom. Damage in the room was highest at the location of a bed and two cribs in the room. The electrical wiring was examined in this room and was not found to be the cause of the fire. A space heater in the children's room was excluded as a cause of the fire. The floor of the children's room had patterns that were taken as indicators of liquid accelerant.

Damage to the porch walls was from floor to ceiling and damage to the ceiling was severe. The damage to the walls adjacent to the porch were taken as inconsistent with normal burning because they extended to the floor level rather than simply upward from the window and doors where flame issued onto the porch. This was taken as an indicator of incendiarism. Crazed glass on the front porch side of the home was taken as an indicator of a fire that burned fast and hot. Brown stains on the porch were taken as indicators of a liquid accelerant burning on the porch. The underside of the porch screen door was charred and was taken as an indication that a liquid accelerant flowed under the door. A container of charcoal lighter was found in a damaged state at the end of the porch. A sample of wood debris from the base of the front door was found positive for kerosene.

FM Vasquez determined that there were multiple origins based upon his scene examination and from statements of eyewitnesses. The role of eyewitness observations in this determination was not provided. FM Vasquez satisfied himself that he had eliminated electrical and natural gas causes. He determined that the fire was incendiary and the fire traveled from the children's bedroom into the hall and out onto the porch. FM Vasquez found Willingham's statement of his actions the morning of the fire to be pure fabrication, saying "A fire does not lie." In essence he is indicating his confidence in his interpretation of the physical evidence over the statement of Mr. Willingham.

Police Report (Hensley Report)

Detective Corporal James Hensley provided the majority of the documentation of the police investigation of this fire. He also provides information obtained by Corsicana Fire Marshall James Palos. FM Palos did some eyewitness interviewing from December 27 and summaries of interview by Assistant Chief Doug Fogg are also included. The scene investigation occurred on 30 December, and 2 January. It appears that the police investigation started once the scene investigators determined that the fire was intentionally set. The narrative of the interviews appears to be a

complete record of interviews without respect to the person or organization who conducted the interview. In excess of 50 interviews were conducted in the course of the investigation.

Civilian Eyewitnesses to Fire (6 individuals)

Observations of eyewitnesses to the initial part of the fire are generally consistent. They describe the fire as severe with fire issuing onto the porch and flames extending from the porch, though at least one eyewitness saw the fire when only smoke was issuing from the building. One eyewitness in two different interviews noted that he saw flames coming through the front doorway, indicating that the door was left open. This is consistent with the view of the door hinge in the FM photographs, though this issue is not addressed in the report.

Eyewitnesses saw Willingham outside the home in a state of distress with a number of witnesses reporting that he called out that his babies were burning. Actions by Willingham noted by eyewitnesses included moving his car away from the home and breaking out the front window of the children's bedroom. After the fire department arrived, Willingham sat on the back of a fire truck and several times needed to be restrained from attempting to reenter the home. He was handcuffed by police for his own safety. Eyewitnesses observed that he was only wearing pants and that he had singed hair on his chest, eyelids, and head and had a two inch burn injury to his right shoulder. His wrists and hands were blackened with smoke. He was eventually transported to the hospital for treatment, still resisting and still in handcuffs.

Eyewitnesses provided important observations of the fire conditions as well. As might be expected in a police report, the fire observations obtained in the interviews is not the focus of the report. At the time the first eyewitnesses observed the home, there was smoke issuing from the front door, the windows were intact, and no fire was observable from the outside of home. Willingham was seen standing on the porch two feet in front of the door. Notably, an early eyewitness thought that Willingham could have gone back into the home to conduct a second rescue attempt based upon the lack of visible flame and the moderate smoke observed. The first observation of flame outside the building occurred when Willingham broke out windows in the children's bedroom. Flames issued from the broken window openings. Subsequently, the fire transitioned to a fully developed fire in the bedroom with flames issuing from all the windows

(regardless of whether they were broken out or not) and from the front door, consistent with flashover occurring in the children's bedroom. The flames then involved the ceiling of the porch and the exterior walls of the home on the porch. One arriving eyewitness noted low fire on the porch between the door and the window, though it is unclear whether he was referring to the children's bedroom window or the window from the living room onto the porch.

Firefighter and Police Eyewitnesses to Fire (5 individuals)

First arriving firefighters found the bedroom, hallway, and porch well involved in fire. Fire was issuing from all windows of the bedroom, from the front door, and the ceiling of the porch was fully involved. Firefighting proceeded fairly quickly with an initial external attack, followed soon thereafter by an interior attack through the front door. Rescue work occurred in parallel with fire suppression activities. Amber was located in the middle bedroom, was removed, and transported to a hospital. She died at the hospital. The twins were found in the children's bedroom, severely burned. They were pronounced dead at the scene.

Cameron and Stacy Willingham

Cameron Willingham's account of the incident was provided to investigators via a taped interview. He awoke in the morning as Stacey was leaving the home. He heard the twins crying and gave them each a bottle. The twins were on the floor of their room with a child gate at the door. Amber was in her bed in the children's bedroom. He went back to bed and was awakened later, hearing Amber calling daddy, daddy. He awoke to a room thick with smoke such that visibility was very limited. He felt for his pants, put them on, and instructed Amber to leave the home. He got up, checked the door to the kitchen, and found only light smoke in the kitchen. Smoke was heavier in the hallway and especially heavy moving forward in the hallway toward the children's bedroom. He had to crouch down to move forward in the hallway. He reported hearing electrical popping sounds. He went over the child's gate into the children's bedroom and as a result his hair was either thermally damaged or burned. He was unable to see in the children's bedroom due to the smoke density, but was aware of an orange glow high in the space. He crawled around the floor searching for the twins. He found a bottle and a doll, but did not find either of the twins. He never heard them cry or make any sounds. Burning material began falling from the ceiling, with one piece falling on his shoulder, causing a burn. He recalls entering to the center of the room where he touched the

child's slide that was already melting. He exited the room over the child gate and burned his hand while touching the door frame. In the front hallway, he struggled with the door, ultimately opening the door and screen door, exiting to the front porch, leaving the front door open. He caught his breath, recovering from the smoke exposure, and considered reentering the building. He saw neighbors and asked them to call 911 and called out that his babies were burning. While on the porch he heard a loud crash that he imagined was the ceiling fan falling from the children's bedroom ceiling. He did not reenter and broke open the windows to the children's bedroom in a failed attempt to enter the room. Flames came out of the window openings, indicating to him that he would not be able to enter. The electrical service line burned off the home and fell onto the ground. After the fire department arrived he was taken to the back step of a FD engine. He had to be forcibly restrained from attempting to go into the building and approach Amber when she was rescued. He was handcuffed and restrained by police and others. He was put on a stretcher and taken to the hospital for treatment. He was kept in the hospital overnight. He reported burns to his shoulder, ears, face, hair, and fingers.

Willingham reported the contents of the children's bedroom as including two cribs, one child's bed, a dresser, a ceiling fan, a space heater, a child's plastic slide, a Little Tikes kitchen, a wagon of toys, and a child's gate at the doorway. The floor was tile with a carpet patch defining a child's play area. In the hallway, the only contents were decorating items on the walls, like big plastic butterflies and whatnots.

Willingham indicated that they had squirrels in their attic for some time before the fire and indicated his concern that the fire was electrical in origin.

He reported his relationship with Stacey as rocky at first, but improving over time. They had married three months before the fire. They did have arguments and spats, the last of which was 2–3 weeks before the fire. He described his arrest history and his probation violation. Willingham was unemployed at the time of the fire and was watching the kids.

Stacy Willingham awoke 730–800 am the morning of the fire when the kids awoke. She changed their diapers and fed them. She left to run some errands. She was found by police and notified of the fire. She went directly to the hospital.

Stacy reported the last fight they had had two weeks before the fire. She noted that the front door was unlocked after she left the home because they had lost the key.

Persons with Knowledge of Cameron Willingham (~40 individuals)

These interviews are not summarized here as they do not deal directly with the fire scene investigation or the events of the day. They do provide information about Willingham's arrest history, his relationships with others, the dynamics of the household, and his past in general.

Fogg Report

Corsicana Fire Department Assistant Chief Douglas Fogg prepared an eight page report of the investigation. As a first responder he provided a narrative of the fire department operations. He arrived after the first FD unit arrived when Lt. Franks was operating a hand line from the porch. He saw Willingham outside the building with burnt hair and smoke on his face. He relieved Lt. Franks so the Lt. could don his breathing apparatus. He observed that the exterior attack quelled the flames but they reestablished themselves when the attack was ceased. He was relieved fairly quickly by another FF and he went to the rear of the home. He found the back door blocked by a refrigerator. When the refrigerator was moved and the door opened black smoke issued from the door. He moved to the front of the home to help establish ventilation and the primary search was underway. FF Vandiver found Amber and removed her from the home. Lt. Frank found the twins in the children's bedroom. Judge Mayfield declared them deceased on the scene and ordered an autopsy of the twins. Detectives Blake and Hollingsworth took photos of the twins before Assistant Chief Fogg removed the bodies from the home.

Lt. Frank was on the first arriving unit and flames were issuing from the front door and windows to the children's bedroom. The ceiling of the porch was fully involved in flame. The home was a single story wood frame building with walls of sheetrock and some wood paneling. The location of the paneling was not indicated.

Low burn was noted on the front porch under the children's room windows and on the exterior living room wall on the porch. Fire damage was limited to the children's bedroom and the front hallway with smoke and heat damage elsewhere in the home. The door to the kitchen had been

closed during the fire based upon the damage patterns. Damage in the children's bedroom was from floor to ceiling. Based upon damage patterns AC Fogg determined that the gas-fired space heater was not in the area of origin. He noted floor damage he judged consistent with liquid pour patterns in the front hallway and into the children's bedroom. The room was substantially burned out with the dresser 80–90% consumed and the chest of drawers was 60–70% consumed. The irregular pattern of floor damage was observed over most of the room's floor. Electrical wiring in the room showed no shorting but no appliances were noted. The fire did not penetrate the ceiling and spread to the attic. The presence of the ceiling fan and its condition were not reported. The twins were severely burned. The cribs and bed had remnants of their cotton mattresses.

Low burn patterns were found on the porch walls and the front door was fully consumed. The screen door was burned away at the top and had char on both faces of the remaining door as well as on the underside of the door. Remnants of two plastic containers were found on the concrete porch. No accidental cause could be found to explain the burn patterns in the children's bedroom, the hall, and the porch. Samples for accelerant detection were taken and sent to the lab but the nature and number of samples taken were unidentified. The front screen door was thought to have been initially closed but opened during firefighting operations. The methodology for examining the fire scene was not discussed and no mention of the pile of room contents outside the children's bedroom was found in the report. On December 26 the floors of the home were further cleaned and low burn and puddling marks were found to connect the children's bedroom, the front hallway, and the porch. AC Fogg opined that the fire was started at floor level in such a way to block the exit path.

FM Vasquez arrived on 27 December and additional unspecified samples were taken. The fire was taken to be arson at this time. On 30, 31 December additional unspecified samples were taken. Additional photographs and videos were taken of the fire scene. The burn patterns indicated that the fire started on the floor in the children's bedroom/hallway, and this was thought to be inconsistent with Willingham's story of his actions because he was not sufficiently burned as AC Fogg thought would be the case. On January 2–6 a class 3 petroleum distillate (medium petroleum distillates such as mineral spirits) was found in unidentified samples. Later it was identified that the positive samples were from the porch, where there was known to be a container of charcoal lighter.

Vasquez Testimony

After providing his training and experience, FM Vasquez offered that he has investigated 1200-1500 fires and that most of them were arsons. He reviewed the photographic evidence for the jury and noted that "The fire tells a story. I am just the interpreter," sounding much like a fortune teller. He continued, "And the fire does not lie, It tells me the truth." implying that he, the interpreter, could not be wrong. He identified from the condition of the floor once cleaned that a liquid had covered much of the floor area of the children's bedroom. He eliminated the space heaters as the cause of the fire because they were turned off, but provided no basis for knowing that the heaters were turned off, as he arrived at the scene four days after the fire and after significant activities on the scene had been completed. He regarded the fire damage to the children's bedroom to be "not normal", though he failed to provide a basis or rationale for this opinion. Later, he indicated that he believed the temperatures were higher at floor level than at ceiling level, though how he came to that conclusion is unclear. He concludes that this abnormality was due to the accelerant. In his examination of the porch, he concluded that the fire spread into the house and not out of the house. This is contradicted by early civilian eyewitnesses. In examining the threshold, he observes low burn at the doorway and melted aluminum. He opined that wood burns at 800F and concludes that an accelerant was necessary to cause the aluminum to reach its 1200F melting temperature. He went on to opine that there were pour patterns in the hallway and the intent of the pour was to block the exit. He further opined that a liquid had been poured on the door that was completely consumed, apparently thinking that the consumption of the door would not have been possible without accelerant on it. He opined that there was liquid pooling on both sides of the door. He opined that the charring of the baseboard meant that a flammable or combustible liquid was poured in front of it, apparently rejecting the idea that radiation from the door and porch ceiling flame could have ignited the entire wall.

He summed up his internal home site investigation by noting that the damage to the floor indicates "that's the whole room here on the northeast (children's) bedroom is a point of fire origin." He went on to opine that the hallway was an additional area of origin and the porch was a third area of origin. He opined that these areas of origin were unconnected and as such they indicated that the fire was intentionally set by a human. Remarkably, he opined that the fire having

auto-ventilated (breakage of window glass) was an indicator of arson. He asserted, "That's inconsistent with fire behavior." He went on, "Puddle configurations, pour patterns, low char burning, charred floor, the underneath burning of the base board, the brown stains on the concrete, the underneath of the bed, because of the fire right underneath the bed, puddle configurations in that area, and the total saturation of this floor is indicated with pour patterns." He told the jury that these were facts and he was just using the facts. He opined that the liquid needed to have been a combustible liquid and not a flammable liquid because with such a large pour area he would have expected injury to the arsonist or a loud sound associated with the ignition of the large cloud of flammable liquid. He cited Willingham's testimony as a pure fabrication because it was inconsistent with FM Vasquez's view of the fire patterns. He further eliminated child firesetting on the basis of the extent of the pour patterns and his conclusion that Willingham could not have escaped the home if the child did set such a fire because the front hallway exit path would have been involved in flame. He provided no basis for this opinion. FM Vasquez asserted that he was also able to determine that the bedroom pour was ignited, then the hallway, and then the porch. He remarked that "There was a discernible path, but it was not enough to be a connecting path." No basis for this opinion was provided. While no basis was provided, apparently FM Vasquez was able to be sure that the fire in the bedroom could not have ignited the hallway pour or the porch pour, and that they must have been each ignited by a human. No basis for the opinion was offered. He further opined that Willingham's injuries were self-inflicted. FM Vasquez diagnosed that Willingham did not experience smoke inhalation based upon his meeting with Willingham perhaps a week after the fire. FM Vasquez had apparently suffered some throat damage in a fire which he associated with smoke inhalation and saw on evidence of his own experience in talking to Willingham. This testimony was allowed. Later, he concluded "The fire, itself, tells me that it's a very aggressive fire; and, therefore, the fire was not a planned fire. It was a spur-of-the-moment fire."

On cross examination, FM Vasquez acknowledged that deep burns in the floor can be caused by means other than accelerants. He acknowledged that he did not know how large the carpeted area was within the children's bedroom. During cross examination it became clear that FM Vasquez had not learned that there was a grill on the front porch at the time of the fire that was moved away during operations by the fire department. FM Vasquez described that debris had been shoveled out

of the bedroom and hallway. He indicated a lack of knowledge of the debris contents, indicating that he had not been present when the debris removal occurred or that he simply didn't examine the debris during removal. He even seemed unclear what tools had been used to remove the debris.

Defense counsel posited a hypothesis of an outside person entering the home and starting the fire. FM Vasquez acknowledged that such a scenario was possible and was consistent with the case facts. FM Vasquez indicated that the children's bedroom doorway had no door when he arrived, but did not know if there had been one at the time of the fire. On being shown a fire scene photo that showed no hinge plate, he acknowledged that there was no sign of a door having been present. FM Vasquez opined that the front door had been closed at the time of the fire. FM Vasquez was unaware of the initial eyewitness observations of no fire on the porch and the observations of smoke flow out of the front door prior to fire department arrival. He was unaware that a child's gate had been at the children's bedroom doorway.

Defense counsel posited a scenario of child firesetting using lamp oil and FM Vasquez agreed that based upon the available evidence, this scenario could not be ruled out. FM Vasquez was unaware of lighters collected from the house by the police. On redirect, he opined that he thought it unlikely that a two year old would be physically capable of this act.

FM Vasquez saw no need to secure the fire scene from the time of the fire through the end of the scene investigation. He opined that the fire was arson, with the intent to kill the children. Upon questioning by defense counsel he offered that his opinion regarding the motive was wholly based upon his fire scene investigation, i.e., his examination of the physical evidence of the fire. Later, he acknowledged that from physical evidence it was not possible for him to know who or how a pour had been formed. He also acknowledged that the fire started in the children's bedroom and it is possible for a person in the master bedroom to have escaped at a time where fire had not yet spread to the hallway.

Fogg Testimony

He first described his activities and observations during the fire. The description was brief and consistent with his report. They found no evidence that the space heaters had started the fire and

found no shorting in the bedroom wiring. No mention of appliances was made. He found floor damage he thought consistent with liquid pour patterns. He identified the floor construction to be carpet tiles with plywood underlayment, tar paper, and the original oak floor. He indicated that he examined the plastic toy remains and concluded that during the fire the toys had not melted. He opined that the damage at the front door threshold was caused by a liquid flowing under the threshold and burning under the threshold. He opined that the staining of the concrete was due to liquid accelerant.

On cross examination, he conceded that puddle patterns can be caused by other means than a liquid accelerant and that some clothing and plastic toys can melt. He acknowledged that the stain on the porch could be the result of a simple barbeque accident. He opined that latex paint is not flammable.

Chief Fogg acknowledged that a child could have started the fire with a lighter or match and that his evidence could not eliminate this hypothesis. On redirect he indicated that it was his opinion that a child did not start this fire based upon his interpretation of the pour patterns. He was unable to say that the child starting the fire was impossible, but rather that he simply regarded the possibility as remote. He also opined that tar paper and glue could not have been responsible for the burn patterns because they were not on the top of the floor assembly, despite the fact that the patterns seen were on the subflooring. He opined that glue could only cause the patterns if it had been poured on the floor. During the recross examination he testified that he did not recognize that glue could be thermally degraded and create melt without access to air. His understanding was that the glue would be unaffected until exposed to air where combustion could occur. Chief Fogg acknowledged that the porch stain could have occurred due to the charcoal lighter fluid that had been in the damaged containers found in the front of the home.

After having admitted that he had not excluded child firesetting as a cause, and that the porch stain evidence could have nothing to do with the fire, he reasserted his opinion that the fire was intentionally set. He relied upon his personal belief rather than using the scientific method or the process of elimination.

Willingham Analysis

In the Willingham case, the investigations include a number of organizations and individuals. The reports and testimonies of individuals do not generally reflect a team investigation approach. In the Willingham fire, it was unclear who the lead investigator was. The division of labor tended to reflect traditional roles with the fire department and State Fire Marshall's Office leading in the scene inspection areas, and the police focusing on interviewing. Communication did not always appear to be effective in that the police collected evidence that was unknown to the FM. Similarly, the FM seemed unaware of some of the eyewitness interviews conducted by others.

It is the goal of this analysis to examine the investigations in the light of both the current state of the art, as well as in the light of the contemporaneous state of the art.

Assistant Chief Fogg

In the Willingham fire, the fire investigators were Assistant Chief Fogg and Fire Marshall Vasquez. Quite normally, AC Fogg is the local fire official and FM Vasquez is the state investigator. While the local police were involved in interviewing and obtaining documents, they appear based upon the records reviewed that they worked in a supporting role with respect to the fire investigation.

AC Fogg was among the first responders and as such was involved directly with the investigation from the very beginning and it was he who called upon the State Fire Marshall's Office for assistance.

In examining potential causes of the fire, there was no mention of examining any electrical appliances or the ceiling fan in the children's bedroom.

AC Fogg relied upon the floor patterns throughout the children's bedroom as indicating that an accelerant had been spread over the entire bedroom. He also opined that based upon floor patterns, accelerant had been used in the hallway and porch. He was unable to identify an accidental fire cause that could explain the patterns. Indeed, the patterns need not be associated with the cause of the fire at all. The bedroom and hallway had simply been fully involved in flame such that floor

damage and associated patterning would be expected as a result of the fully developed fire, rather than due to the use of an accelerant.

The appearance of brown stain on the porch at the front door was taken as an indicator of an accelerant spill which was ignited to start the fire. AC Fogg did not consider or explain how this could be true in the light of the early eyewitnesses who saw no fire on the porch or at the front door. These eyewitnesses directly contradict the hypothesis that AC Fogg accepted. No samples of the concrete were taken for analysis and no consideration was given to accidental causes of spill residues at that location which were thermally decomposed by the heat of the fire to turn brown. The only positive test for liquid residues came from the front door threshold where petroleum distillates consistent with charcoal lighter were detected. There was evidence that charcoal lighter would have been used routinely on the porch to ignite a grill and that two fire damaged bottles of charcoal lighter had been on the porch at the time of the fire. These provide hypotheses regarding the presence of petroleum distillates at the front door threshold that involve accident spills of charcoal lighter prior to the fire and spills of charcoal lighter due to damage to the charcoal lighter containers found in the area of the porch. No basis for exclusion of these hypotheses was found. On cross examination, he admitted that the porch stain could have nothing to do with the cause of the fire. Professionally, he should have found the cause of the porch stain and the liquid residue at the threshold as undetermined and as such he should not have provided an opinion regarding their cause.

On cross examination, AC Fogg was asked if Amber could have started the fire. AC Fogg admitted that he could not rule out this hypothesis. On redirect he sought to minimize the likelihood based upon the patterns found, i.e., his opinion that it was not likely that Amber could have created such a spill pattern. Nonetheless, he could not rule it out. There is no available evidence that an outside individual was considered as the fire setter. It was known that the front door was unlocked. The only basis proffered for Willingham as the fire setter was that had the hallway been subjected to an accelerant spill, he could not have escaped without serious lower body injuries. This of course relies upon the correctness of the pattern interpretation in the hallway.

AC Fogg exhibited limited understanding of the patterns caused by fully developed room fires and the response of materials to heat. He discounted the ability of tar paper and glue to create melt patterns. During his trial appearance, he opined that glue could not be thermally decomposed without direct access to air. In examining the toys in the children's bedroom, he opined that they had not melted. He did not document this opinion and it is an incredible assertion. It is well known that toys like the slide and kitchen set are made of polyethylene. The idea that polyethylene would not melt in a fully developed fire is incredible. During his testimony, he asserted that water-based paints are not flammable. These are latex paints that use water as the carrier. Once the paint dries, it is a layer of latex which is an organic material that is fully capable of burning in a well developed room fire.

In the end, the only bases for the determination of arson by AC Fogg is the burn patterns on the floor of the children's bedroom, the hallway, and the porch interpreted as accelerant spill. None of these determinations have any basis in modern fire science.

AC Fogg's investigation did not comport with the requirements of NFPA 921, the modern standard of care. Further, his investigation did not satisfy the contemporaneous standard of care. His hypothesis was directly contradicted by eyewitness testimony and he admitted that he had not eliminated other possible causes.

FM Vasquez

FM Vasquez generally held the same opinions as AC Fogg, though he expressed additional opinions regarding arson indicators that he cites. He regarded the floor patterns in the bedroom, the hallway, and the porch to indicate an accelerant spill. Again, these have no actual basis.

He used the appearance of a V pattern in the hallway wall as an indicator of an origin in the hallway. While there can be no doubt there was low burning in the front of the hallway, the V pattern on the wall moving toward the back of the hall is in no way an indicator of origin necessarily. It resulted from burning in the front of the hallway and would be present whether the hallway was an origin or not.

He regarded the burning of the exterior walls of the house on the porch as not consistent with a natural fire and as such indicates arson. His views seem to be that arson fires are systematically more severe than natural fires. There is no basis for this notion in modern fire science. The low burning of the exterior walls resulted from the heating of the wall by ceiling flames in the porch. There is no need to postulate any special fire phenomenon or any spill fire. He takes the presence of crazed glass on the porch as an indicator of a fast and hot fire due to accelerant. In fact it is much more likely that any crazing resulted from the application of water to hot glass during firefighting.

His interpretation of the brown stain on the front porch as an accelerant pattern is without merit. He took no concrete samples for analysis and the stain has alternate hypotheses as already discussed. The charring of the underside of the screen door was taken as an indicator of an accelerant fire below the screen door. No such interpretation is supported by modern fire science and it ignores the burning of other materials and the thermal environment created by normal fires. Despite the presence of charcoal lighter use on the porch prior to the fire and the presence of charcoal lighter containers on the porch during the fire, FM Vasquez accepted the presence of these petroleum distillates as an arson indicator.

In his report, FM Vasquez indicated that the eyewitness statements supported his theory of three origins (porch, hallway, and bedroom). In fact, the early eyewitnesses observed no flame on the porch when Willingham was already outside and they simply observed modest smoke flow from the hallway. Indeed, from her exterior view, one eyewitness could not understand why Willingham wasn't reentering the building. This is hardly consistent with the theory of widespread use of accelerant and a rapidly growing fire. There is nothing in the eyewitness observations that suggests anything other than a local ignition in the bedroom with the fire growing to involve the hallway and reaching flashover conditions in the bedroom well after his exit from the building. The eyewitness observations are sufficient to cause the failure of FM Vasquez's hypothesis about the fire.

FM Vasquez is unique among the investigators of both fires in his attitudes toward arson and fire scene examination. His statistics of the fraction of fires which are in fact arson are remarkable and far exceed any rational estimate. It reflects his predisposition to find arson in his cases. This directly violates NFPA 921 and professional norms in general. His quotations that "The fire tells a

story, I am just the interpreter," and "the fire does not lie, it tells me the truth," are hardly consistent with a scientific mindset and is more characteristic of mystics or psychics. The quotes separate the findings from his own judgment and seek to make him not responsible for his own interpretation. It seems to deny the role of rational reasoning. It is an expression of fire investigation as a mystical art rather than an application of science and reason.

FM Vasquez opined that the front door was closed during the fire. He seemed unaware that early observers saw smoke flowing from the front doorway and they did not see flames on the porch initially. Both are inconsistent with his view of the fire. He opined that accelerant was splashed onto the surfaces of the door, apparently believing that the consumption of the door could not be explained by any other mechanism. There is no scientific basis for this assertion. Doors can be consumed fully by natural fires. Returning to his mysticism he states, "The fire, itself, tells me that it's a very aggressive fire; and, therefore, the fire was not a planned fire. It was a spur-of-the-moment fire." Such statements are beyond belief in the context of fire investigation as an applied science.

His ideas about fire are often inconsistent with modern fire science. He opines that auto ventilation is an arson indicator. It is and has been well known that natural fires can and do break out windows. He opined that wood burns at 800 F so that in order to melt aluminum (1200 F) an accelerant must be involved. It is and has been known that flame temperatures of ordinary combustibles like wood are no less than liquid fueled fires and both are more like 2000 F. He opines that a fully developed bedroom fire could not ignite the fire in the hallway or the porch. They must have been set separately. Indeed, fire spread from the bedroom to the hallway and its wood paneling and door are exactly what would be expected from a fully developed bedroom fire. The spread of fire out of the front door and windows and involving the ceiling of the porch and subsequently the porch walls is exactly what would be expected from a natural fire. This is normal fire dynamics, not a sign of arson. Similarly, he had no appreciation of the ability of thermal radiation to create floor and lower wall patterns and damage.

FM Vasquez's opinions about Willingham's injuries are remarkable. His injuries are entirely consistent with being exposed to a room fire environment with general singing of his upper body

areas. Self inflicting such injuries implies intentional self-exposure to a room fire environment. The injuries could not be created by any sort of localized heat and smoke source. If FM Vasquez's view of the fire is correct, it is unclear how Willingham could have entered a room with a hot gas layer at all. Understanding how burn injuries could occur is an important part of fire investigation and FM Vasquez seems to be wholly without any realistic understanding of fires and how fire injuries are created.

In his scene examination, FM Vasquez was indifferent to the contents of the rooms before the fire. He never sought to understand that the bedroom had no door and did have a child's gate. He knew little about the contents of the bedroom and hallway before the fire. He was also unaware of the presence of a grill on the front porch. He simply did not recognize that there was a normal use of charcoal lighter on the front porch and that the presence of the charcoal lighter was not an abnormal fuel.

At trial FM Vasquez denied that it was possible for a child to have accidentally or intentionally set this fire. He was unaware that the police had collected several cigarette lighters from the home. His rationale for eliminating the scenario was based upon his understanding that an accelerant was spread over most of the children's bedroom, the front of the hallway, and the front porch. He further opined if anyone other than Willingham had spread the accelerant to these areas, he would not have survived the fire. In the end, his elimination of this cause hypothesis is solely based upon his erroneous understanding of the floor patterns. FM Vasquez did acknowledge that the hypothesis that an outside person entered and started the fire is consistent with the case facts. Nonetheless, it did not change his opinion about cause.

In the end FM Vasquez concludes that the fire was arson based solely on the physical evidence at the fire scene. Remarkably, he gleans human intent from the physical evidence. Apparently, the fire communicates with FM Vasquez about people as well. FM Vasquez's opinions are nothing more than a collection of personal beliefs that have nothing to do with science-based fire investigation.

FM Vasquez's investigation did not comport with the requirements of NFPA 921, the modern standard of care. Further, his investigation did not satisfy the contemporaneous standard of care. His

hypothesis was directly contradicted by eyewitness testimony and he admitted that he had not eliminated other possible causes. FM Vasquez is unique among the investigators of both fires in his attitudes toward arson and fire scene examination. His approach toward fire scene investigation is not found in any text of the day.

CONCLUSIONS

The investigations of the Willis and Willingham fires did not comport with either the modern standard of care expressed by NFPA 921, or the standard of care expressed by fire investigation texts and papers in the period 1980–1992. The investigators had poor understandings of fire science and failed to acknowledge or apply the contemporaneous understanding of the limitations of fire indicators. Their methodologies did not comport with the scientific method or the process of elimination. A finding of arson could not be sustained based upon the standard of care expressed by NFPA 921, or the standard of care expressed by fire investigation texts and papers in the period 1980–1992.

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Appendix A

CRAIG L. BEYLER, Ph.D., Technical Director

EDUCATION:

Ph.D. in Engineering Science, Harvard University, 1983
M.S. in Mechanical Engineering, Cornell University, 1980
M.Sc. in Fire Safety Engineering, University of Edinburgh, 1978
B.S. in Fire Protection Engineering, University of Maryland, 1976
B.S. in Civil Engineering, Cornell University, 1975

PROFESSIONAL EXPERIENCE:

Technical Director, Hughes Associates, Inc., 1990–present. Responsible for technical quality of fire protection design, research, and development projects and professional development of engineering staff. Project manager for a variety of fire protection R&D/T&E programs. Development and use of analytical methods in fire dynamics, fire chemistry, fire detection, fire suppression, smoke and heat venting. Development of mathematical fire models and modeling techniques for specialized applications, including zone and field models. Risk and hazard analysis for a wide range of specialized applications.

Principal, Fire Science Technologies, 1987–1990. Development of compartment fire models including computer-based models and simple correlationally-based models for ships and buildings. Preparation and presentation of a five-day short course for the HAZARD I hazard analysis package. Litigation support for a range of fire situations.

Assistant Professor of Fire Protection Engineering and Mechanical Engineering, Worcester Polytechnic Institute, 1985–1987. Taught graduate courses in Combustion, Fire Dynamics, and Fire Chemistry. Advised MS thesis work for FPE graduate students. Research in fire dynamics including compartment fire growth, smoke movement, pool fire radiation as well as fault tree approaches to link fire growth predictions to performance based fire safety objectives. Chaired a committee to totally restructure the graduate courses in the FPE degree programs and instituted an ongoing seminar program.

Visiting Scientist, Fire Research Station at Borehamwood, England, 1984–1985. Conducted experimental and theoretical investigations of piloted ignition of solid fuels. Prepared a review paper of the state-of-the-art of knowledge of plume and ceiling jet flows.

Postdoctoral Fellow, Harvard University, 1983–1984. Conducted an extensive experimental program to study the effect of oxygen starvation effects on the generation of projects of combustion, especially carbon monoxide, in a compartment fire environment. Experimental and theoretical studies of hot layer ignition in compartment fires.

Research Associate, Department of Fire Protection Engineering, University of Maryland, 1976–1977.

Engineer (part-time), Center for Fire Research, National Bureau of Standards, 1975–1976.

Security Clearance: DOD Top Secret
DOE "Q" (inactive)

PROFESSIONAL STANDING:

Committees, Boards, and Panels:
International Association for Fire Safety Science
Chairman, International Association for Fire Safety Science, 2005–present
Vice Chair, International Association for Fire Safety Science, 2002–2005

PROFESSIONAL STANDING (Continued):

Program Committee Chair, International Association for Fire Safety Science–8th International Symposium, 2003–2005
Program Committee, International Association for Fire Safety Science–7th International Symposium, 2001–2002
Awards Committee, International Association for Fire Safety Science–4th and 5th International Symposia

Society of Fire Protection Engineers
Member, SFPE Technical Steering Committee, 1998–present
Chair, SFPE Task Group on Engineering Practices: Radiation from Fires, 1996–present
Chair, SFPE Task Group on Engineering Practices, 1996–1998
Member, Research Committee, Society of Fire Protection Engineers, 1988–1995
Member, Engineering Education Committee, Society of Fire Protection Engineers, 1983–1995

National Fire Protection Association
Toxicity Technical Advisory Committee, National Fire Protection Association, 2002–present
Member, Guide for Fire and Explosive Investigations, NFPA 921, 1998–present
Task Group for NFPA 204: Guide for Smoke and Heat Venting, 1996–present
Alternate Member, Smoke Management Systems, National Fire Protection Association, 1996–present
Task Group for NFPA 92B: Guide for Smoke Management in Malls, Atria, and Large Spaces, 1992–present
Member, Contents and Furnishings Committee, National Fire Protection Association, 1992–present

Member, Subcommittee on Fire Detection Design Methods, 72 EM, National Fire Protection Association, 1983–1988

Academic Advisory Boards
Advisory Board, University of Maryland, Dept. of Fire Protection Engineering, 2003–present
Advisory Board, Worcester Polytechnic Institute, Center for Firesafety Studies, 2000–2008
Industrial Advisory Board, Oklahoma State University, Fire Protection and Safety Engineering Technology Department, 1998–2006

Government Evaluation Boards
Panel Member, Board on Assessment of NIST Programs, National Research Council, 1999 to 2005
National Academy of Science, Committee to Identify Innovative Research Needs to Foster Improved Fire Safety in the US, 2001–2002

Society Memberships:
Member, National Fire Protection Association, 1987–present
Member, International Association for Fire Safety Science, 1985–present
Member, Society of Fire Protection Engineers, 1983–present
Member, Combustion Institute, 1980–present
Member, Salamander Honorary Fire Protection Engineering Society, 1977–present

Technical Journals and Books:
Founding Editor, *Journal of Fire Protection Engineering*, 1988–1992

PROFESSIONAL STANDING (Continued):

Associate Editor, *Fire Technology*, 2009–present
Member, Editorial Advisory Board, *Fire Safety Journal*, 2004–present
Member, Editorial Advisory Board, *Journal of Fire Protection Engineering*, Society of Fire Protection Engineers, 1992–present
Member, Editorial Advisory Board, *Fire Technology*, 1984–present

Co-editor, *SFPE Handbook of Fire Protection Engineering*, 1st, 2nd, and 3rd editions, 1984–present
Reviewer, *Combustion and Flame*, *Fire Safety Journal*, *Journal of Fire Science*, *Fire and Materials*, *IAFSS International Symposia*, *Combustion Institute International Symposia*

Honors:
Rasbash Medal, Institution of Fire Engineers, 2009
Arthur B. Guise Medal, Society of Fire Protection Engineers, 2000
Harold E. Nelson Service Award, Society of Fire Protection Engineers, 2005
Fellow, Society of Fire Protection Engineers, 1999
Hat's Off Award, Society of Fire Protection Engineers, 1995
Jack Bono Engineering Communications Award, with Curt Ewing and Homer Carhart, 1995
Special Commendation Award, Society of Fire Protection Engineers, 1995
Special Commendation Award, Society of Fire Protection Engineers, 1993
President's Award, Society of Fire Protection Engineers, 1990
Director's Award, Society of Fire Protection Engineers, 1989

Patents:
Multi-signature Fire Detection, Roby, R.J., Gottuk, D., Beyler, C., Patent Number 5,691,703, November 25, 1997.

3/09

SELECTED PUBLICATIONS LIST

Craig L. Beyler, Ph.D.

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Trelles, J., Beyler, C.L., Floyd, J.E., Scheffey, J.L., and Yee, K., "Fire and Smoke Spread Modeling to Support Damage Control Assessment and Decision Making in Shipboard Environments," *Proceedings of the American Safety of Naval Engineers Automation and Control Conference*, Biloxi, MS, December 11, 2007.

Beyler, C.L. and Gottuk, D.T., "Development of a Technical Basis for Carbon Monoxide Detector Siting," The Fire Protection Research Foundation, Quincy, MA, October 2007.

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Beyler, C.L., Gratkowski, M.T., and Sikorski, J., "Radiant Smoldering Ignition of Virgin Plywood and Plywood Subjected to Prolonged Heating," *ISFI 2006 Proceedings Addendum*, International Symposium on Fire Investigation Science and Technology, Cincinnati, OH, June 26–28, 2006, pp. 3–14.

Beyler, C., "Self-heating properties of styrene-butadiene rubber," *Fire and Materials,* **30** (3), May/June 2006, pp. 215–222.

Beyler, C.L., Fay, T., Gratkowski, M., Campbell, B., and Hartman, J.R., "Ignition studies of cerium nitrate treated towels," *Fire and Materials*, **30** (3), May/June 2006, pp. 223–240.

Gratkowski, M.T., Dembsey N.A., and Beyler, C.L., "Radiant smoldering ignition of plywood," *Fire Safety Journal*, **41**, May 2006, pp 427–443.

Beyler, C., "A brief history of the prediction of flame extinction based upon flame temperature," *Fire and Materials*, **29** (6), September 2005, pp. 425–427.

Beyler, C., "Toxicity Assessment of Products of Combustion of Flexible Polyurethane Foam," *Fire Safety Science – Proceedings of the 8th International Symposium*, Gottuk, D. and Lattimer, B. (eds.), International Association of Fire Safety Science, Beijing, China, September 2005, pp. 1047–1058.

Lattimer, B. and Beyler, C., "Heat Release Rates of Fully-developed Fires in Railcars," *Fire Safety Science – Proceedings of the 8th International Symposium*, Gottuk, D. and Lattimer, B. (eds.), International Association of Fire Safety Science, Beijing, China, September 2005, pp. 1169–1180.

Beyler, C., "Relationship Between Structural Fire Protection Design and Other Elements of Fire Safety Design," *NET-SFPE Workshop for Development of a National R&D Roadmap for Structural Fire Safety Design and Retrofit of Structures: Proceedings*, Almand, K.H. and Phan, L.T. (eds.), NISTIR 7133, National Institute for Standards and Technology, Gaithersburg MD, 2004, pp. 100–106.

Lattimer, B.Y., Hunt, S.P., Wright, M.T., and Beyler, C., "Corner Fire Growth in a Room with a Combustible Lining," *Fire Safety Science–Proceedings of the Seventh International Symposium – June 16-21, 2002*, Evans, D. (ed.), International Association for Fire Safety Science, 2003, pp. 419–430.

Beyler, C., White, D., Peatross, M., Trellis, J., Li, Sonny, Luers, A., and Hopkins, D., "Assessment of the Fire Exposure in the Airplane Impact Areas of the Two World Trade Center Towers," *Design Structures for Fire – Structural Forensic Conference held September 30 - October 1, 2003 at the Radisson Plaza Lord Baltimore*, Society of Fire Protection Engineers, Bethesda, MD, 2003, pp. 65–74.

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Beyler, C.L., and Cooper, L.Y., "Interaction of Sprinklers with Smoke and Heat Vents," *Fire Technology*, **37** (1), 2001, pp. 9–35.

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White, D., Beyler, C.L., Fulper, C., and Leonard, J., "Flame Spread on Aviation Fuels," *Fire Safety Journal*, **28**, 1997, pp. 1–31.

Beyler, C.L., Hunt, S.P, and Iqbal, N., "A Computer Model of Upward Flame Spread on Vertical Surfaces," *Fire Safety Science–Proceedings of the Fifth International Symposium*, Y. Hasemi (ed.), International Association for Fire Safety Science, London, England, March 1997, pp. 297–308.

Peatross, M.J. and Beyler, C.L., "Ventilation Effects on Compartment Fire Characterization," *Fire Safety Science–Proceedings of the Fifth International Symposium*, Y. Hasemi (ed.), International Association for Fire Safety Science, London, England, March 1997, pp. 403–414.

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Gottuk, D.T., Roby, R.J., and Beyler, C.L., "The Role of Temperature on Carbon Monoxide Production in Compartment Fires," *Fire Safety Journal*, **24**, June 1995, pp. 315–331.

Back, G., Beyler, C., Tatem, P, and DiNenno, P, "Wall Incident Heat Flux Distributions Resulting from an Adjacent Fire," *Fire Safety Science–Proceedings of the Fourth International Symposium*, International Association of Fire Safety Science, Boston, MA, 1994, pp. 241–252.

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Peatross, M.J., and Beyler, C.L., "Thermal Environment Prediction in Steel-Bounded Preflashover Compartment Fires," *Fire Safety Science–Proceedings of the Fourth International Symposium*, International Association of Fire Safety Science, Boston, MA, 1994, pp. 205–216.

Gottuk, D.T., Roby, R.J., and Beyler, C.L., "A Study of Carbon Monoxide and Smoke Yields from Compartment Fires," *Twenty-fourth Symposium (International) on Combustion*, The Combustion Institute, Pittsburgh, PA., 1993.

Beyler, C.L., "A Unified Model of Fire Suppression," *Journal of Fire Protection Engineering*, **4** (1), 1992, pp. 5-16.

DiNenno, P.J. and Beyler, C.L., "Fire Hazard Assessment of Composite Materials: The Use and Limitations of Current Hazard Analysis Methodology," *Fire Hazard and Fire Risk Assessment, ASTM STP 1150*, Marcelo H. Hirschler (ed.), American Society for Testing and Materials, Philadelphia, PA, 1992, pp. 87–99.

Gottuk, D.T., Roby, R.J., Peatross, M.J., and Beyler, C.L., "Carbon Monoxide Production in Compartment Fires," *Journal of Fire Protection Engineering*, **4** (4), 1992.

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Fitzgerald, R.W., Richards, R.C., and Beyler, C.L., "Firesafety Analysis of Polar Icebreaker Replacement Design," *Journal of Fire Protection Engineering*, **3** (4), 1991, pp. 137–150.

Skelly, M.J., Roby, R.J., and Beyler, C.L., "An Experimental Investigation of Glass Breakage in Compartment Fires," *Journal of Fire Protection Engineering*, **3** (1), 1991, pp. 25–34.

Deal, S. and Beyler, C.L., "Correlating Preflashover Room Fire Temperatures," *Journal of Fire Protection Engineering*, **2** (2), 1990, pp. 33–48.

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Shokri, M. and Beyler, C.L., "Radiation from Large Pool Fires," *Journal of Fire Protection Engineering*, **1** (4), 1989, pp. 141–149.

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Beyler, C.L., "Major Species Production by Diffusion Flames in a Two Layer Compartment Fire Environment," *Fire Safety Journal*, **10**, 1986, p. 47.

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Beyler, C.L., "A Design Method for Flaming Fire Detection," *Fire Technology*, **20** (4), 1984, p. 5.

Beyler, C.L., "Ignition and Burning of a Layer of Incomplete Combustion Products," *Combustion Science and Technology*, **39**, 1984, p. 287.

Beyler, C.L. and Gouldin, F.C., "Flame Structure in a Swirl Stabilized Combustor Inferred by Radiant Emission Measurements," *Eighteenth Symposium (International) on Combustion*, The Combustion Institute, Pittsburgh, PA, 1981, p. 1011.

Beyler, C.L., "An Evaluation of Sprinkler Discharge Calculation Methods," *Fire Technology*, **13** (3), 1977, p. 185.

Texas Forensic Science Commission

Justice Through Science

January 20, 2009

Samuel E. Bassett, Chair
Minton, Burton, Foster and Collins, P.C.

Dr. Garry Adams
College of Veterinary Medicine
Texas A&M University

Dr. Arthur Jay Eisenberg
University of North Texas
Health Science Center

Dr. Stanley R. Hamilton
The University of Texas
M. D. Anderson Cancer Center

Dr. Jean Hampton
College of Pharmacy & Health Sciences
Texas Southern University

Dr. Sarah Kerrigan
Forensic Science Program
Sam Houston State University

Alan Levy
Tarrant County District Attorney's Office

Dr. Sridhar Natarajan
Biodynamic Research Corporation

Aliece Watts
Integrated Forensic Laboratories

VIA UPS

Mr. Craig Beyler, Ph.D.
Technical Director
Hughes Associates Inc.
3610 Commerce Drive, Suite 817
Baltimore, MD 21227

RE: Texas Forensic Science Commission – Willis/Willingham

Dear Dr. Beyler:

After careful consideration of the submitted expert proposals, it is desired that you conduct an expert review on the Willis/Willingham fire cases. An estimate as to the cost for your services, as previously described, is necessary prior to proceeding. We are enclosing the following documents to facilitate your cost assessment as listed below. The actual printed information enclosed represents approximately 2.5 inches in thickness of documents, including photographs as provided by the State Fire Marshal's Office. Accompanying the hard copy materials as listed below, is a single CD containing materials on these two cases as provided by the Innocence project. Please note that some of this CD information is a duplicate of the material from the Texas Fire Marshal. Please consider this as your prepare your initial cost estimate for this review.

Ernest Ray Willis Case Documents:

1. Investigation Index (1 page)
2. Service Request and Assignment Form (2 pages)
3. Synopsis Investigative Report (4 pages)
4. Summary of Investigation from State Fire Marshal (6 pages)
5. Judgment and Sentence from Ft. Stockton, TX DA's Office (8 pages)
6. Notice from Texas Commission on Fire Protection (1 page)
7. Ed Shiver Subpoena (1 page)
8. State Fire Marshal's Office Certified Fire Investigation Report form (1 page)
9. Ed Cheevers Subpoena (1 page)
10. Request from ABC News Investigative Unit and Response from State Fire Marshal's Office (2 pages)

Commission Office
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Commission Coordinator

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11. Letter and email re Gerald Hurst's Investigation (2 pages)
12. Letter and response from State Fire Marshal's Office to John S. Kenley (2 pages)
13. Motion for Stay of Execution and Supplement to Petition for Writ of Habeas Corpus (41 pages)
14. Expert Report by Doug Holmes, Certified Master Arson Investigator (12-14-1991) Introspect fire consulting opinion (6 pages)
15. Typed legal notes (12 pages)
16. Laboratory report from Armstrong Forensic Laboratory (1 page)
17. Analysis of photo documentation of fire by Leonard H. Mikeska, Sr. (5 pages) and attached photographs

Cameron Todd Willingham Case Documents:

18. Synopsis of Investigative Report 1-24-92 (17 pages)
19. Investigator Manuel Vasquez statements (10 pages)
20. Evidence Transmittal Form 8-6-92 State Fire Marshal's Office (1 page)
21. Two Charges of the Court in the District Court of Navarro County, Texas (12 pages)
22. Judgment on Jury Verdict of Guilty Punishment (1 page)
23. Evidence Transmittal Form (1 page)
24. Manuel Vasquez subpoena (1 page)
25. Indictment (2 pages)
26. Request and Assignment and Evidence Transmittal Form (2 pages)
27. Supplemental Report from Corsicana Fire Department (8 pages)
28. Corsicana Police Department Offense Report (36 pages)
29. News articles regarding the execution of Willingham (5 pages)
30. Law Office of Eileen Stauss, correspondence (3 pages)
31. Correspondence with Innocence Project (7 pages)
32. Manual Vasquez Report dated 1-24-92 (4 pages)
33. State Fire Marshall Consent to Search Fire Incident (1 page)
34. Probable Cause Statement (1 page)
35. Criminal record information on Cameron Todd Willingham (7 pages).
36. Thomas V. Erdos Subpoena (3 pages)
37. Documents and Affidavit from Thomas V. Erdos and American National Insurance Company (53 pages)
38. Corsicana Daily Sun news article (2 pages)
39. Lawrence Andrews subpoena (1 page)
40. Corsicana Police Department various offense reports (11 pages)
41. Corsicana Police Department Personal History and Arrest Records on Cameron Todd Willingham (15 pages)
42. Additional Corsicana Police Department Offense Report Information (10 pages)
43. Laboratory Report, Armstrong Forensic Laboratory Recovery and Identification of Flammable Liquids submitted by Andrew T. Armstrong, Certified Professional Chemist (2 pages)

44. Incident Report, Corsicana Fire Department (7 pages)
45. Rex Givens subpoena for Cameron Todd Willingham (1 page)
46. Cameron Todd Willingham medical records (29 pages)
47. Rex Givens subpoena for Amber Louise Kuykendall medical records (9 pages)
48. (SWIFS) Autopsy Report on Karmon Willingham (5 pages)
49. (SWIFS) Autopsy Report on Kameron Willingham (5 pages)
50. (SWIFS) Autopsy Report on Amber Kuykendall (5 pages)

Voluntary Statements

51. Jean Willingham (2 pages)
52. Cameron Todd Willingham (3 pages)
53. Ricki Crenshaw (3 pages)
54. Ron Franks (5 pages)
55. Jason Grant (2 pages)
56. George P. Monaghan (5 pages)
57. John H. Bailey (2 pages)
58. J.R. Brown (1 page)
59. J. D. Kuykendall (1 page)
60. Mildred Kuykendall (1 page (2 copies))
61. Jerry Long (2 pages)
62. Buffie Renee Barbee (4 page)
63. Mary Diane Barbie (6 pages)
64. Brandice Barbie (3 pages)
65. Bervin Terry Smith (3 pages)
66. Brooke Michelle Barbee (2 pages)
67. Stacy Kuykendall Willingham Interview, Part 1 (13 pages)
68. Cameron Todd Willingham Interview, Part 1 (26 pages)
69. Cameron Todd Willingham Interview, Part 2 (21 pages)

Other Reference Documents

70. 81 Color Photocopies of Fire Scene (not otherwise specified)

71. Guidelines for Conducting Peer Reviews of Complex Fire Investigations, by David J. Icove, Ph.D., P.E., CFEI and Gerald A. Haynes, M.S., P.E., CFEI (16 pages)

72. A Comprehensive Prosecution Report Format for Arson Cases, by David J. Icove, Ph.D., P.E., CFEI and Michael W. Dalton, CFEI (11 pages)

73. CD from the Innocence Project containing information on the Willis/Willingham cases

Items contained on CD

a. Report on the Peer Review of the Expert Testimony in the Cases of State of Texas vs. Cameron Todd Willingham and State of Texas vs. Ernest Ray Willis, by the Arson Review Committee and commissioned by the Innocence Project

b. Reference documents on Willis matter as follows:
   - i) Two news articles
   - ii) Fire Marshal report
   - iii) Insurance investigative report
   - iv) Trial testimony of Ed Cheever
   - v) Trial testimony of John Dailey

c. Reference documents on Willingham matter as follows:
   - i) Motions and Briefs
   - ii) News articles
   - iii) Court of Appeals decision
   - iv) First lab analysis
   - v) Second lab analysis
   - vi) Sketches
   - vii) Transmittal samples
   - viii) Insurance file
   - ix) Medical and autopsy reports
   - x) Fire Marshal's incident report
   - xi) Investigator Vasquez report
   - xii) Fire offense report
   - xiii) Trial testimony of Douglas Fogg
   - xiv) Trial testimony of Manuel Vasquez

We are also enclosing the proposed Agreement for Consulting Services for your review. Please feel free to contact the Commission office if you have any questions.

Best regards.

Sincerely,

Samuel E. Bassett by permission JMS

Samuel E. Bassett, Commission Chair

cc: TFSC members
Encls.

Texas Forensic Science Commission

Justice Through Science

August 2, 2010

VIA E-MAIL

Mr. Paul Maldonado, State Fire Marshal
Texas State Fire Marshal's Office
333 Guadalupe
Austin, Texas 78701

RE: Texas Forensic Science Commission - Willis/Willingham

Dear Mr. Paul Maldonado:

The Texas Forensic Science Commission ("FSC") is in the process of concluding an investigation into the Willingham complaint. The FSC has come to a tentative opinion and would like to receive additional comment and supporting or negating materials from your agency before delivering a final report.

The arson experts in the Willingham case conducted an examination of the crime scene in late 1991 and testified in court in 1992. Although NFPA 921 was published in 1992, it was not accepted and applied as a standard of practice nationally or in Texas until several years later. The FSC has had some difficulty identifying with any detail the standard of practice in existence in Texas at the time of the investigation and testimony.

Considering these circumstances, the FSC requests your comments and asks that you provide any supporting or negating materials. In particular, did the arson experts apply a standard of practice as it existed in Texas at the time of the Willingham investigation and testimony? What supporting information is available to establish and describe that standard of practice (e.g., manuals, training materials, published articles, etc.)? Do you agree or disagree that NFPA was not the standard of practice accepted in Texas at the time of the investigation and testimony? When did the Fire Marshal's Office adopt NFPA 921 in Texas as the standard of practice?

John M. Bradley
Presiding Officer

Commission Office
Leigh Tomlin
Commission Coordinator

Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296
816 17th Street
Huntsville, TX 77341-2296

Phone: 1 (888) 296-4232
Fax: 1 (888) 305-2432

If you have any questions or need any access to any related information on the Willingham case, please feel free to contact our office. We need your reply to be delivered in writing by August 20, 2010.

Best regards.

Sincerely,

Leigh M. Tomlin
Commission Coordinator

cc: Mr. Mike Geeslin, Commissioner of Insurance, TDI
TFSC members

Texas Forensic Science Commission

Justice Through Science

August 2, 2010

VIA E-MAIL

Mr. Terry Jacobson
733 West Second Avenue
Corsicana, Texas 75110

RE: Texas Forensic Science Commission - Willis/Willingham

Dear Mr. Jacobson:

The Texas Forensic Science Commission ("FSC") is in the process of concluding an investigation into the Willingham complaint. The FSC has come to a tentative opinion and would like to receive additional comment and supporting or negating materials from your agency before delivering a final report.

The arson experts in the Willingham case conducted an examination of the crime scene in late 1991 and testified in court in 1992. Although NFPA 921 was published in 1992, it was not accepted and applied as a standard of practice nationally or in Texas until several years later. The FSC has had some difficulty identifying with any detail the standard of practice in existence in Texas at the time of the investigation and testimony.

Considering these circumstances, the FSC requests your comments and asks that you provide any supporting or negating materials. If you have any questions or need any access to any related information on the Willingham case, please feel free to contact our office. We need your reply to be delivered in writing by August 20, 2010.

Best regards.

Sincerely,

Leigh M. Tomlin
Commission Coordinator

cc: TFSC members

John M. Bradley
Presiding Officer

Commission Office

Leigh Tomlin
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Texas Forensic Science Commission

Justice Through Science

August 2, 2010

VIA E-MAIL

Mr. Barry Scheck
Innocence Project
100 Fifth Avenue, 3rd Floor
New York, New York 10011

RE: Texas Forensic Science Commission - Willis/Willingham

Dear Mr. Scheck:

The Texas Forensic Science Commission ("FSC") is in the process of concluding an investigation into the Willingham complaint. The FSC has come to a tentative opinion and would like to receive additional comment and supporting or negating materials from your agency before delivering a final report.

The arson experts in the Willingham case conducted an examination of the crime scene in late 1991 and testified in court in 1992. Although NFPA 921 was published in 1992, it was not accepted and applied as a standard of practice nationally or in Texas until several years later. The FSC has had some difficulty identifying with any detail the standard of practice in existence in Texas at the time of the investigation and testimony.

Considering these circumstances, the FSC requests your comments and asks that you provide any supporting or negating materials. If you have any questions or need any access to any related information on the Willingham case, please feel free to contact our office. We need your reply to be delivered in writing by August 20, 2010.

Best regards.

Sincerely,

Leigh M. Tomlin
Commission Coordinator

cc: TFSC members

John M. Bradley
Presiding Officer

Commission Office
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Texas Department of Insurance
State Fire Marshal's Office, Mail Code 112-FM
333 Guadalupe • P. O. Box 149221, Austin, Texas 78714-9221
512-305-7900 • 512-305-7910 fax • www.tdi.state.tx.us

August 20, 2010

Leigh M. Tomlin
Commission Coordinator
Texas Forensic Science Commission
Sam Houston State University, College of Criminal Justice
P. O. Box 2296
816 17th Street
Huntsville, TX 77341-2296

Re: Willingham

Dear Ms. Tomlin:

As per the request of the Commission in your letter of August 2, 2010, we are providing you with a response to your questions along with some supplemental materials we feel may be useful to the Commission in resolving this matter.

Enclosed is a written response to the questions posed to the State Fire Marshal, along with additional information from the investigation, numerous training affidavits, and certifications that capture the type and extent of training our fire investigators were receiving during the relevant time you are reviewing. We have also included a copy of NFPA 921 (1992 and 1995 editions), which we feel will be useful in analyzing the materials, along with several photographs taken during the initial investigation of this fire to assist the Commission in understanding what was actually observed during the investigation.

Please note that the NFPA 921 books are proprietary and should not be copied and/or distributed. We are providing them to the Commission as reference material in this matter.

The State Fire Marshal's Office has spent a great deal of time and energy to ensure as thorough a response as possible. In reviewing documents and standards in place then and now, we stand by the original investigator's report and conclusions. Should any subsequent analysis be performed to test other theories and possibilities of the cause and origin of the fire, we will of course re-examine the report again. Further, should the Commission make a finding of "flawed science" based on a comparison of what the investigator used at the time as the accepted standard and the standard as it exists today, we respectfully ask that it be articulated.

If we can be of further assistance or you are in need of additional information, please contact us. We appreciate the opportunity to provide you with these materials and stand ready to assist in any way possible.

Sincerely,

Paul Maldonado
State Fire Marshal

Enclosures

Cc: Mike Geeslin, Commissioner of Insurance
Texas Department of Insurance

Ed Salazar, Assistant State Fire Marshal
Texas Department of Insurance

Mark Lockerman, Director of Field Services
Texas Department of Insurance

State Fire Marshal's Office Response

FSC Question: Did the arson experts apply a standard of practice as it existed in Texas at the time of the Willingham investigation and testimony?

Prior to the publishing and release of NFPA 921, *Guide for Fire and Explosion Investigation*, (The Guide) in 1992, fire investigators, including the State Fire Marshal's Office (SFMO) relied on numerous publications and treatises for professional guidance. A review of the State Fire Marshal's training records dating back to 1987 reveals that fire investigators employed by the agency were certified and participated in training programs sponsored by a variety of organizations including the International Association of Arson Investigators (IAAI), the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Texas Engineering Extension Service (TEEX) a member of the Texas A&M University System, and the Oklahoma State University (OSU) School of Fire Protection and Safety Technology (FPST). **The SFMO investigator for the Willingham case used principals that can be linked to NFPA 921 standards subsequently put in place.**

FSC Question: Do you agree or disagree that NFPA was not the standard of practice accepted in Texas at the time of the investigation and testimony?

The SFMO agrees that NFPA 921 was not an official standard at the time of the investigation and testimony. Note, however, that many of the principals and practices utilized by SFMO and other arson investigators were the basis for what ultimately appeared in NFPA 921.

According to the National Fire Protection Association, "The Guide" was intended "*to provide guidance to investigators that is based on accepted principals or scientific research.*" At this same time the legal system was attempting to establish qualifying and admissibility standards for experts ultimately set out in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). The need for reliance on credible expert testimony for both the plaintiffs and defendants in litigation required the scientific community to adopt acceptable standards and procedures.

As previously indicated, the SFMO fire investigators were, at the time of the subject incident, trained by well known respected organizations in the profession, using nationally accepted principals, procedures and science. The guidelines NFPA 921 set out were used by the State Fire Marshal prior to NFPA 921's initial publication. The Commission should compare the principals and procedures (and science) documented by the fire investigators in 1991 and their testimony at trial in 1992, with NFPA 921 as it first appeared in 1992, 1995 or NFPA 921 as it exists today. **The SFMO investigator for the Willingham case used principals that can be linked to NFPA 921 standards subsequently put in place.**

FSC Question: When did the Fire Marshal's Office adopt NFPA 921 in Texas as the Standard of Practice?

The SFMO has not adopted NFPA 921 by any official rule process. NFPA 921 is a "guideline" that is used nationwide by all fire investigators. The Commission should consider the distinction between an officially adopted standard that contains specific and absolute criteria or elements and a "guideline" such as NFPA 921 that deals with processes, principals, and concepts that establish a methodology for the systematic investigation of fire cause and origin. The SFMO utilized methods that eventually became part of NFPA 921's initial publication. The SFMO staff began referencing and received training on NFPA 921 almost immediately after its initial publication in 1992.

Attachments

The attached compilation (**Attachment A**, ***SFMO Investigation report and NFPA 921***) better illustrates the connection between findings from the original investigative report and the applicable NFPA 921 guidelines. **Attachment B**, ***Willingham Statement***, is composed of excerpts taken from the transcript of the initial interview with Willingham. NFPA 921 paragraphs 7-4 and 16-18 advise fire investigators of the need and purpose for witness interrogation. This information is relevant in revealing all the information the SFMO investigator had compiled in drawing his conclusion, and is provided to assist the Commission in determining adherence to acceptable standards to fully investigating all aspects of the fire, including human behavior.

We suggest the Commission review the Attachment B along with the photographs. This will provide the Commission with a better understanding of what the fire investigator saw and concluded.

Attachment A
SFMO Investigation Report and NFPA 921

(All NFPA 921 excerpt references are to 1995 edition because it is more comprehensive than the original 1992 version. However 1992 citation is noted in brackets [ ] if available)

Chapter 11 of NFPA 921 deals with Origin Determination, or the identification of the geographical location where the fire began and includes *"preliminary fire scene examination, the development of a fire spread scenario, an in depth examination of the fire scene, fire scene reconstruction, a final fire spread scenario, and the identification of the fire's origin"*. Deputy Vasquez's report begins with a preliminary scene assessment or perimeter exterior search identifying his visual observations. He then proceeds to enter from the rear (South) of the structure (least damaged), noting smoke and burn patterns as he move forward through the structure ultimately to the Northeast bedroom (most damaged). Deputy Vasquez's description of the fire scene included the following "indicators". "Indicators" is defined in NFPA 921 as:

> **NFPA 921 17-2 Incendiary Fire Indicators.** "There are a number of conditions related to fire origin and spread that may provide physical evidence of an incendiary fire."

1. The investigation report stated: *Distinct V pattern in hallway on both sides beginning at floor level near the front entry (north) and climbing 45 degrees angle towards the kitchen (south).*

   NFPA 921 4-17.1 V Shaped Patterns. "The angled lines of demarcation, which produce the 'V' pattern, can often be traced back from the higher to the lower levels, towards a point of origin. The low point or vertex of the 'V' may often indicate the point of origin." **[See 1992 3-7 and 4-17.1]**

   NFPA 921 4-17.1.1 Misconceptions about V patterns. "The value of these patterns lies in the direction of the spread that they depict, not in what caused them."

2. The investigation report stated: *Baseboards at north end of hall on both sides disclosed a low char burn.*

   NFPA 4-16.1.4 Floors. "The investigator should identify these areas of low burning and be cognizant of their possible proximity to a point of origin." **[See 1992 4-16.1.3]**

3. The investigation report stated: *Aluminum threshold at the base of the entrance door disclosed a burn pattern underneath.* **(Sample of wood taken at that location was positive)**

   NFPA 921 4-16.1.4 Floors. "Holes burned in floors or burning under baseboards, door sills, and between floorboards are often attributed to the

presence of ignitable liquids. In the absence of an otherwise explainable fuel and scenario, the use of an accelerant should be considered and samples taken." **[See 1992 4-16.1.3]**

4. The investigation report stated: *The examination of the hallway floor on the north end from the base of the north door and to the northwest door of the northeast bedroom disclosed a burn trailer, pour pattern, and puddle configuration.*

   NFPA 921 4-17.7.2 Irregular Patterns. "These patterns are common in post flashover conditions, long extinguishing times, or building collapse. These patterns may result from the effects of hot gases, flaming and smoldering debris, melted plastics, or ignitable liquid. Pooled ignitable liquids that soak into flooring or floor covering material as well as melted plastic can produce irregular patterns. These patterns can also be cause by localized heating or fallen fire debris." **[See 1992 4-17.7.2]**

5. The investigation report stated: *The ceiling above the center of the bedroom sustained intense heat from the center and below the ceiling. The fire did not burn up through the ceiling into the attic. However, the fire did mushroom when it hit the ceiling then climbed halfway down the walls.*

   NFPA 3-5.3.1 Fires Confined by a Ceiling. "When ceiling exists over a fire, and the fire is far from walls, the hot gases and smoke in the rising plume strike the ceiling surface and spread in all directions until stopped by an intervening wall. Fire growth when confined by a ceiling will be faster than when the plume is unconfined." **[See 1992 3-5.3.1]**

6. The investigation report stated: *In the center of the floor a liquid accelerant flowed under the tile squares and burned.*

   NFPA 921 4-16.1.4 Floors. "Fire damaged vinyl floor tiles often exhibit curled tile edges exposing the floor beneath. In a fire situation, the presence of radiation from a hot gas layer will produce the same patterns. This pattern may also be caused by ignitable liquids." **[See 1992 4-16.1.3]**

7. The investigation report stated: *The pieces of broken glass on the ledge of the north windows to the northeast bedroom disclosed a crazed (spiderwebbing) condition.*

   NFPA 921 4-13-1 Breaking of glass. "Crazing is a term used in the fire investigation community to describe a complicated pattern of short cracks in glass. Crazing has been theorized as being the result of very rapid heating on one side of the glass while the other side remains relatively cool. There is no published research to confirm this theory. However there is published research establishing that crazing can be created by the rapid cooling of glass in a hot environment by the application of water spray." **[See 1992 4-13.1]**

8. The investigation report stated: *Examination of the porch concrete floor disclosed an area of brown discoloration at the base of the north wall and in front of the door to the central hallway. This discoloration or brown condition is also an indication that a liquid accelerant burned on the concrete.*

   NFPA 921 4-6 Spalling. "Spalling of concrete, masonry, or brick has often been linked to unusually high temperatures caused by burning accelerant." **[See 1992 4-6]**

   NFPA 921 4-6.1 Misconceptions about Spalling. "The use of spalling evidence in fire investigations is one of the most misunderstood and improperly used evidential elements. Among the misconceptions are that spalling is caused only by the use of liquid accelerant. Exposure to any high rate of heating by flame or high levels of radiation from any fuel, whether solid, liquid or gas, can cause spalling."

9. The investigation report stated: *Based on the fire scene examination and statements from eye witnesses, it was determined that the fire had multiple origins.*

   NFPA 921 17-2.1 Multiple Fires. "Confirmation of multiple fires is a compelling indication that the fire was incendiary." **(Samples were taken from various areas and a positive sample was confirmed in one area deemed an area of origin.)**

Attachment B
Willingham Interview
Based on transcript of the initial interview with Willingham and Deputy SFM Vasquez on Dec. 31, 1991.

- *"I remember I woke up it was 9:13and you know I sat there and she (Stacy) left and everything and after she got out of the driveway I heard the twins cry so I got up and gave them a bottle you know and they was in the floor at the time, you know we always let them sleep in the floor there, and I gave them a bottle and Amber was in her bed, I went back to sleep."*

- *I don't know how long it was or whatever, you know the only thing, the next thing I remember is hearing 'Daddy, Daddy' and when I finally woke up you know when I heard the last "Daddy" and I woke up you know the house was already full of smoke it was so thick in there already I couldn't even see where the exit was from the bedroom it was so smokey in there already."*

- *"toward the front of the house you couldn't see nothing but black and you could smell you know our microwave blew up about three weeks ago prior to this and the smell that the microwave made was the same smell that the microwave made was the same smell that was in the house all you could smell was you know I guess wire and stuff like that, you could smell electrical wiring and stuff and also I never really could see, but I was noticing like the plug ins and light switches and stuff popping."*

- *"I kept looking for them and kept looking for them and I never could find them and they just wasn't nowhere, and they just wasn't nowhere around right there at the time, and I didn't I didn't, I tried to feel around most of the room but God the whole room, the fire was on top it was in their room and you know I noticed that it was around the top of the walls it seemed like you know it wasn't down on the floor because it wasn't eye level because I had to look up to see it*

- *"And I felt the slide and the slide had already started to melt, and then you know I could tell that the slide had already started to decompose. And then I felt all the back here beside Amber's bed you know and felt on top of Amber's bed and she wasn't there."*

- *"Well when I came out I stepped over it (baby gate) too, cause that was another time I burned my hand, when I come out. Cause I remember when I come out I stumbled and I caught myself and then I, I burned this finger here on the uh, door facing inside their room, you know it was already that hot, you know I burned my hand just picking things up that was in the room you know off the floor and stuff."*

- *"I remember that the door and stuff was already smoking the door you know might already be fixin to catch fire and after I got out the front door."*

- *"If I had'a come through the living room I could have, I'd have tripped over her (Amber) you know but you know I didn't go that way cause there was so much smoke you know and I couldn't seen nothing you know I was blind."*

- **Several witnesses interviewed said only a small amount of smoke was coming from entry way. ...Until he grabs a pool cue and smashes the front windows.**

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Terry Jacobson
tljacobson@sbcglobal.net

August 20, 2010

Leigh Tomlin, Commission Coordinator
Texas Forensic Science Commission
Sam Houston State University
College of Criminal Justice
Box 2296, 816 17th Street
Huntsville, Texas 77341-2296

Re: Willingham Matter

Dear Ms. Tomlin:

Please accept this as the City of Corsicana's response to the Texas Forensic Science Commission's request for additional comments regarding the Willingham investigation. The Commission's work is important to the proper functioning of the criminal justice system. But it is unfortunate that Commission meetings and this investigation have been used by some as a forum to advance political agendas. That in turn detracts from the serious scientific work the Commission was created to undertake. We will attempt to focus on the issues properly before the Commission and avoid being drawn into the bigger debate about Mr. Willingham's guilt or innocence.

JURISDICTIONAL AND ADMINISTRATIVE ISSUES

Before commenting on the substance of the matters before the Commission, we would like to make a few observations of an administrative and legal nature that you may find helpful.

First, while we realize that the politics of the situation now make it impossible for the Commission to do anything other than issue a report, the legal reality is that the Commission lacks the authority to even review this matter. The Commission was created in 2005. It is a governmental entity and it has only those powers that were delegated to it by the Texas Legislature. The Texas Legislature has given the Commission the authority to:

> investigate, in a timely manner, any allegation of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility or entity.

Tex.C.Crim.P. Art. 38.01(4)(a)(3) (referred to as "the Act"). When Article 38.01 was enacted in 2005, it was a part of House Bill 1068. House Bill 1068, as signed by the Governor and enacted into law, contains a section that speaks directly to the Commission's temporal authority. Specifically, section 22(a) of House Bill 1068 provides that:

> The change in law made by this Act applies to:
>
> (1) evidence tested or offered in evidence **on or after the effective date of this Act**; and
>
> (2) an individual who, **on or after the effective date of this Act**:
>
> A. is confined in a penal institution operated by or under contract with the Texas Department of Criminal Justice . . . ;
>
> B. is confined in a facility operated by or under contract with the Texas Youth Commission . . . ;
>
> C. voluntarily submits or causes to be submitted a DNA sample as described in . . . ; or
>
> D. is ordered by a magistrate or court to provide a DNA sample under subsection G, Chapter 411, Government Code.

The effective date of the Act is September 1, 2005. The evidence in this case was not tested or offered into evidence **on or after September 1, 2005**. The four (4) exceptions listed in subsection (2) only apply when a person is confined **on or after September 1, 2005**, in a penal institution or youth facility or offers DNA samples, voluntarily or by court order, **on or after September 1, 2005**. Clearly, the Legislature did not intend to authorize the Commission to investigate evidence that was "tested or offered into evidence" **before** the effective date of the Act, except: (1) where the evidence might impact the incarceration of a person who was serving a prison sentence as of September 1, 2005 (subsections 2A and 2B); or (2) where the evidence might be relevant to a criminal matter that occurred prior to September 1, 2005, but which had not been fully adjudicated as of that date (subsections 1 and 2C and 2D). Everything pertaining to the Willingham matter occurred prior to September 1, 2005.

This is further underscored by the fact that in Texas it is presumed that legislation is intended to operate prospectively and not retroactively. *Ex Party Abell*, 613 S.W.2d 255, 258 (Tex. 1981). And, if there is any doubt as to its retrospective operation, the ambiguity or doubt will be resolved against retrospective operation of the statute. *Id.* Other cases say the same thing, but in even stronger terms:

1. Texas law "militates strongly" against retroactive application of the law. *Houston ISD v. Houston Chronicle*, 798 S.W.2d 580, 585 (Tex.App.–Houston [1st Dist] 1990, writ denied).

2. Except as required by "explicit language or necessary implication," a statute will not be given retroactive effect. *Hockley County Seed and Delinting, Inc. v. Southwestern Investment Co.*, 476 S.W.2d 38, 39-40 (Tex.Civ.App.–Amarillo 1970, writ ref'd n.r.e.).

As I mentioned above, I realize that the politics of this case make it impossible for the Commission NOT to issue a report on the Willingham investigation. But the Commission needs to understand that an unbiased judge who has no agenda would find that the Commission lacks the jurisdiction to even consider this matter. State legislators, former Commission members and others who have said otherwise either haven't carefully read the law or don't understand the plain words of the enabling legislation.

Second, as quoted above, the Commission's statutory authority is limited to "**forensic analysis** conducted by an **accredited** laboratory, facility or entity." Tex.C.Crim.P. Art. 38.01(4)(a)(3). Article 38.01 incorporates the definition of "forensic analysis" from Article 38.35(a) of the Code of Criminal Procedure, which defines "forensic analysis" as:

> . . . a medical, chemical, toxicologic, ballistic or other expert examination or test performed on physical evidence, including DNA evidence, for the purpose of determining the connection of the evidence to a criminal action.

The Corsicana Fire Department is not an accredited laboratory, facility or entity and didn't perform chemical or toxicological tests on physical evidence in connection with the Willingham matter. None of the criticisms of Assistant Chief Fogg contained in Dr. Beyler's report pertain to any actions that could constitute actions undertaken by an accredited laboratory, facility or entity with respect to physical evidence. There was forensic analysis done by an outside laboratory in connection with the Willingham case (testing samples from the house for the presence of accelerants, for example) but to my knowledge no one has been critical of the processes used to test that evidence. And, in any event the City didn't perform those tests. It hired a laboratory to do them instead.

The fact that the House Bill creating the Commission deals primarily with crime laboratory accreditation, DNA evidence and similar matters further supports this view of what type of forensic science comes under the Commission's jurisdiction. House Bill 1068 is a lengthy piece of legislation but it does not mention or refer to the type of arson investigation done in this case. There are no arson investigators or police detectives on the Commission, which furthers highlights what the focus of the Commission is supposed to be. Arson evidence that does not involve scientific testing (some arson investigations certainly involve scientific testing – just not this arson investigation) is not the kind of evidence the Commission was created to evaluate.

This doesn't mean that arson investigators are not required to follow accepted scientific principles when gathering evidence and providing testimony. To the contrary, the United States and Texas Supreme Courts have held that expert opinions have to satisfy certain criteria to even be admissible. Those cases include *Daubert v. Merrell Dow*, 509 U.S. 579 (1993), *E.I. du Pont de Nemours v. Robinson*, 923 S.W.2d 549 (Tex. 1995), and many others. The rules of law established

by these cases apply to all types of cases, not just fire science or arson cases, and they provide a way for a lawyer to challenge expert evidence the lawyer believes is unreliable or unscientific. If Mr. Willingham's trial occurred today there would be a procedural way for him to challenge the admissibility of an expert's testimony and make sure it is reliable and scientifically sound. But those decisions are to be made by trial and appellate courts, not this Commission.

Third, last year when the Commission first requested input from the City regarding this matter, there were no procedures in place that governed how the Commission was to function. We understand that there are now procedures in place that will hopefully insulate the Commission members from the politics of a given case and ensure a fair and balanced process. Establishing reasonable procedures is important for at least the following reasons:

1. Last year there were no rules or procedures establishing the role of the Commission in connection with the investigation of a complaint. It was difficult to determine whether the Commission was acting as an advocate for a particular position or whether it was acting as an independent fact finder with respect to a particular complaint. In this case, emails we obtained in response to an Open Records Act request demonstrate that Commission members commented upon and made changes to Dr. Beyler's report before it was released to the public. To ensure objectivity, it would probably be better for Commission members to review the evidence presented, rather than participate in making it.

2. Last year, there were no rules or procedures with respect to when and how persons who were the subject of Commission complaints were notified that they were being investigated. In this instance, the City of Corsicana never learned that the conduct of a former employee was being investigated by the Commission until after Labor Day of 2009. By that time, the Willingham matter had been pending before the Commission for over a year and Dr. Beyler's report was in general circulation. The City was then given a month to respond to something the Commission had been working on for a year and which the Commission was going to take up at its October meeting. The City did its best to respond within the time frame set by the Commission, but the process was neither efficient nor fair.

3. Last year, there were no rules or procedures with respect to when and how findings or documents were released by the Commission. Documents we obtained from the Commission in response to an Open Records Act request indicate that newspaper reporters and the Innocence Project received copies of Dr. Beyler's report before the City even knew that a former employee was being investigated. The City was then asked to respond to questions about things of which it had no knowledge. While we understand the Open Records Act requires that documents which are responsive to a request be produced in accordance with applicable law, the Commission does not appear objective when the first people to receive copies of the report have declared vested interests in the outcome of the investigation while the subject of the investigation has no knowledge it is even being investigated.

GENERAL OBSERVATIONS

The City representatives who are responding to your request – the Fire Chief and City Attorney – were not employed by the City of Corsicana at the time the Willingham incident occurred or at the time it went to trial. So, our first hand knowledge is very limited. But, we have reviewed the trial transcript and the police investigation reports, along with other matters that have been made public – some of the photographs for example. We were limited by the fact that the trial transcript only contains the evidence offered at trial – what the attorneys asked – and not all the evidence gathered during the investigation. The witnesses may very well have had opinions that they were not asked to express or knowledge of facts they were not asked to disclose.

1. The City agrees with Dr. Beyler that NFPA 921 is now a reliable source of information for documenting and investigating incidents involving fire and arson (p. 1-2 of his report). But by Dr. Beyler's own admission, NFPA 921 wasn't published until after the Willingham incident (and trial) occurred. Dr. Beyler says that even though NFPA 921 was well established by 1995, it was not universally acknowledged until more than three years after that. Like many scientific advancements, its acceptance likely occurred over time, varying from place to place and investigator to investigator. Dr. Beyler's supplemental response submitted on August 3, 2010, makes it even clearer: "NFPA 921 cannot be regarded as the standard of practice in 1992 or before." Therefore, the City cannot be considered to have violated its provisions, since it wasn't the standard at the time of the Willingham fire or trial. And, in any event, Dr. Beyler has failed to point out with specificity how he claims Assistant Chief Fogg failed to follow NFPA 921 – or any other standard for that matter.

In addition, we obtained an email in response to an Open Records Act request (a copy of which is attached to this response as Exhibit 1) in which Dr. Beyler discusses the professional standards regarding **fire investigation** – as opposed to fire science – in place at the time of the Willingham trial. In his July 27, 2009 email (sent at 3:52 pm), Dr. Beyler said:

> On another note, the status of fire science is less relevant than the status of the professional standards in fire investigation in place at the time. As you might imagine, the fire science is will ahead of fire investigation practice, and **what is important, I think, is the status of investigation practice**. **It is fair to say that the standard of practice/care in fire investigation before [NFPA] 921 was conflicting and unclear, and its relationship to fire science was modest but present.**

According to Dr. Beyler (and contrary to what he says in his report), there was no **standard** regarding fire investigation before NFPA 921 – it was conflicting and unclear. By definition a **standard** is something that serves as a reference point against which other things can be evaluated. Something that is "unclear and conflicting" is not a **standard**. The email was sent in response to an email from the previous Commission chairman who asked for clarification as to the standards in effect at the time of the incident. Given Dr. Beyler's admission, which was solicited by the Commission, there can be no finding of negligence or misconduct in this case.

2. On page 2 of his report, Dr. Beyler says that Assistant Chief Fogg and Fire Marshal

Vasquez admitted there were other possible hypotheses that were consistent with the facts of the case, but those alternative hypotheses did not "alter" the investigator's opinions. A fair reading of the trial testimony establishes that the investigators were asked about alternative causes of the fire. And, in fairness to the investigators, they conceded there were other possibilities and gave reasons as to why those alternative causes were considered to be remote. For example, and as pointed out in our previous submission and discussed below, Assistant Chief Fogg said he ruled out electrical or natural gas causes by checking and testing the gas lines and electrical sources. He also ruled out the possibility that an intruder caused the fire – there was no evidence of an intruder being in or anywhere near the house and, when asked, Mr. Willingham refused to cooperate in identifying other persons who might be involved. And he considered but found remote the possibility that the fire was caused by one of the children.

3. Dr. Beyler attempts to make much of the fact that appliances weren't mentioned. Mr. Willingham didn't list appliances as contents of the room or hallway when he was asked about it, so apparently there were none. And, it is reasonable to conclude that the appliances, **if there were any**, were examined at the same time the gas and wiring were examined. Assistant Chief Fogg wasn't asked about appliances at the trial. But, that does not mean that he didn't look for appliances. He may have done so – the attorneys just didn't question him about it during trial.

4. Dr. Beyler makes the statement on page 5 of his report that because the Willingham case was "finalized" in 2004, it is appropriate to examine the case using "current and contemporaneous" standards. As a matter of law that assertion is incorrect. In Texas, professional conduct is measured by standards and practices used by other reasonable persons in the same profession at the time of the event in question – that is what negligence is, a deviation from what other reasonable persons would do under the same or similar circumstances. Attempting to use 2004 standards to evaluate 1991-92 practices would not be admissible under Texas Rules of Evidence 702 and 703. Dr. Beyler simply has no legal basis for asking the Commission to judge Assistant Chief Fogg's actions by 2004 standards – and he offers none.

5. Dr. Beyler talks a great deal about a "contemporaneous standard of care," but the attorneys who defended Willingham have stated in newspaper stories that they were unable to find an expert who would contradict Fire Marshal Vasquez. And they were certainly motivated to find an expert to controvert Fire Marshal Vasquez if they could. Thus, the "contemporaneous standard of care" in 1991 appears in the real world to have supported Assistant Chief Fogg and Fire Marshal Vasquez, not contradicted them.

6. Dr. Beyler concludes that the fire investigators did not satisfy the "contemporaneous standard of care" (p. 51). In cases of professional negligence, the customary way to prove negligence is to state what the standard was when the incident occurred, proved by specific references to journal articles or other peer reviewed literature. Then, the witness identifies the specific act or omission that the witness contends constitutes negligence. General allegations – he was negligent – don't suffice. Instead, the witness is required to say that a specific act is inconsistent with a specific standard and explain why. The fact finder can then measure the peer reviewed standard against the specific act or omission and determine whether the person was negligent. Sometimes there is a dispute about what the standard is that must be resolved by

reference to peer reviewed literature or other proper sources. None of that was done by Dr. Beyler in his report. Dr. Beyler nowhere succinctly states what the contemporaneous (with 1991-92) standard of care is or cites to peer reviewed articles to establish the standard, if there was such a thing. He simply makes conclusory statements. His supplemental report of August 3 is no more detailed. He simply mentions several texts and articles without elaborating what parts of the texts and articles are relevant, and how they relate to specific actions of the fire investigators in the Willingham case.

7. As previously mentioned, Dr. Beyler's suggestion, which he makes several times, that fire investigation prior to NFPA 921 was "folklore" seems a bit strong (p. 3). Perhaps more importantly, the assertion that fire investigation before NFPA 921 was "folklore" is inconsistent with his assertion that there was a "contemporaneous standard of care." If fire investigation before NFPA 921 was folklore, as Dr. Beyler says, there was no standard and there could not have been any negligence or misconduct by Assistant Chief Fogg.

8. Dr. Beyler argues that V-patterns, floor patterns, crazed glass, spalling, low burn, burn intensity and ventilation effects **are not necessarily** indicative of arson or the use of accelerants. Modern fire science validates that conclusion. On the other hand, he admits that the presence of those phenomena is sometimes found in cases involving arson, including cases of arson where accelerants are used. It would seem that such evidence, coupled with the presence of an accelerant inside the home, Mr. Willingham's 2 separate confessions–the most recent being to his wife before his execution–and the recently discovered witness who saw Willingham remove items from the house and put them in his car while the fire burned, would at least raise the prospect that the fire was intentionally set by Mr. Willingham.

WHAT THE CITY DID IN 1991-92 REGARDING TRAINING

1. The passage of time and the retirement of Assistant Chief Fogg have made it difficult for the City to recreate with accuracy the procedures it followed, resources it had access to and training it provided for its arson investigators in the early 1990's.

2. However, through interviews with long time employees, and a review of training records and resources, it appears that the City sent arson investigators to at least the following seminars:

a. Texas Engineering Extension Service at Texas A&M, which was a 90 hour course would have included Orientation, the Arson Problem, Behavior of Fire, Fire Investigation Terminology, Building Construction and Fire Investigation, Determination of Point of Origin, Accidental Fire Causes, Electrical Fires, Incendiary Fires and Fire Causes, Basics of Insurance and the Investigation, Motivation of the Fire Setter, Juvenile Fire Setters, Pyromania and Psychopathic Fire setters, Photography, and Fire Scene Sketching,

b. Texas Commission on Law Enforcement Officer Standards and Education

– online training mandated courses, from Navarro College, Corsicana Police Department and Navarro County Sheriff's Department.

c. TEEX – Annual Fire and Arson Investigators' Seminar.

d. Texas Department of Public Safety – TCIC/NCIC Procedures for officers.

e. Ennis Fire Department Fire Marshal's Office – Basic Clandestine Drug Lab Safety and Recognition.

f. Galco Educational Services – Life Safety Code.

g. National Fire Academy – Fire/Arson Detection (Field Course)

h. Texoma Regional Police Academy – Arson, The Critical Investigation

i. Grayson County College – Arson Investigation

The persons and organizations who sponsored the seminars and training programs were experts in the field and other cities used these same semi nars and programs to train their investigators. Certainly, the City would have expected its investigators to employ what they learned at these seminars and training programs. The City has no reason to believe its investigators did not employ what they learned.

3. Other than Dr. Beyler in the Willingham matter, no one has accused the City or its arson investigators of failing to follow appropriate standards in other arson investigations during the relevant time frame. While the lack of other complaints is not demonstrative of what the standards were in 1991-92, the lack of other complaints is some indication that others have not found fault with the investigations conducted by the City during that time frame.

FACTUAL STATEMENTS IN DR. BEYLER'S REPORT AND HIS CRITICISMS OF ASSISTANT CHIEF FOGG

1. Most of Dr. Beyler's criticisms of Assistant Chief Fogg have nothing to do with the applicable standard of care. Rather, most of Dr. Beyler's criticisms are based on things he said Assistant Chief Fogg did or said. Many of Dr. Beyler's descriptions of Assistant Chief Fogg's actions are not supported by the trial record. In fact, most of his criticisms of Assistant Chief Fogg can be resolved by simply reading the trial record and police investigation file. In its previous submission, the City made extensive comments on the factual statements in Dr. Beyler's report. The Commission can review the City's previous submissions for those comments. To assist the Commission, however, the City would like to point out several important points which are relevant to Dr. Beyler's criticisms of Assistant Chief Fogg. The City would encourage the Commission to read the trial transcript, the police investigation file and the other documents if the Commission has any doubts about what a witness said or how the home appeared.

2. First, Assistant Chief Fogg testified that during his investigation he eliminated all potential electrical and gas causes of the fire by examining wiring and testing gas lines. His report elaborates in more detail on his investigation. The gas to the space heater was in the "off" position and the gas line was tested for leaks but none were found. There is no evidence suggesting that his actions were negligent or that he committed misconduct in ruling out those other potential causes. Eliminating gas or electrical causes of a fire was a reasonable thing to do in 1991-92, as it is today.

3. Dr. Beyler is critical of Assistant Chief Fogg for not completely ruling out the hypothesis that Amber could have started the fire. Assistant Chief Fogg said that it was a remote possibility. But the notion that she started the fire isn't supported by the facts. No lighters were found near Amber or near where the burned areas were located. The only lighters found were in a drawer in the kitchen at the back of the house. And, exactly where Amber was before and during the fire is open to a great deal of speculation. In one of his several materially different stories, Mr. Willingham said that when he went back to bed she was sleeping in the front bedroom. She was later found in his bed even though there was a child's gate blocking her entrance to and exit from the front bedroom. If she was in the bedroom, how did she crawl over the child's gate, find the lighters in the kitchen, crawl back over the child's gate into the bedroom, start the fire in the front bedroom (that is where Dr. Beyler said it started) and then crawl back over the gate, leaving no trace of the lighters? If she wasn't in the front bedroom to begin with, how did she climb over the gate to get into the front bedroom to start the fire and then get back out? Hypothesizing that a 2 year old child started the fire simply requires the assumption of too many facts that have no basis in the trial record or investigative reports. On cross examination, Assistant Chief Fogg properly conceded that a child could have started the fire but he viewed it as a remote possibility. A review of the trial testimony and police report supports his conclusion. The jury was free to evaluate the evidence on that issue – it really isn't a matter of fire science. It is more of a matter of common sense and real world experience. And, in any event, this isn't evidence the Commission was created to investigate.

4. Dr. Beyler is critical of Assistant Chief Fogg for allegedly testifying that plastic toys don't melt. But, contrary to what Dr. Beyler says on page 44 of his report, Assistant Chief Fogg did not testify that the plastic toys "had not melted." He testified that "to eliminate the plastic toys melting and running [and causing the pour patterns], we looked at the area around the **remains** of the plastic toys to determine whether they had ran and produced [these pour patterns] and we found that they had not." Obviously, the toys melted because Assistant Chief Fogg determined that the melted plastic did not cause the pour patterns. Even so, this isn't evidence the Commission was created to investigate.

5. Dr. Beyler is critical of Assistant Chief Fogg for allegedly testifying that glue only causes puddle patterns if the glue is poured on the floor. Again contrary to what Dr. Beyler says in his report, Assistant Chief Fogg didn't testify that glue only causes puddle patterns when it is poured on the floor. In context, his testimony is that the glue was uniformly applied but in a very thin layer. Those two facts caused him to conclude that the burning of the glue wouldn't have caused the puddle configurations he saw. He considered the possibility that the glue caused the puddle patterns but ruled it out. And, once again, this isn't the type of evidence the Commission was created to investigate.

6. Dr. Beyler is critical of Assistant Chief Fogg because he allegedly testified that latex paint isn't flammable. Once again contrary to Dr. Beyler's statement on page 47 of his report, Chief Fogg did not opine that latex paint "isn't flammable." The context of the testimony on cross examination is when Assistant Chief Fogg is being questioned as to whether the threshold was painted. He testified he didn't recall seeing any paint on the threshold itself. He was then asked by defense counsel whether paint will burn "off" wood – without actually consuming the wood itself (the threshold didn't burn up). Assistant Chief Fogg testified that an oil based paint could burn or blister and could "burn off" the wood. On the other hand, Assistant Chief Fogg said he didn't think latex paint (water based paint) would burn "off." He doesn't testify that latex paint won't burn or that a wood surface painted with latex paint would not burn, which is the impression Dr. Beyler leaves in his report. Even so, is this the kind of evidence (an opinion about paint and wood) the Commission was created to investigate?

7. Dr. Beyler is critical of Assistant Chief Fogg for allegedly testifying that glue could not have thermally decomposed without direct access to air. That is not what Chief Fogg said. He testified that the glue wouldn't **burn** in the absence of air. Thermal decomposition wasn't mentioned.

8. On page 45 of his report, Dr. Beyler is critical of Assistant Chief Fogg for not mentioning or examining any electrical appliances or the ceiling fan in the children's bedroom. No electrical appliances were identified by Mr. Willingham in his description of the contents of the room. There was no evidence at trial that the ceiling fan ever existed. Plus, according to Todd Willingham, the fire was on the ceiling of the south wall, not in the center of the room where a ceiling fan would be found. And, to be a fire source, the fan would have to have been in the "on" position, which is not likely on a 50 degree December day.

9. Likewise, the liquid pour patterns in the front hallway could not have been melted children's toys because Willingham indicated that the only thing in the front hallway were pictures and decorations. As mentioned above, Assistant Chief Fogg accounted for the melted toys in the front bedroom to see if they caused the pour patterns and he concluded they did not. And according to Mr. Willingham there were no toys in the front hallway.

10. Dr. Beyler is critical of Assistant Chief Fogg because he could not rule out that an outsider started the fire. There was no evidence that an unknown third party was the cause of the fire and Mr. Willingham refused to cooperate in identifying people who could testify about that subject. Assistant Chief Fogg attempted to obtain information regarding an "outsider" but Willingham wouldn't cooperate. Plus, there was no other evidence suggesting anyone besides Willingham and the children were in the house at the time of the fire and the children's mother had left the house only a few minutes before.

11. Assistant Chief Fogg was able to identify a burn area that was underneath the threshold plate on the front door. He attributed that to a liquid that had dripped down and ran under the threshold plate. A sample was taken from that location and an accelerant was detected by an outside laboratory. No one has criticized this finding or challenged the testing laboratory's analysis. It constitutes evidence of an accelerant inside the home immediately adjacent to the pour patterns

or puddling. Dr. Beyler assumes without any evidence that the accelerant got there through "grilling activity." Unless it appears in a picture which we don't have access to, there was no evidence that the barbecue grill was ever on the front porch. The only evidence regarding the barbecue grill was that it was turned upside down in a picture (We weren't able to locate the picture, we just saw it referred to in the trial testimony). There was no evidence of any grilling activity (recent or otherwise) on the porch or that the firefighters moved the grill. This is important because Dr. Beyler concludes, without any evidence, that the accelerant found under the threshold inside the house came from grilling activities.

12. Although it was not mentioned by Dr. Beyler in his report, there was some testimony elicited on cross-examination regarding the charcoal lighter fluid under the threshold. The defense contended that the fluid found under the threshold could have gotten into the house from the outside via a melted plastic charcoal lighter fluid container on the front porch several feet from the door. Assistant Chief Fogg ruled out the possibility that charcoal fluid could have been spilled on the porch and then migrated under the threshold into the hallway. The testimony describes the house as being a wood frame house with a concrete front porch. Based upon the testimony, there is a significant gap between the concrete front porch and the wooden house, including the front door. And the photos show that the house is slightly higher than the porch. The threshold is under the front door – inside the house. Assistant Chief Fogg said he observed water (from fire fighting) on the porch flowing away from the threshold and toward the front of the porch. So the charcoal lighter fluid, if it were spilled, would have flowed away from the house, not towards it. Taking into account how gravity causes liquids to flow downward was a reasonable thing to do in 1991-92, and it is now.

Even if the laws of gravity were suspended on the Willingham front porch, any spilled lighter fluid flowing from the front porch towards the house would have flowed through the gap between the concrete and the doorjamb and poured down the side of the concrete, not into the house. It was reasonable in 1991-92, and should be today, to conclude that a fluid is not able to leap from one surface to another across a ½ inch gap.

OTHER OBSERVATIONS REGARDING DR. BEYLER'S REPORT

1. Since Dr. Beyler's report is the only "evidence" which is critical of Assistant Chief Fogg it will be helpful to look at some other aspects of his report to determine the weight it should be given by the Commission in analyzing his statements. I have already commented on the vague generality of his comments regarding Assistant Chief Fogg and his incorrect recitation of important facts regarding Fogg's actions, so those comments won't be repeated here.

2. Dr. Beyler sometimes relies on Todd Willingham's statements without giving an explanation as to why he thinks Willingham is credible. And that is puzzling because Mr. Willingham gave materially inconsistent accounts of what happened. Consider just a few:

a. Mr. Willingham said he went out the front door by opening it. He also said he went out the back door. He then said he went out the front door by kicking it in (against the jamb, which would be very difficult to do). He further added that he went out the back door, came around to the front and

kicked the front door in from the outside.

b. He says that the front door was on fire when he exited the house. He kicked it in (against the jamb) because it was on fire. But then he says that the door knob was not hot when he touched it to open the door (which seems inconsistent).

c. He says he woke up when he heard his 2 year old daughter crying and that he was certain that she was in the other bedroom. He also says he woke up when the 2 year old jumped on his bed and woke him up and that he tried to hold on to her but she ran off.

d. He says he tried to go back in the house to rescue the children but the eyewitness accounts do not support it. The eyewitness accounts only support the idea that he tried to get to his 2 year old daughter after she was brought out of the house while the fire was about out. The testimony and police investigative reports clearly show he refused to attempt a rescue while the fire was burning.

e. Mr. Willingham in detail tells how he stepped over the child's gate going into and then exiting the front bedroom. He was certain his 2 year old daughter was in the children's bedroom when the fire started (except when he says she woke him up by jumping on his bed) but her body was found in the master bedroom. He did not explain how the 2 year old got out of the bedroom with the child's gate being in place.

f. Prior to January 3rd, Mr. Willingham was already telling his mother-in-law that he thought he was going to be blamed for Amber's death because of some unusual marks on her neck. Also, Mr. Willingham told Fireman Crenshaw on or before January 4th that he had overheard people at the funeral home wondering whether Todd had "done this." It is not forensic science but it appears as though he is exhibiting a guilty conscience – defending himself before he has been accused.

g. Mr. Willingham says he saw sparks coming out of the electrical outlets, but Assistant Chief Fogg examined the electrical wiring and didn't find any problems (plus, if the wiring was on fire, the breaker would likely have been tripped – hence no sparks after the breaker is tripped).

In summary, there are so many inconsistencies in Mr. Willingham's statements that his version of the fire, any version at all, must be viewed as being suspect. It is obvious why Willingham never took the stand in his own defense – he had told materially different stories regarding critical aspects of the fire and he would have been exposed to serious cross-examination on a variety of issues. It is not apparent from the report why Dr. Beyler accepted some of Willingham's statements as being true, but didn't consider others.

3. Dr. Beyler suggests that the fire may have started in the bedroom, growing to involve the hallway. Dr. Beyler doesn't offer any support for why the fire turned right, rather than left, if it started in the front bedroom. The diagram of the fire scene in Dr. Beyler's report shows puddling patterns from the bedroom out into the hallway and towards the front but not towards the back of the house. The presence of an accelerant in the hallway is an explanation as to why the fire, if it did start in the bedroom, turned right rather than left (or both ways) when it entered the hallway. Traces of an accelerant were found in the front door area, under the threshold.[1]

4. Dr. Beyler says that a flashover may have caused the extensive puddling in the front bedroom, and presumably the hallway. He also says that the puddling patterns could have been caused by melted toys or glue. Melted toys and glue were excluded by Assistant Chief Fogg. Presumably Dr. Beyler would agree that it was appropriate for Fogg to consider and exclude the possibility that the toys or glue caused the puddling patterns. Because an accelerant can also cause the puddling effect, it would be interesting to consider whether there was a flashover – rather than just assuming there was one. In the absence of a flashover, the prospect that an accelerant caused the puddling looms much larger. Was there a flash over as Dr. Beyler suggests? Consider the following:

a. The windows in the front bedroom were broken out before the room allegedly flashed over. Also, there were no doors on the front bedroom and the doors to the other rooms off the hallway were apparently open. After Mr. Willingham left the house, the front door was open. How would the lack of a contained space affect the possibility that there was a flash over? Those are factors that Dr. Beyler apparently doesn't consider, even though they are relevant to the question of whether there was a flashover.[2]

b. Perhaps more importantly, in the pictures taken of the ceiling in the front bedroom after the fire you can see what appears to be cloth material – a lot of it – hanging from the ceiling. It wasn't all consumed in the fire. In fact, it appears that a great deal of it was not consumed. And it wasn't uniformly consumed either – it appears as though the damage to the material is more in

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[1] Dr. Beyler might say that the fire started in the front bedroom and an oxygen source–an open front door–drew the fire to the right as it came out of the bedroom into the hallway while a closed kitchen door kept it from going left. However, there is conflicting evidence that the kitchen door was closed. Mr. Willingham said he opened it while attempting to escape. With respect to the open front door, Mr. Willingham said the fire was in the hallway, on the ceiling and front door, **before** he opened it. The fire had already turned right coming out of the bedroom into the hall before there was an open front door to draw the fire down the hall. This may be an example of Dr. Beyler ignoring some of Willingham's statements when it conflicts with his views of the fire scene.

[2] The fact that accelerants can cause the puddling effect, coupled with the fact that traces of accelerant were found inside the house under the threshold and Mr. Willingham's confessions to his fellow prisoner and his wife before he died would seem to be sufficient evidence on which to base a conviction. People are free to debate the veracity of all the evidence, and many have. But, at the very least, an objective person would not say he was innocent. Most likely, whether an individual believes Mr. Willingham was guilty or innocent depends on the views that person holds when he or she approaches the issue.

the center of the room than on the perimeter of the ceiling. This may be very important several reasons. **First**, if the room reached flashover temperatures and it was hot enough to consume the materials on the floor, the flashover should have consumed the material on the ceiling as well. If the carpet and other flammable materials spontaneously combusted, why didn't the material on the ceiling do the same? It was hotter near the ceiling than the floor before flashover. **Second**, the damage to the material is in the room's center, rather than uniformly distributed across the ceiling throughout the room. This corresponds to the puddling patterns on the floor as depicted in the diagram in the report. That suggests a fire that started in the middle of the floor and burned up to involve the ceiling. It is less consistent with a fire on the ceiling that flashed down and consumed the entire room but caused puddling only in the center of the room. If there was no flashover what is the most likely cause of the puddling? An accelerant, perhaps? Accelerant was found inside the house.

c. Dr. Beyler doesn't comment directly on it, but was there a flashover in the hallway? There was a lot more ventilation in the hallway, in all directions (including an open front door), than in the front bedroom and therefore containment was less likely. The flooring in the hallway appears to be tile, as opposed to more flammable carpet. Were the conditions in the hallway ripe for flashover? Perhaps, but less so than in the bedroom. Could a flashover in the front bedroom have caused the puddling in the hallway? Dr. Beyler doesn't comment on that, but it would seem unlikely, given the configuration of the hallway. If there was no flashover in the hallway, what accounts for the puddling effect from the front door to the front bedroom? Willingham did not list any toys in the hallway. An accelerant could account for the puddling and traces of an accelerant were found under the threshold at the front of the hallway, immediately adjacent to the puddling.

5. Dr. Beyler's failure to adequately deal with the flashover issue, the presence of the accelerant in the house and the two confessions Willingham made to his fellow prisoner and his ex wife is especially interesting in light of the recent Texas Supreme Court opinion in *Wal-Mart Stores, Inc. v. Merrell*, et al, Cause no. 09-0224 (per curiam June 18, 2010). In that case (which was a product liability case involving a fire) the Texas Supreme Court found that Dr. Beyler, though qualified in **fire research**, failed to provide "objective, evidence-based support for [his] conclusions." Op. at 3. The Court noted that an expert's failure "to explain or adequately disprove alternative theories of causation make his or her own theory speculative and conclusory." The Court then stated that Dr. Beyler's theory of causation was "little more than speculation." Unlike Dr. Beyler, at least Fire Marshal Vasquez and Assistant Chief Fogg had reasonable explanations for why they rejected alternative theories of the fire's origin (gas or electric causes, an unknown intruder, the 2 year old, etc.–see above).

SUMMARY

The fact that most, or perhaps all, of the comments made regarding Assistant Chief Fogg don't involve scientific testing should help the Commission determine what the Legislature intended its jurisdiction to be. In cases where the Commission can employ scientific testing (DNA for example) to confirm with certainty or near certainty what really happened in connection with a particular crime scene, everyone benefits. The guilt of the guilty is confirmed or the innocence of innocent is established. Scientific testing standards are therefore improved and affirmed. In this case, none of that certainty exists. Instead, the Commission is faced with the difficult task of considering factual matters (not new test results from advanced scientific testing) that occurred nearly twenty years ago. The passage of time has obscured some details and witnesses have been lost to death or retirement. If there was some scientific test that could be done to establish any important fact in this case, performing that test would help bring some resolution to the arguments which surround this case. However, the lack of a scientific test that could bring clarity leaves everyone who has an opinion to argue about what happened, and who is responsible for it. The fact that there is no scientific test that can bring clarity to the Willingham matter should suggest to the Commission that it has no jurisdiction to investigate the Willingham matter. The Legislature didn't create the Commission to retry controversial cases. The Legislature created the Commission to employ modern scientific testing to establish certainty where it can and to improve the overall quality of forensic evidence.

All of this aside, the Commission must concede what Dr. Beyler clearly articulates – there were no standards in place in 1992 that Assistant Chief Fogg (or Fire Marshal Vasquez) could have violated. Thus, there can be no negligence nor misconduct.

Finally, if the Commission wants to undertake a detailed analysis of Dr. Beyler's claims, and view those allegations in light of the factual record, the Commission will certainly come to the conclusion that Assistant Chief Fogg did not even do many (or perhaps all) of the things Dr. Beyler claimed he did. The trial record does not support Dr. Beyler's allegations.

In summary, I hope the foregoing comments have been helpful. If the Commission has any doubts about the trial record, I encourage the Commission to read the trial testimony and police report (with witness statements) to establish the actual testimony. If I can do anything further, please do not hesitate to contact me.

Very truly yours,

Terry Jacobson, with assistance from Fire Chief Donald McMullan

Craig Beyler

From: Sam Basset
Sent: Monday, July 27, 2009 9:27 PM
To: cbeyler
Subject: RE: TFSC Report Comments

We have to write our own report, eventually, and probably would welcome the chance to discuss issues with you in a q and a format.

Sam

-----Original Message-----
From: cbeyler [mailto:cbeyler@haifire.com]
Sent: Monday, July 27, 2009 5:49 PM
To: Sam Bassett
Subject: Re: TFSC Report Comments

Yes, that is realistic, I don't understand the role of the meeting if it's post report,
Craig

Sent from my iPhone

On Jul 27, 2009, at 5:08 PM, "Sam Bassett" <SBassett@mbfc.com> wrote:

> I apologize for my rudimentary terms.....and I understand. I think
> that distinction is important to add into the report as well. We
> would like the report as soon as practical, taking into account all of
> our "comments/suggestions" and the new transcript. Is September 1st
> or 15th realistic?
>
> Thanks again for your patience and for putting up with all of this.
> This is my first experience on a governmental body and I'm finding
> that it's like herding cats.....very intelligent ones to boot.
>
> Sam
>
> -----Original Message-----
> From: Craig Beyler [mailto:cbeyler@haifire.com]
> Sent: Monday, July 27, 2009 3:52 PM
> To: Sam Bassett
> Subject: RE: TFSC Report Comments
>
> thanks, what is the anticipated schedule to finalize the report? Is it
> asap or post October meeting?
>
> On another note, the status of fire science is less relevant than the
> status of the professional standards in fire investigation in place at
> the time. As you might imagine, the fire science is well ahead of fire
> investigation practice, and what is important, I think, is the status
> of investigation practice. It is fair to say that the standard of
> practice/care in fire investigation before 921 was conflicting and
> unclear, and its relationship to fire science was modest but present.

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August 20, 2010

Texas Forensic Science Commission
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BY EMAIL TO THE COMMISSION AND INDIVIDUAL COMMISSIONERS

Dear Texas Forensic Science Commissioners,

Thank you for the opportunity to supplement the record before you with regard to the Willingham/Willis allegation.

First and foremost, it is important that the Texas Forensic Science Commission (Commission) recognize that the Innocence Project has alleged that the Texas Fire Marshal's Office (FMO) committed professional negligence by failing to inform the Texas criminal justice system[1] that:

- the arson analyses the FMO had previously provided to it had been proven unreliable, and
- the national fire investigation community had universally accepted National Fire Protection Association Code 921 (NFPA 921) as the only scientifically acceptable means of analyzing fires to determine if such fires had been set.[2]

The FMO's failure to inform the criminal justice system, which statutorily relies upon the FMO for evidence of arson,[3] had the result of preventing the courts, the Board of Pardons and Parole, and the Governor from consistently understanding that they must not rely upon the discredited arson findings when considering cases at trial, pre-trial, or post-conviction. Had the FMO properly notified those parties:

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[1] Throughout this document, the "Texas criminal justice system" means all parties who make decisions on behalf of the government in fire-related criminal proceedings.
[2] *See* Letter from Innocence Project to the Commission, dated August 13, 2008.
[3] *See* Tex. Gov't Code § 417.007.

- prosecutors would understand the propriety of the arson evidence presented to them and act appropriately in all cases for which they are responsible;
- judges could understand the unreliability of such evidence when presented to them;
- the Board of Pardons and Paroles could consider such facts as part of their pardon and parole considerations; and
- the Governor could consider such facts when determining whether or not to allow the execution of a person who had been convicted, and/or whether to provide another form of clemency, when presented with a petition noting the impropriety of such evidence.

Second, the Innocence Project has alleged that, NFPA 921 notwithstanding, the fire investigators involved in these cases committed professional negligence by failing to conform their investigations and testimony to the standard of practice of the day. The fire investigators in question may not have been "scientists," but they knew that their analyses:

- Were being relied upon by the Texas justice system for determinations regarding whether or not a fire had been set;
- Were critical to assessments of innocence or guilt by the triers of fact in arson cases; and
- Could have the effect of sending any given defendant to prison for many years, or even result in that person's execution.

Therefore, while these people may have been but simple fire investigators, i.e. not scientists, they still had a duty to understand if their methods for ascertaining arson were understood by their profession to be unreliable. Because it seems clear on its face that the Willingham and Willis fire investigators were negligent in their responsibility to understand the propriety of the methods they used to determine whether a fire had been set, it is critically important that the Commission investigate and further consider this question.

Finally, the testimony of the FMO's investigator in the Willingham case was patently inappropriate, and as such represented negligence or misconduct on the part of an agent of the FMO.

These allegations of negligence and/or misconduct call into question the reliability and validity of arson investigations and convictions - past, present and future - across Texas. As such, they demand your review as they are allegations of "professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility, or entity."[4]

Background

The Statutory Responsibilities of the Texas Fire Marshal to the Texas Criminal Justice System
Pursuant to Texas law, the Texas Fire Marshal is the "chief investigator in charge of the investigation of arson and suspected arson in the state."[5] Also according to statute, the Texas Fire Marshal "may administer oaths and compel the attendance of witnesses and the production of documents."[6] "If the state fire marshal believes that there is sufficient evidence to charge a

[4] Tex. Gov't Code § 38.01(4)(a)(3).
[5] Tex. Gov't Code § 417.004 (emphasis added).
[6] Tex. Gov't Code § 417.007(d).

person with arson, attempted arson, conspiracy to commit fraud, or another offense related to the matter under investigation, the state fire marshal ***shall give to the appropriate prosecuting attorney all evidence and relevant information that has been obtained***, including the names of witnesses...The state fire marshal ***shall assist in the prosecution of any complaint he files***."[7] It is therefore beyond question that the Texas Fire Marshal has a clear statutory duty to the Texas criminal justice system, and specifically to prosecutors considering violations of criminal law.

The Cases that Establish Professional Negligence or Misconduct that Would Affect the Integrity of Forensic Results

Both Ernest Willis and Cameron Todd Willingham were convicted of capital murder based on outdated and disproven arson analyses. Both convictions resulted from arson analyses supported by the FMO, which provided investigative support for local fire departments. In both cases, an investigator from the FMO testified to his conclusion: that the fire at issue was set.

Both men spent years in prison because of flawed investigations and testimony for which the FMO was responsible. Both men languished behind bars despite the fact that fire science had demonstrated the significant flaws in past traditional forms of analysis. In both cases this was because the FMO did not alert the Texas criminal justice system that the underlying testimony supporting the arson convictions was dubious.

Where these cases differ is in their outcomes. In one of these cases – despite the failures of the FMO – the man sentenced to death for arson/murder based on an unreliable arson analysis had his conviction vacated, and was compensated on the basis of "actual innocence" by the state of Texas. That justice resulted not from the FMO's actions, but despite its inaction. The prosecutor, Ori White, preparing for re-trial, realized the impropriety of the original arson analysis and himself moved for justice.

In the other case – because of the failure of the FMO to inform the Texas Court system – neither the prosecution, judges, Board of Pardons and Paroles, or Governor's office itself learned or accepted the fact that the arson analysis relied upon to determine his guilt was unreliable. Thus none of them stopped – or even seriously questioned the propriety of – Mr. Willingham's execution.

Two very similar fires. Two very similar – and flawed – arson analyses led to conviction. In both cases the FMO had a duty to tell the courts of the unreliability of previously used arson analyses. In neither case did the FMO do so. In one case the court system – because of a responsible prosecutor's action and despite the FMO's failure to act – realized the mistake and exonerated an innocent man. In the other case, no government actors learned of the unreliability of the evidence from the FMO or elsewhere, and the Texas criminal justice system allowed this man to be executed, despite there being no reliable evidence of his guilt.

These cases exemplify the problem we put before you in our May 2006 complaint, a problem that you as a commission are empowered to investigate and correct: that hundreds of Texans may be behind bars based upon faulty arson science.[8] In fact, this allegation could have been brought in the name of Ed Graf, Alfredo Guardiola or any of the estimated 250 to 400 people in Texas

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[7] *Id.*

[8] Dave Mann, *Fire and Innocence*, Texas Monthly, Dec. 2009 <http://www.texasobserver.org/cover-story/fire-and-innocence> (last visited Aug. 19, 2010).

prisons on bad arson science.[9] While this allegation revolves around the cases of the two men, Ernest Willis and Cameron Todd Willingham, it is about far more than them. This allegation is about the discredited arson analyses that have been used for nearly two decades to determine innocence or guilt of arson and related charges in the Texas court system, and the injustices that persist to this day because the FMO has consistently failed to clearly inform the Texas criminal justice system that the arson investigation community had universally accepted that the old "folklore-based" fire investigation analyses had been discredited, were unreliable, and had improperly affected determinations of innocence or guilt.

Analysis

A. The Fire Marshal's Office's Duties to Correct and Inform

Pursuant to our allegation as detailed in our August 13, 2008 letter to the Commission, your investigation should be focused primarily on whether the FMO:

1) should have been aware of NFPA 921 when it was promulgated in 1992;
2) should have substantially revised its arson analysis procedures thereafter to reflect scientific findings of NFPA 921;
3) should have taken into account NFPA 921 once its effect was clear on the Willingham case and subsequent cases; and
4) should have notified prosecutors and courts about the substantial change in forensic arson analysis brought about by NFPA 921 at whatever point after Mr. Willingham's conviction the FMO adopted the tenets of NFPA 921 and concluded that the analysis offered by its agents in the Willingham case and other similar matters lacked scientific merit.[10]

In summary, we suggest that the true question for the Commission to consider in this regard is whether or not the FMO has been negligent, or committed misconduct, by failing to inform the Texas criminal justice system, or any specific entities therein, of the unreliability of the discredited arson analyses it had previously submitted to it.

The Commission has already rightly determined that, when considering whether negligence or misconduct had occurred, it is not bound by any one definition of negligence or misconduct,[11] but will instead allow the common understanding of those terms to, along with Commissioners'

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[9] *See Id.*

[10] *See* p. 2, Letter from Innocence Project to the Commission dated August 13, 2008.

[11] While Chairman Bradley presented the Commission with his recommended definitions of these terms at your first meeting under his Chairmanship, the Commission expressed strong reservations about being bound to such definitions (particularly without the benefit of the only other Commissioner-lawyer being in attendance when those definitions were considered), and while definitions were ultimately included in the voluntary policy and procedures guidelines that you accepted by the end of that meeting, the Commission accepted them only after having clearly established that it would not be bound by them:

"Adams: I have a question on the spirit of these policy decisions here. Are these going to be rules, laws or guidance?

Bradley: They are neither of the first two, they are not rules because we don't have rulemaking authority. They're not laws because only the legislature can do laws.

Adams: I just want it to be clear.

Bradley: They are—guidelines is another good word. I use the words "policies and procedures." They help us discipline ourselves. They do not reach out to any other agency or tell them how to behave. And they're not even enforceable on ourselves." Unofficial transcript of January 29, 2010 Commission meeting, transcribed by Zev Averbach, Averbach Transcription, 928 Broadway, Suite 504, New York, NY 10010.

professional expertise, guide its assessments of professional negligence or misconduct in the forensic setting.

To that end, it may be helpful to keep in mind the common law finding of negligence, then, which, according to well established Texas law, rests primarily upon the existence of reasons to anticipate injury and the failure to perform the duty arising on account of that anticipation.[12]

We examine the elements of such an analysis, as applied to this allegation, below.

1. The Fire Marshal's Office knew or should have known of NFPA 921.

The FMO was or should have been aware of NFPA 921 when it was promulgated, and ultimately generally accepted, as the standard for arson investigations by the fire investigation community. Indeed, FMO regulations, adopted in 1996, recognize the fact that "the [National Fire Protection Association (NFPA) is] a nationally recognized standards-making organization."[13] What's more, the FMO has incorporated NFPA standards into its regulatory scheme.[14] Given the preeminence of the NFPA, the FMO clearly knew - or at the very least, should have known - about NFPA 921 upon its publication in January 1992. Further, the FMO's leadership responsibility to the court system[15] on fire-related issues is written into Texas law; as such, the state statutorily relies upon the FMO to remain abreast of significant developments in its field of expertise, and to act accordingly. Given that NFPA 921 represents a clear and absolute departure from the old, discredited and unreliable "folklore" based method of determining if a fire had been set – and that those "folklore" forms of analyses had individually and specifically been discredited separate from NFPA 921 – the FMO had a duty to inform the Texas criminal justice system of the change in accepted professional practice.

Indeed, evidence of NFPA 921's acceptance abounded in the 1990s, in Texas and nationwide. Corsicana Fire Chief Donald McMullan, for example, acknowledges that it is "probably true" that the NFPA 921 was well established by 1995, and universally acknowledged some three years later.[16] When the National Fire/Arson Scene Planning Panel first met ***in April 1998***, it "determined that [its work] **should not attempt to supplant those *widely accepted consensus documents*** [referring to NFPA 921 and standards E1188 and E860 from the American Society for Testing and Materials] but should supplement them for those public safety personnel who may not be trained in the specialized aspects of fire scene investigation but may be in the position of having to respond to a fire/arson scene."[17] In the year 2000, the International Association of Arson Investigators formally endorsed the adoption of the 2001 edition of NFPA 921.[18] In light of all the above, the FMO knew or should be held to have constructive knowledge of the universal acceptance of NFPA 921 by the fire investigation community by – at the very latest – 2000.[19]

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[12] *See, inter alia, Great Atlantic & Pacific Tea Co. v. Evans*, 175 S.W.2d 249, 251 (Tex. 1943); *Wal-Mart Stores, Inc. v. Tamez*, 960 S.W.2d 125, 130 (Tex.App.-Corpus Christi 1997); *Robinson v. Nat'l Autotech, Inc.*, 117 S.W.3d 37, 42 (Tex.App.2003--Dallas).

[13] 28 Tex. Admin. Code § 34.302.

[14] *See* 28 Tex. Admin. Code § 34.303.

[15] *See* Tex. Gov't Code § 417.004.

[16] Response of Corsicana Fire Chief to Leigh Tomlin, dated Sept. 29, 2009.

[17] p. 8, Fire and Arson Scene Evidence: A Guide for Public Safety Personnel, NIJ Research Report (June 2000).

[18] p. 40, Arson Review Committee Report on the Peer Review of the Expert Testimony in the Cases of State of Texas v. Cameron Todd Willingham and State of Texas v. Ernest Ray Willis, May 2006.

[19] Though *see infra* text accompanying note 21 that the FMO has used NFPA 921 for investigations since 1993.

2. The Fire Marshal's Office should have revised its procedures based on NFPA 921.

The FMO should have substantially revised its arson analysis procedures after it accepted NFPA 921 to reflect that acceptance. Indeed, there is evidence that the FMO did just this. When asked at a recent meeting of the Texas Criminal Justice Integrity Unit whether the FMO had adopted NFPA 921, Ed Salazar, Assistant Director of the State Fire Marshal's Office, responded that the FMO had not adopted it per se, but that it had been using NFPA 921 as a standard for fire investigations since 1993.[20]

3. The Fire Marshal's Office should have taken into account NFPA 921 once its effect was clear on the Willingham case, the Willis case, and subsequent cases.

Given the Texas criminal justice system's justified reliance on the testimony of the FMO, and particularly Texas prosecutors' reliance on evidence and other information provided by the Fire Marshal as established by statute,[21] the FMO should have taken into account the clear implications of NFPA 921 on the past arson analyses employed in the Willingham case and in other convictions where people were imprisoned and/or awaiting execution for arson, murder and other crimes based on those long-discredited, unreliable forms of arson analysis[22] Specifically, the FMO should have recognized the danger of the unreliable methods previously used by fire investigators, educated the court system about that unreliability, and acted affirmatively to ensure that such unreliable analyses were no longer performed.

4. The Fire Marshal's Office should have notified Texas prosecutors, courts, the Board of Pardons and Parole, and the Governor's Office about the implications of NFPA 921.

Finally, the FMO should have notified Texas prosecutors, courts, the Board of Pardons and Parole, and the Governor's Office about the substantial change in acceptable forensic arson analysis brought about by NFPA 921. It should have done so at the time that the FMO adopted the tenets of NFPA 921; when it concluded that the analysis offered by its agents in the Willingham case and other investigations were unreliable; and/or when it realized the unreliability of each of the other "folklore-based" forms of ascertaining whether a specific fire had been set.

Again, **the FMO has a statutory duty under Texas law to "*give to the appropriate prosecuting attorney all evidence and relevant information that has been obtained*"** when he believes that "there is sufficient evidence to charge a person with arson, attempted arson, conspiracy to commit fraud, or another offense related to [a] matter under investigation."[23] As such, it is perfectly clear that the FMO has a statutory duty to the prosecution in criminal matters

[20] November 13, 2009 meeting of the Texas Criminal Justice Integrity Unit <http://www.cca.courts.state.tx.us/tcjiu/meetings.asp> (last visited Aug. 19, 2010).
[21] *See* Tex. Gov't Code §§ 417.004, 417.007 (setting out investigatory and prosecution-related duties of the FMO).
[22] Again, this allegation is merely a vehicle through which to uncover and reinvestigate convictions based upon faulty arson science. As referenced above, this allegation could have been brought in the name of any number of inmates in Texas prisons. For instance, Alfredo Guardiola was convicted of arson the very same year the FMO began to use NFPA 921. *Fire and Innocence*, Texas Monthly, Dec. 2009.
[23] Tex. Gov't Code § 417.007 (emphasis added).

related to fires, specifically when arson or related prosecutions are being pursued, and when convictions had been secured.

Additionally, the FMO's fire investigators – sworn peace officers – know or should know of prosecutors' primary duty, which is "not to convict, but to see that justice is done."[24] This duty is well-known, and also memorialized in the Texas Code of Criminal Procedure.[25] Likewise, FMO fire investigators know or should know of prosecutors' duty to hand over exculpatory evidence to the defense.[26] This gives rise to an implicit, concomitant duty on the part of the FMO to inform prosecutors of exculpatory information – and clearly, the publication of NFPA 921 and research establishing the unreliability of past forms of analysis exemplifies such information.

The FMO's duty to inform the Texas criminal justice system of having previously provided unreliable evidence to it is not, however, limited to that duty identified above. As a matter of professional responsibility, the FMO should have anticipated that its failure to alert the criminal justice system as to its past flawed analyses would result in the conviction and incarceration of potentially innocent defendants, and that it had a duty to inform those officials empowered to act upon such information in order to dispense justice. In fact, the American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB) Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists codified this longstanding ethical principle when it set out that "[l]aboratory management ***will take appropriate action if there is potential for, or there has been, a miscarriage of justice due to circumstances that have come to light***, incompetent practice or malpractice."[27]

In light of all this, it is unreasonable that the FMO did not, in the very least, alert prosecutors to NFPA 921 and the unreliability of past testimony and analyses they may have been provided. Indeed, given the import of their past unreliable analyses, the FMO should have alerted the courts, the Board of Pardons and Parole and the Governor of the same fact. Clearly, the FMO's specialized expert testimony is given great weight and is reasonably relied upon by the criminal justice system. The fact that past testimony and analyses that the FMO provided the court system have been proven unreliable is *critically important* to such parties' decisions about pardons, parole and even executions. As a result, the FMO's failure to inform the Texas criminal justice system of NFPA 921 recklessly created the potential for injustice. In the Willingham and perhaps other cases, the Board of Pardons and Parole and the Governor were forced to make significant decisions about life and death without all of the facts in front of them. Recognizing this, the FMO should have notified the Texas criminal justice system that so many convictions were potentially unsound so that past cases could be effectively reviewed to correct any miscarriages of justice.

A Precedent for Review

An excellent precedent in this regard is the FBI's response to the discovery that testimony in thousands of cases on comparative bullet lead analysis (CBLA) was specious. As early as 2000,

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[24] Tex. Code Crim. Proc. art. 2.01.

[25] *Id.*

[26] Tex. Gov't Code § 417.006; *See State v. Moore*, 240 S.W.3d 324, 327 (Tex.App.-Austin 2007).

[27] ASCLD/Lab Guiding Principles of Professional Responsibility for Crime Laboratories and Forensic Scientists <http://www.ascld-lab.org/about_us/guidingprinciples.html> (last visited Aug. 19, 2010) (emphasis added). While these principles are not binding on forensic scientists, they are particularly informative, as they "provide a framework for describing ethical and professional responsibilities in the forensic laboratory community." *Id.*

the FBI Laboratory sought an impartial scientific assessment of its CBLA work. The National Research Council issued its report on CBLA in 2004. In a 2005 email to FBI Robert Mueller, FBI Lab Director Dwight Adams noted that:

> In the end, it did not matter that we were using the best available technology. What mattered was our inability to determine the significance of our comparisons. We cannot afford to be misleading to a jury or state that two samples are indistinguishable, but not be able to state the significance of that fact or what it means...We plan to send a letter to all prosecutors that utilized this technology...We plan to discourage prosecutors from using our previous results in future prosecutions.[28]

Recognizing its duty to inform the court system of its erroneous or misleading testimony, the FBI worked with the Joint Task Force on CBLA[29] to review closed cases where CBLA testimony was given. As a result, the FBI notified prosecutors and judges in individual cases where misleading CBLA testimony contributed to convictions, and the Task Force vetted and responded to cases as the FBI released them and ensured that attorneys handling the cases had access to legal and forensic expertise to weigh the impact of false or misleading CBLA testimony.

B. The FMO Investigators' Negligence

The second count of negligence upon which our allegation is based centers on the FMO's Investigators. First, the FMO's investigators conducted investigations that did not conform to the standard of practice in place at the time.

The Commission engaged one of the nation's top fire investigation experts, Dr. Craig Beyler for its investigation of the fire investigation questions central to this allegation.[30] Dr. Beyler's Report clearly sets out the standard of practice at the time: "[f]or purposes of this analysis[,] the standard of care before NFPA 921 was taken from fire investigation texts that were published before NFPA 921...as well as from the articles published in *The Fire and Arson Investigator* in the 1980s."[31] Dr. Beyler continues: "[i]t is...important to distinguish the community standard of care from the norms as practiced in the field. In many instances[,] the norms are well below the standard of care. That is[,] fire investigation as actually practiced fell well short of the teachings of *texts, courses, and articles* of the day."[32]

Dr. Beyler concludes that, ***in his expert opinion***:

> The investigations of the Willis and Willingham fires did not comport with...the standard of care expressed by fire investigation texts and papers in the period

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[28] *FBI Emails Outline Concern*, Washington Post, Nov. 2007, <http://www.washingtonpost.com/wp-srv/content/nation/investigative/FBIEmails.pdf> (last visited Aug. 19, 2010).

[29] The Joint Task Force on CBLA was formed by the Innocence Project and the National Association of Criminal Defense Lawyers.

[30] Per the resume he submitted to you with his report, Dr. Beyler is the Technical Director of Hughes Associates, where he is responsible for technical quality of fire protection design, research and development projects. He is currently Chairman of the International Association of Fire Safety Science. He has been a member of the National Fire Protection Association since 1987. He holds, *inter alia*, a BS in Fire Protection Engineering, an MSc in Fire Safety Engineering and a PhD in Engineering Science. For further qualifications, please refer to his resume, which he attached as Appendix A of his Report, *infra* n. 41.

[31] p. 2, Analysis of the Fire Investigation Methods and Procedures Used in the Criminal Arson Cases against Ernest Ray Willis and Cameron Todd Willingham, August 2009 (emphasis in original).

[32] *Id* (emphasis added).

> 1980-1992. The investigators had poor understandings of fire science and failed to acknowledge or apply the contemporaneous understanding of the limitations of fire indicators. Their methodologies did not comport with the scientific method or the process of elimination. A finding of arson could not be sustained based upon...the standard of care expressed by fire investigation texts and papers in the period 1980-1992.[33]

This is not a question of whether obscure scientific literature questioning the foundation of arson investigation had yet reached the investigation community. Information regarding the established unreliability of traditional, "folklore-based" arson analyses was readily available to investigators – through courses and other means of information sharing within the arson investigation community, such as continuing education, conferences, reports, and trade magazines.[34] These investigators should have availed themselves of such information, especially given the gravity of their analyses.[35] As one Commissioner put it in a previous discussion of the issues in this allegation, this is a case of "professional ignorance."[36] And although the Commission has clearly indicated that it is not bound by the advisory policies and procedures it has adopted, it is worth noting that those policies and procedures state that, "[a]n act or omission was negligent if the actor *should have been but was not aware* of an accepted standard of practice required for a forensic analysis."[37]

Mark Goodson of Goodson Engineering, one of Texas's most respected fire investigation experts[38] agrees with Dr. Beyler. As a fire expert with decades of experience with the Texas fire investigation community, he wrote in a letter dated September 23, 2009 to the Commission, "I first off want to commend Dr. Beyler for an excellent report. ***His findings, in my view, are accurate.*** Moreover, the report agrees with the previous reports by both Lenitini, Carpenter et al. and Dr. Hurst." He also notes in a letter to be submitted to you that *many of the indicators the investigators used in the Willingham case were known to be wrong at the time*. Crazed glass, "V" patterns and pour patterns had all been discredited as arson indicators at the time of the Willingham investigation.

As Investigator Manuel Vasquez (Vasquez) was at the time of his testimony a six year veteran of the FMO, certified Texas arson investigator, graduate of and instructor at the Dallas County Sheriff's and Fire Academies and student at the annual Texas A & M fire training school, he clearly knew – or at the very least should have known - that the indicators upon which he relied in determining arson were flawed.

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[33] *Id.* at 51.

[34] See *The Fire and Arson Investigator*; nn. 6, 9, 13, 17, 19, 22, 2, 25, 33, 50, 51, 56, 57, 59, 60 and 66, Analysis of the Fire Investigation Methods and Procedures Used in the Criminal Arson Cases against Ernest Ray Willis and Cameron Todd Willingham, August 2009.

[35] This sentiment has been codified in the International Association of Arson Investigators Code of Ethics: "I will regard it my duty to know my work thoroughly. It is my further duty to avail myself of every opportunity to learn more about my profession." International Association of Arson Investigators Code of Ethics, <http://firearson.com/l_Membership/l_Code-of-Ethics.aspx> (last visited Aug. 19, 2010).

[36] Dr. Sarah Kerrigan, July 23, 2010 Commission Meeting.

[37] p. 4, Texas Forensic Science Commission Policies and Procedures, adopted July 23, 2010 (emphasis added).

[38] Mark Goodson is an infinitely qualified arson expert. He runs an engineering consulting firm and forensic lab that analyzes 400-500 fires a year. He is a licensed engineer in ten states and holds a multitude of degrees and certificates in engineering and arson science.

Some might claim that since other arson investigators in Texas were also using the same procedures, it could not be negligent for Vasquez in the Willingham case and Investigators Brown and Cheever in the Willis case to have continued using unreliable methods of fire analysis despite their having been clearly discredited. We think the Commission will find it instructive that Texas law does not support such an assertion. "The fact that a person conducts himself in a particular manner which is usual and customary does not foreclose the question of ordinary care under the particular circumstances. It is entirely possible that customary practices might of themselves be unreasonable or include negligence."[39] Here, simply because "everyone else was doing it" does not make the investigators' actions reasonable or not negligent. The FMO's fire investigators in fact knew – or should have known – that such customary practices were unreliable and thus improper for advancing to prosecutors (and, through them, to the Texas criminal justice system) for considering whether a prosecution should proceed, a conviction would be just, or a secured conviction was reliable.

In sum and in addition to the negligence of the FMO in failing to correct its testimony and inform the Texas criminal justice system of the unreliability of the traditional "folklore" based analyses and testimony that had historically been used, the FMO Investigators in the Willis and Willingham cases were negligent. They conducted investigations that did not conform to fire investigators' accepted standard of practice at the time. Alternatively, the standard they followed was itself negligent and the investigators should have known that.

C. Investigator Vasquez's Patently Inappropriate Forensic Testimony

The testimony of the FMO's investigator in the Willingham case was also negligent, and/or an act of misconduct, in that he stated conclusions that were patently beyond his expertise, and even his ability to know. Specifically, Vasquez's testimony as to the credibility and intent of Willingham were outrageous and completely inappropriate for a fire investigator. He noted in his testimony that when speaking with Mr. Willingham: "I listened to him. I never questioned him...He just talked and he talked, and all he did was lie...[p]ure fabrication."[40] Vasquez testified that, in his opinion, Willingham's injuries were self-inflicted.[41] He was asked, "[b]ased upon your investigation and your examination of the scene and your conclusions, can you tell what the arsonist intended to do by setting this fire?" He responded, "[t]he intent was to kill the little girls."[42] As Professor Giannelli of Case Western Reserve University[43] points out, Vasquez was "testifying totally beyond his expertise...it is improper expert testimony and intrudes upon the jury's function."[44] And even if this kind of testimony was regularly permitted at the time, it goes far beyond what is allowable according to contemporaneous and common law evidence rules.

Simply put, Vasquez's forensic expert testimony was patently inappropriate and therefore amounted to professional negligence or misconduct.

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[39] *Air Control Engineering, Inc. v. Hogan*, 477 S.W.2d 941, 946 (Tex.Civ.App. 1972).
[40] Testimony of Vasquez, Tr., part 1, p. 260, lines 18-22.
[41] *Id.*, at 262, lines 17-23.
[42] Tr., part 2, p. 54, lines 6-11.
[43] Professor Gianelli, the Albert J. Weatherhead III & Richard W. Weatherhead Professor of Law at Case Western Reserve University School of Law, is a preeminent legal scholar, with an emphasis in forensics. He has written extensively in the field of evidence and criminal procedure, especially on the topic of scientific evidence. He holds, *inter alia*, a MSc in Forensic Science, an LLM and a JD.
[44] Letter to the Commission from Professor Giannelli dated August 17, 2010.

In fact, it seems that Vasquez may have laid the groundwork for his improper testimony by sprinkling throughout it a seemingly formulaic set of statements to establish his expertise. (This despite the fact that he employed wholly discredited methods of arson analysis to arrive at his findings.) Vasquez told the jury that "[t]he fire tells a story. I am just the interpreter;"[45] "the fire does not lie. It tells me the truth;"[46] and "the fire, itself, tells me that it's a very aggressive fire...it was not a planned fire,"[47] while providing the jury with his improper forensic testimony, which purported to tell the jury how to regard Mr. Willingham's credibility and intent. The use of this set of mystical statements throughout his improper testimony raises additional concerns and seems so formulaic as to perhaps have been used in previous cases in which he also provided similar inappropriate testimony. This begs Commission investigation into his past cases, particularly considering that Vasquez exclusively relied on methods of arson analysis he knew or should have known were discredited and unreliable, and most importantly, found that fires had been set in "with the exception of a few, most all of" the 1200 to 1500 fires he investigated.[48]

D. The Texas Forensic Science Commission's Duty to Investigate

Pursuant to the Commission's authorizing statute, the Commission "*shall*...investigate, in a timely manner, any allegation of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility, or entity."[49]

Accordingly, it seems abundantly clear that you have a *duty* to investigate the facts and circumstances underlying this allegation. Complainants must only come to you with a colorable allegation of negligence, and per the statute, you must investigate those allegations. Indeed, the Commission – in its previous iterations – seemed to have recognized this fact, and was conducting the type of thorough yet focused investigation that this allegation required. The agenda for the hastily cancelled October 2, 2009 meeting, which included Commission questioning of its expert, and considering the other entities from which it should seek information, exemplifies that course.

But the Commission's recent attempts to look into the Willingham/Willis allegation have fallen far short of that mark. Indeed, it was patently alarming that the Investigation Panel Chair, Commissioner Bradley, sought Commission approval to proceed with drafting a full Commission report based on the incomplete investigation it had conducted. This was especially true given that the only additional consideration given to this allegation since Mr. Bradley's installation as

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[45] Tr., part 1, p. 244, lines 8-9.
[46] *Id.*, lines 11-12.
[47] Tr., part 2, p. 72, lines 14-16.
[48] Tr., part 1, p. 227, lines 24-25 and p. 228, lines 1-11 state as follows:
Q: And how many fires have you investigated since becoming a certified fire arson investigator?
A: Perhaps in the range of 1200 to 1500 fires.
Q: Of these 1200 to 1500 fires, how many turned out to be arson in your opinion?
A: With the exception of a few, most all of them.
Q: And how many – again, based on your experience, how many arson fires that you investigated involved injuries or death?
A: Unfortunately, fires injure a lot of people, kill a lot of people. It's about 50 percent.
Q: How many trials have you testified in, Manuel?
A: Twenty-five or thirty trials.
[49] Tex Code Crim. Proc. art. 38.01(4)(a)(3) (emphasis added).

Chairman was held behind closed doors, without the public, the media, or the full Commission having access to those proceedings. The Investigation Panel came to the July 2010 meeting with a recommendation that the Commission find that the FMO investigators acted in accordance with the standard of practice at the time *despite not having clearly determined what that standard of practice was*. Moreover, we respectfully submit that it seems the Investigation Panel did not fully address critically important components of our allegation. We strongly encourage the Commission to, as a whole, properly – and publicly – investigate the allegation before it arrives at a conclusion. Anything short of this will surely undermine public confidence in the Commission's ultimate findings and recommendations in the wake of its investigation.

Allegations are Different from Prosecutions

Certain statements made in recent meetings clearly suggest that the Commission is at times considering allegations as if they were prosecutions of the persons involved in the allegation. ***Let us be clear that this allegation is not intended to be, nor is it in fact, a prosecution or indictment of any individual.*** While finding negligence or misconduct is fundamental to any allegation the Commission would consider, the point of the Commission's work is not to punish an individual, but to identify action(s) that represent professional negligence or misconduct in order to enable the state – through the Commission and otherwise – ensure the integrity of forensic evidence, as well as justice, in the wake of such findings.

D. This Investigation and Accreditation

We have written to you previously on the point of the scope of the Commission's jurisdiction and whether this allegation rightly falls therein, and trust that you will consider those points in this specific instance.[50] There is, however, one additional point we would like to make on that question.

The Commission has already unanimously accepted this allegation as a proper subject of its purview. That acceptance has been affirmed at many points since that time, and is clearly entirely within the Commission's mission and powers. Yet, curiously, some continue to raise the question of whether the Commission has jurisdiction to consider this allegation. There is therefore one last aspect of the jurisdiction question that – in addition to the writings that you have already received from the Innocence Project and others on this point, all of which merit your full consideration – we would like to bring to your attention.

As established in the previous memoranda that have been submitted to you, Texas law clearly leaves significant discretion to the Commission regarding the scope of its jurisdiction.[51] The Legislature, by specifically referring to "facilities" in the Commission's enabling statute, provided you with a broad range of appropriate forensic subjects for Commission investigation, and the discretion to determine what that includes. At your July 23, 2010 meeting, Pat Johnson, Director of the Texas DPS Lab, noted that under the DPS accreditation statute,[52] the Legislature directed that "accreditation" refers only to "laboratories" or "entities." Under the Commission's enabling statute, however, the Legislature did not limit you to those two types of accredited

[50] *See* IP Letter and Memorandum to the Commission dated July 20, 2010; Statement Regarding "Memorandum on the Jurisdiction of the Forensic Science Commission (FSC)" dated July 19, 2010.

[51] *See Id.* "As long as a Commission does not take on matters clearly beyond its scope, its jurisdictional decisions are given great deference." *See, e.g., Southwestern Bell Telephone Co. v. Combs*, 270 S.W.3d 249, 261 (Tex. App.-Amarillo 2008) (internal citations omitted).

[52] Tex. Gov't Code § 411.0205.

bodies. The Commission's enabling statute includes not just the "laboratories," and "entities" included in the DPS accreditation statute, but also includes a new category of forensic bodies, *"facilities."* This term, "facilities," does not exist elsewhere in Texas statutory law with regard to forensic bodies, and the term is not defined in your enabling statute. The Legislature therefore clearly intended for the Commission to have the discretion to determine what additional forensic bodies are properly subject to its jurisdiction. By including that new and undefined term, the Legislature must be understood to have anticipated instances where it would be appropriate for the Commission to look into the acts of a forensic organization that is not like any other considered under Texas statute to be "accredited."

If your jurisdictional analysis so requires, the FMO is clearly among those bodies appropriately considered an "accredited facility" by the Commission. The FMO's Forensic Arson Laboratory, housed within a division of the FMO; and the "Texas State Fire Marshal's Forensic Arson Laboratory" appears on the "Current List of DPS Accredited Labs from Texas, 8/6/2009."[53] That accredited laboratory – clearly a covered entity – is part of its parent facility, the FMO, and relies upon that parent facility to properly function as an accredited lab (e.g., the proper collection of fire debris evidence).

The Legislature thus left to the Commission to determine what specifically constitutes an "accredited facility" for the purposes of your jurisdiction. Given the clear statements of the chief sponsors of your enabling statute, Senators Whitmire and Hinojosa, that the statute is intended to broadly cover forensic practice,[54] and the important questions of the integrity of forensic results raised by the arson responsibilities of the FMO, it seems clear that the FMO would be properly considered an "accredited facility" by the Commission's for the purpose of ensuring justice and the integrity of forensic evidence in the Texas criminal justice system.

Conclusion

The urgency with which you must investigate is underscored by Vasquez's own testimony. As he put it, he had investigated "in the range of 1200 to 1500 fires" since becoming a certified fire investigator.[55] "With the exception of a few, most all of them" turned out to be arson in his opinion.[56] Given the FMO's failure to inform the Texas criminal justice system of the unreliability of the old and fully discredited "folklore" based arson analyses it had relied upon to assert that fires had been set – as well as Vasquez's role within the FMO, his teaching

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[53] Current List of DPS Accredited Labs from Texas, 8/6/2009, <http://www.txdps.state.tx.us/criminal_law_enforcement/crime_laboratory/list_labs_accredited_texas.pdf> (last visited Aug. 17, 2010).

[54]The commission, [Lawrence Coleman, spokesman for Sen. John Whitmire,] said, "was set up to be a **broad review**, to take on these problems and let us know what we needed to do to introduce new legislation. The senators' goal was to look at **whether appropriate forensic science methods were being used and that crime labs were following best practices**." *At time of Perry dismissals, authority of Texas forensic panel was at issue*, Fort-Worth Star Telegram, Oct. 09 (emphasis added).

"The purpose of the commission was...to **scrutinize the methodology used in cases**, so if there's a mistake we could learn from the mistake and make the system better. They're there to review the evidence, the technology and whatever methods were used to convict the person like junk science... **The criminal justice system has to have the trust of the public to make sure we're convicting people who are guilty, especially when they're sentenced to death**. They're just doing their job to make sure the methods used at the time were valid. It's so we don't make another mistake in using faulty evidence." Sen. Juan "Chuy" Hinojosa, D-McAllen, *Texas Forensic Science Commission questioned*, Corsicana Daily Sun, Oct. 09 (emphasis added).

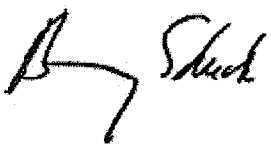
[55] Tr., part 1, p. 227-28, lines 24-25, 1.

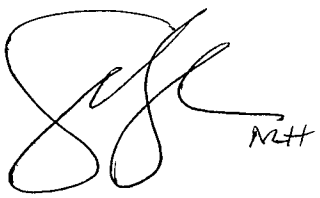
[56] *Id.*, at 228, lines 2-4.

responsibilities to arson investigators throughout the state, and the impropriety of the investigative methods he used and the testimony he provided – it seems abundantly clear that there were, are, and will continue to be many other individuals wrongfully convicted and incarcerated, and even possibly executed, for arson-related crimes if the Commission does not properly investigate and act upon this allegation.[57]

We hope that you will continue to investigate fully and publicly the specific allegations of professional negligence discussed above. As always, thank you for your time and attention to this important issue. We would be more than pleased to share more information with any and all of you, at your request.

Sincerely,





Barry C. Scheck, Esq.
Co-Director

Stephen Saloom, Esq.
Policy Director

[57] *See* pp. 10-11, Letter to the Commission from Mark Goodson dated Sept. 23, 2009 for specific case examples.

897 S.W.2d 351

Judges, Attorneys and Experts

Court of Criminal Appeals of Texas,
En Banc.
Cameron Todd WILLINGHAM, Appellant,
v.
The STATE of Texas, Appellee.

No. 71544.
March 22, 1995.

Defendant was convicted of capital murder by murdering more than one person during same criminal transaction after jury trial in the 13th Judicial District Court, Navarro County, Kenneth A. Douglas, J. Defendant appealed, and the Court of Criminal Appeals, White, J., held that: (1) jury could find that defendant would commit criminal acts of violence that would constitute continuing threat to society; (2) trial court properly denied defendant's motion for change of venue; (3) trial court properly refused to admit evidence offered by defense to impeach testimony of witness for state; and (4) trial court properly refused to charge jury on effect of parole in punishment phase.

Affirmed.

Clinton, J., filed opinion concurring in the result in which Maloney, J., joined and Baird, J., joined in part.

Overstreet, J., filed opinion concurring in the result.

West Headnotes

[1] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(E) Factors Related to Offender
350Hk1720 k. Dangerousness. Most Cited Cases
(Formerly 203k357(6))

Jury could find in capital case that defendant would commit criminal acts of violence that would constitute continuing threat to society; defendant

saturated his house with combustible liquid, ignited house, and left his three children in the burning house, defendant had been convicted of numerous offenses and failed all attempts of rehabilitation, and defendant committed other violent acts apart from his criminal convictions.Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[2] KeyCite Citing References for this Headnote

110 Criminal Law
110XXIV Review
110XXIV(M) Presumptions
110k1144 Facts or Proceedings Not Shown by Record
110k1144.13 Sufficiency of Evidence
110k1144.13(7) k. Particular Issues or Elements. Most Cited Cases

In determining whether evidence is sufficient to support jury's answer to issue of defendant's future dangerousness presented in punishment phase of capital murder trial, Court of Criminal Appeals views evidence in light most favorable to verdict to determine whether rational trier of fact could have found elements of future dangerousness beyond reasonable doubt. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[3] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1750 k. In General. Most Cited Cases
(Formerly 203k358(1))

Any evidence adduced at guilt/innocence and punishment phases of capital murder trial can be used by jury when considering future dangerousness. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[4] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence

350Hk1772 k. Sufficiency. Most Cited Cases
(Formerly 110k1208.1(6))

Often circumstances of offense alone are enough in capital case to sustain affirmative answer to special issue of future dangerousness. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[5] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1755 Admissibility
350Hk1762 k. Other Offenses, Charges, or Misconduct. Most Cited Cases
(Formerly 110k1208.1(6))

Defendant's prior criminal record is relevant to future dangerousness issue in capital case. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[6] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(E) Factors Related to Offender
350Hk1720 k. Dangerousness. Most Cited Cases
(Formerly 110k1208.1(6))

In addition to circumstances of capital case, criminal history and reputation evidence are probative of future dangerousness. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(b)(1).

[7] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)4 Determination and Disposition
350Hk1789 Review of Proceedings to Impose Death Sentence
350Hk1789(5) k. Scope of Review. Most Cited Cases
(Formerly 110k1134(3))

Court of Criminal Appeals could not review capital murder defendant's claim that evidence was insufficient to support finding that mitigating circumstances would not warrant life sentence; defendant failed to point to any mitigating factors which would persuade jury to answer special issue in his favor and render life sentence, no mitigating circumstances were apparent from record, and no authorities were cited. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(e); Rules App.Proc., Rule 74(f).

[8] KeyCite Citing References for this Headnote

110 Criminal Law
110IX Venue
110IX(B) Change of Venue
110k123 Grounds for Change
110k126 Local Prejudice
110k126(2) k. Particular Offenses. Most Cited Cases

Trial court properly denied defendant's motion for change of venue in capital case, even though district attorney stated on television that possible motive for defendant burning his house down with his three children inside was that “the children were interfering with [defendant's] beer drinking and dart throwing”; newspaper articles offered by defendant demonstrated nothing more than accurate reporting of newsworthy occurrence, and neither newspaper nor television reporting was widespread.

[9] KeyCite Citing References for this Headnote

92 Constitutional Law
92XXVII Due Process
92XXVII(H) Criminal Law
92XXVII(H)4 Proceedings and Trial
92k4559 k. Jurisdiction and Venue. Most Cited Cases
(Formerly 92k259)

110 Criminal Law KeyCite Citing References for this Headnote
110IX Venue
110IX(B) Change of Venue
110k123 Grounds for Change
110k126 Local Prejudice
110k126(1) k. In General. Most Cited Cases

Change of venue is proper and consistent with principles of due process when defendant demonstrates inability to obtain impartial jury or fair trial at place of venue. U.S.C.A. Const.Amends. 5, 14.

[10] KeyCite Citing References for this Headnote

110 Criminal Law
110IX Venue
110IX(B) Change of Venue
110k123 Grounds for Change
110k126 Local Prejudice
110k126(1) k. In General. Most Cited Cases

Change of venue is the remedy to jury prejudice resulting from extensive, widespread inflammatory news coverage.

[11] KeyCite Citing References for this Headnote

110 Criminal Law
110IX Venue
110IX(B) Change of Venue
110k123 Grounds for Change
110k126 Local Prejudice
110k126(1) k. In General. Most Cited Cases

Mere fact that crime was publicized in news media does not establish prejudice or require change of venue per se; rather, test is whether outside influences affecting community's climate of opinion as to defendant are inherently suspect.

[12] KeyCite Citing References for this Headnote

110 Criminal Law
110IX Venue
110IX(B) Change of Venue
110k123 Grounds for Change
110k126 Local Prejudice
110k126(1) k. In General. Most Cited Cases

110 Criminal Law KeyCite Citing References for this Headnote
110IX Venue
110IX(B) Change of Venue

110k129 Application
110k134 Affidavits and Other Proofs
110k134(1) k. In General. Most Cited Cases

In order to prevail in motion to change venue, defendant must prove that publicity about case is pervasive, prejudicial, and inflammatory.

[13] KeyCite Citing References for this Headnote

110 Criminal Law
110XX Trial
110XX(F) Province of Court and Jury in General
110k733 Questions of Law or of Fact
110k737 Issues of Fact in General
110k737(2) k. Place of Offense. Most Cited Cases

When trial court is presented with motion to change venue, trial judge must act as fact finder with regard to issue presented.

[14] KeyCite Citing References for this Headnote

110 Criminal Law
110XXIV Review
110XXIV(N) Discretion of Lower Court
110k1150 k. Change of Venue. Most Cited Cases

Court of Criminal Appeals will affirm trial court's judgment regarding motion to change venue absent evidence of abuse of discretion.

[15] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness
410k373 k. Laying Foundation for Impeaching Evidence. Most Cited Cases

Trial court properly refused to admit evidence offered by defense in capital case to impeach testimony of witness for state, even though defendant claimed that witness testified that defendant admitted committing offense because witness hoped for early release from prison; no nexus was established between admission made by defendant to witness and witness'

alleged hopes of early release, and trial counsel failed to lay proper predicate for impeaching witness.

[16] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(A) In General
410k311 k. Grounds of Credibility in General. Most Cited Cases

"Impeachment of a witness" means adducing proof that witness is unworthy of belief or credit.

[17] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness
410k363 Interest as Ground of Impeachment in General
410k363(1) k. In General. Most Cited Cases

Credibility of witness may be attacked, inter alia, by evidence that witness is slanting testimony against or in favor of party as result of personal interest or bias in cause. Rules of Crim.Evid., Rule 612(b).

[18] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness
410k373 k. Laying Foundation for Impeaching Evidence. Most Cited Cases

When impeaching witness, specific connection between witness' testimony and cause, disclosing actual bias or motive, must first be established, and nexus must be demonstrated by laying proper foundation.

[19] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness

410k373 k. Laying Foundation for Impeaching Evidence. Most Cited Cases

To lay proper predicate for impeachment, witness should be asked about any possible interest or bias he may have before there is attempt otherwise to prove interest or bias.

[20] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness
410k373 k. Laying Foundation for Impeaching Evidence. Most Cited Cases

In laying proper predicate for impeachment on bias or personal interest grounds, witness must first be informed as to circumstances supporting claim of bias or interest and must be given opportunity to explain or deny such circumstances. Rules of Crim.Evid., Rule 612(b).

[21] KeyCite Citing References for this Headnote

410 Witnesses
410IV Credibility and Impeachment
410IV(C) Interest and Bias of Witness
410k373 k. Laying Foundation for Impeaching Evidence. Most Cited Cases

When party does not lay proper predicate for impeaching witness, it is not error to refuse to allow admission of such testimony.

[22] KeyCite Citing References for this Headnote

110 Criminal Law
110XX Trial
110XX(G) Instructions: Necessity, Requisites, and Sufficiency
110k790 k. Matters of Law in General. Most Cited Cases

Trial court properly refused to charge jury on effect of parole in punishment phase of capital case since parole eligibility is not proper consideration for jury's deliberation on punishment. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(f)(4).

[23] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HVII Cruel and Unusual Punishment in General
350HVII(E) Excessiveness and Proportionality of Sentence
350Hk1480 k. In General. Most Cited Cases
(Formerly 110k1213.8(1))

For purposes of Eighth Amendment, "mitigating circumstances" are those circumstances of defendant's background and character that will support belief, long held by this society, that defendants who commit criminal acts that are attributable to such circumstances may be less culpable than defendants who have no such excuse. U.S.C.A. Const.Amend. 8.

[24] KeyCite Citing References for this Headnote

350H Sentencing and Punishment
350HII Sentencing Proceedings in General
350HII(F) Evidence
350Hk307 Admissibility in General
350Hk308 k. In General. Most Cited Cases
(Formerly 110k986.2(1))

Evidence of mitigating circumstances, i.e., evidence that juror might regard as reducing defendant's moral blameworthiness, may be considered by jury when deliberating at punishment. Vernon's Ann.Texas C.C.P. art. 37.071, § 2(f)(4).

***353** David Martin, Greg White, Waco, for appellant.

***354** Patrick C. Batchelor, Dist. Atty., Corsicana, Jim Vollers, Austin, Robert Huttash, State's Atty., Austin, for the State.

Before the court en banc.

OPINION

WHITE, Judge.

Appellant Cameron Todd Willingham was convicted on August 21, 1992 of capital murder by murdering more than one person during the same criminal transaction. Tex. Penal Code Ann. § 19.03(a)(6)(A). Two special issues were submitted to the jury under Tex.Code Crim. Proc. Ann. art. 37.071 § 2(b)(1)

and § 2(e), and following the jury's verdict of guilty, the trial court sentenced appellant to death. Direct appeal to this Court is automatic. Tex.Code Crim.Proc.Ann. art. 37.071 § 2(h). We will affirm.

Appellant brings four points of error for this Court to review. In point of error number one, appellant contends the trial court erred in refusing to grant his Motion for Change of Venue, in light of inflammatory statements made by the Navarro County District Attorney. Appellant asserts in his second point of error that the trial court erred in refusing to admit evidence offered by the defense to impeach the testimony of a witness for the State. In his third point of error, appellant maintains the trial court erred in its charge to the jury during the punishment phase of the trial by failing to instruct the jury on the effect of parole, as parole would qualify as a "mitigating circumstance" under the facts of this case. Appellant contends, in point of error number four, that the evidence is insufficient to support the jury's answers to the special issues submitted in the punishment phase of the trial, particularly: (a) that the evidence is insufficient to support the finding that appellant is a continuing threat to society, and (b) that the evidence is insufficient to support a finding that mitigating circumstances would not warrant a life sentence. Appellant does not challenge the sufficiency of the evidence to support his conviction; therefore, the facts of the offense will be discussed only in reference to the error alleged in point of error number four.

Appellant contends in his fourth point of error that the evidence is insufficient to support the jury's answers to the special issues submitted in the punishment phase of the trial. Although appellant does not argue that the evidence was insufficient to support his conviction for capital murder, a review of the facts and other evidence underlying his conviction is necessary, as this is the information which the jury considered when answering the special issues in the punishment phase of the trial. *James v. State,* 772 S.W.2d 84, 88 (Tex.Cr.App.1989), 493 U.S. 885, 110 S.Ct. 225, 107 L.Ed.2d 178 (vacated and remanded on other issue);*James v. State,* 805 S.W.2d 415 (Tex.Cr.App.1990) (on remand); *cert. denied,* 501 U.S. 1259, 111 S.Ct. 2915, 115 L.Ed.2d 1078 (1991).

The evidence adduced at trial was that on December 23, 1991, appellant poured a combustible liquid on the floor throughout his home and intentionally set the house on fire, resulting in the death of his three children. Amber, age two, and twins Karmon and Kameron, age 1, died of acute carbon monoxide poisoning as a result of smoke inhalation, according to autopsy reports. Neighbors of appellant testified that as the house began smouldering, appellant was "crouched down" in the front yard, and despite the neighbors' pleas, refused to go into the house in any attempt to rescue

the children. An expert witness for the State testified that the floors, front threshold, and front concrete porch were burned, which only occurs when an accelerant has been used to purposely burn these areas. This witness further testified that this igniting of the floors and thresholds is typically employed to impede firemen in their rescue attempts.

The testimony at trial demonstrates that appellant neither showed remorse for his actions nor grieved the loss of his three children. Appellant's neighbors testified that when the fire "blew out" the windows, appellant "hollered about his car" and ran to move it away from the fire to avoid its being damaged. A fire fighter also testified that appellant was upset that his dart board was burned. One of appellant's neighbors testified that the morning following the house ***355** fire, Christmas Eve, appellant and his wife were at the burned house going through the debris while playing music and laughing.

At the punishment phase of trial, testimony was presented that appellant has a history of violence. He has been convicted of numerous felonies and misdemeanors, both as an adult and as a juvenile, and attempts at various forms of rehabilitation have proven unsuccessful.[FN1]

FN1. Maria Tassie Malowney, an Assistant District Attorney for Carter County, Oklahoma, listed the felonies and misdemeanors with which appellant has been charged and/or convicted. She explained that the synopsis of the juvenile offenses cannot be released, but that appellant has been involved in criminal activity since he was fifteen or sixteen years of age. Malowney testified that the felonies of which appellant was **convicted** are as follows:
1) May 1986: Second Degree Burglary

Punishment: probation, placed in a Nonviolent Intermediate Offender Act

2) April 1987: Grand Larceny

Punishment: two years probation and 60 days in the county jail

Additionally, misdemeanors for which appellant was **convicted** are as follows:
1) April 1986: Carrying a Concealed Weapon and Public Intoxication

Punishment: 4 days in the county jail and ordered to pay fine and costs

2) May 1986: Entering a Building with Unlawful Intent and Contributing to the Delinquency of a Minor (supplying paint for sniffing to a twelve-year-old child)

Punishment: ordered to pay restitution, 15 days in the county jail and six months probation, running concurrently

3) November 1986: Two counts of Contributing to the Delinquency of a Minor (supplying paint to a twelve-year-old child and an eleven-year-old child)

Punishment: 60 days in the county jail

4) November 1988: Driving Under the Influence of Liquor and/or Drugs (substance was paint)

Punishment: One year probation on the condition he check himself into an in-patient rehabilitation program for paint abuse.

5) February 1989: Shoplifting

Punishment: Probation orders from April 1987 Grand Larceny conviction and November 1988 DUI conviction vacated, sent to a special boot camp program, then given a two year sentence with all but 74 days suspended on the condition he 1) complete a substance abuse treatment program, 2) attend at least one AA or NA meeting per week, and 3) take part in a urinalysis every week and a half.

The jury also heard evidence of appellant's character. Witnesses testified that appellant was verbally and physically abusive toward his family, and that at one time he beat his pregnant wife in an effort to cause a miscarriage. A friend of appellant's testified that appellant once bragged about brutally killing a dog. In fact, appellant openly admitted to a fellow inmate that he purposely started this fire to conceal evidence that the children had recently been abused.

Dr. James Grigson testified for the State at punishment. According to his testimony, appellant fits the profile of an extremely severe sociopath whose conduct becomes more violent over time, and who lacks a conscience as to his behavior. Grigson explained that a person with this degree of sociopathy commonly has no regard for other people's property or for other human beings. He expressed his opinion that an individual demonstrating this type of behavior can not be rehabilitated in any manner, and that such a person certainly poses a continuing threat to society.

[1] [2] [3] [4] [5] Appellant first contends the evidence is insufficient to support the jury's finding that he is a continuing threat to society. In determining whether evidence is sufficient to support a jury's answer to this special issue presented in the punishment phase of a capital murder trial, this Court views the evidence in the light most favorable to the verdict to determine whether a rational trier of fact could have found the elements of Tex.Code Crim.Proc.Ann. art. 37.071 § 2(b)(1) beyond a reasonable doubt.[FN2] *Rivera v. State*, 808 S.W.2d 80, 94 (Tex.Cr.App.1991), *cert. denied,* 502 U.S. 902, 112 S.Ct. 279, 116 L.Ed.2d 231 (1991); *Hathorn v. State*, 848 S.W.2d 101, 115 (Tex.Cr.App.1992), *cert. denied,* 509 U.S. 932, 113 S.Ct. 3062, 125 L.Ed.2d 744 (1993); *Willis v. State*, 785 S.W.2d 378, 386 (Tex.Cr.App.1990), *cert. denied,* 498 U.S. 908, 111 S.Ct. 279, 112 L.Ed.2d 234 (1990). Any evidence adduced ***356** at the guilt/innocence and punishment phases of trial can be used by the jury when considering future dangerousness. *Willis v. State*, 785 S.W.2d at 386; *Valdez v. State*, 776 S.W.2d 162, 166-67 (Tex.Cr.App.1989), *cert. denied,* 495 U.S. 963, 110 S.Ct. 2575, 109 L.Ed.2d 757 (1990); *Mitchell v. State*,650 S.W.2d 801, 812 (Tex.Cr.App.1983), *cert.*

denied, 464 U.S. 1073, 104 S.Ct. 985, 79 L.Ed.2d 221 (1984). Often, the circumstances of the offense alone are enough to sustain an affirmative answer to this special issue. *Willis* at 386; *Sosa v. State*, 769 S.W.2d 909, 912 (Tex.Cr.App.1989); *Moreno v. State*, 721 S.W.2d 295, 302 (Tex.Cr.App.1986). A defendant's prior criminal record is also relevant to future dangerousness.*Willis* at 387; *Valdez v. State*, 776 S.W.2d at 167; *Keeton v. State*, 724 S.W.2d 58, 61 (Tex.Cr.App.1987).

FN2. Article 37.071 § 2(b)(1) provides that:
On conclusion of the presentation of the evidence, the court shall submit the following issues to the jury:

(1) whether there is a probability that the defendant would commit criminal acts of violence that would constitute a continuing threat to society.

The facts of the offense are heinous and exhibit complete disregard for human life. Appellant saturated his house with a combustible liquid, ignited the house, and left his three children in the burning house. We believe a rational trier of fact could have answered "yes" to the second special issue based solely on the circumstances of the offense. *Willis* at 386; *Sosa v. State*, 769 S.W.2d at 912; *Moreno v. State*, 721 S.W.2d at 302.

[6] Criminal history and reputation evidence are also probative of future dangerousness. *Willis* at 387;*Valdez* at 167; *Keeton v. State*, 724 S.W.2d at 61; *James v. State*, 772 S.W.2d at 90. The fact that appellant has been convicted of numerous offenses and has failed all attempts of rehabilitation, as well as having committed other violent acts apart from his criminal convictions, are relevant considerations the jury could have used to find that appellant would present a continuing threat to society.

Having reviewed all the evidence in the light most favorable to the verdict, including trial evidence, circumstances of the offense, and appellant's extensive criminal history, we find sufficient evidence in the record for a rational trier of fact to have concluded beyond a reasonable doubt that there was a probability that appellant would commit criminal acts of violence that would constitute a continuing threat to society.

[7] Appellant also contends in point of error four that the evidence is insufficient to support a finding that mitigating circumstances would not warrant a life sentence. *See* Tex.Code Crim.Proc.Ann. art. 37.071 § 2(e). Appellant fails to point to any mitigating factors which would persuade a jury to answer this special issue in his favor and render a life sentence. Likewise, no mitigating circumstances are apparent from a thorough reading of the

record. No authorities are cited and no argument is made under this point of error; therefore, nothing is presented for review on this point. Tex.R.App.Proc. 74(f); *Woods v. State*, 569 S.W.2d 901, 905 (Tex.Cr.App.1978), *cert. denied,* 453 U.S. 913, 101 S.Ct. 3145, 69 L.Ed.2d 995 (1981); *Byrom v. State*, 528 S.W.2d 224, 226 (Tex.Cr.App.1975). Accordingly, appellant's fourth point of error is overruled.

[8] Appellant maintains in point of error number one that the trial court abused its discretion in refusing to grant appellant's motion for change of venue. Appellant argues that, especially in light of inflammatory statements made by the Navarro County District Attorney, he could not receive a fair trial.

The trial court conducted a hearing on the motion to change venue on August 3, 1992. Testifying for appellant were Stacy Willingham, appellant's wife; and Tracy and Ronnie Kuykendall, Stacy Willingham's brothers. These witnesses testified that it was their opinion that appellant could not receive a fair trial in Navarro County due to the media coverage, which included a televised statement made by the district attorney. Appellant introduced into evidence various newspaper articles pertaining to the events of the fire. Also introduced was a video tape of the criminal district attorney, in which he commented that the possible motive for appellant's commission of this offense was that "the children were interfering with [appellant's] beer drinking and dart throwing."

The State then offered the testimony of three witnesses: J.D. Kuykendall, appellant's father-in-law; Mildred Kuykendall, appellant's***357*** mother-in-law; and Jim Gill, an attorney from Corsicana. These witnesses testified that they believed the affiants supporting the Motion to Change Venue were not credible due to their lack of knowledge to support their statements. They further testified that appellant's witnesses possessed special knowledge of the defendant, as a result of their relationship with the defendant, which rendered their testimony less than credible. These witnesses also testified that they believed appellant could obtain a fair and impartial trial in Navarro County.

The trial court denied appellant's motion for a change of venue, but the judge stated, "... with reference to the Change of Venue: I realize that it may crop back up, you know, sometime [sic] down the road; and if it does, we will handle it as it comes up." Neither during nor following voir dire of the jury panel did Appellant reurge his motion to change venue.

[9] [10] A change of venue is proper and consistent with principles of due process when a defendant demonstrates his inability to obtain an

impartial jury or a fair trial at the place of venue. *Groppi v. Wisconsin,*400 U.S. 505, 510-11, 91 S.Ct. 490, 493, 27 L.Ed.2d 571 (1971); *Hathorn v. State,* 848 S.W.2d at 109; *see**Henley v. State,* 576 S.W.2d 66, 69 (Tex.Cr.App.1978). A change of venue is the remedy to jury prejudice resulting from extensive, widespread inflammatory news coverage. *Beets v. State,* 767 S.W.2d 711 (Tex.Cr.App.1987), *cert. denied,* 492 U.S. 912, 109 S.Ct. 3272, 106 L.Ed.2d 579 (1989); *Henley v. State,* 576 S.W.2d at 71.

[11] [12] The mere fact that a crime was publicized in the news media does not establish prejudice or require a change of venue per se. *Hathorn* at 109; *Beets v. State,* 767 S.W.2d at 743; *see Johnson v. Texas,*773 S.W.2d 322, 324 (Tex.Cr.App.1989), *aff'd on other grounds,* 509 U.S. 350, 113 S.Ct. 2658, 125 L.Ed.2d 290 (1993). Rather, the test is "whether outside influences affecting the community's climate of opinion as to a defendant are inherently suspect." *Hathorn* at 109; *Beets,* 767 S.W.2d at 742; *Henley,* 576 S.W.2d at 72.In order to prevail in a motion to change venue, a defendant must prove that publicity about the case is pervasive, prejudicial and inflammatory. A defendant must demonstrate an "actual, identifiable prejudice attributable to pretrial publicity on the part of the community from which members of the jury will come."*DeBlanc v. State,* 799 S.W.2d 701, 704 (Tex.Cr.App.1990), *cert. denied,* 501 U.S. 1259, 111 S.Ct. 2912, 115 L.Ed.2d 1075 (1991); *Beets* at 743; *Faulder v. State,* 745 S.W.2d 327, 338 (Tex.Cr.App.1987).

[13] [14] When a trial court is presented with a motion to change venue, the trial judge must act as fact-finder with regard to the issue presented. Tex.Code Crim.Proc.Ann. Art 31.04; *see Cook v. State,* 667 S.W.2d 520, 522 (Tex.Cr.App.1984). The trial judge is in a better position than this Court to resolve such issues as a result of his ability to observe the demeanor of witnesses and scrutinize their veracity. Consequently, we will affirm the trial court's judgment absent evidence of an abuse of discretion. *Hathorn* at 109; *Aranda v. State,* 736 S.W.2d 702, 705 (Tex.Cr.App.1987), *cert. denied,* 487 U.S. 1241, 108 S.Ct. 2916, 101 L.Ed.2d 947 (1988); *Freeman v. State,* 556 S.W.2d 287, 297 (Tex.Cr.App.1977), *cert. denied,* 434 U.S. 1088, 98 S.Ct. 1284, 55 L.Ed.2d 794 (1978).

The newspaper articles offered by appellant demonstrated nothing more than accurate reporting of a newsworthy occurrence in Navarro County. *See Johnson v. State,* 773 S.W.2d at 325. Although the statement made by the district attorney was televised, the record does not demonstrate that either the newspaper or television reporting was widespread. Nothing in the record indicates an identifiable prejudice existed

in the community, nor does it show that the community climate of opinion was inherently suspect.[FN3]

FN3. Of the twelve jurors selected, four (4) remembered reading "something" in the newspapers; three (3) had not heard anything or read anything about the case; two (2) reported that they had vaguely heard talk about the case; one (1) recalled hearing "the basics" of the case on television; one (1) remembered reading about the fire in the paper and knew that the fire was set; and one (1) believed she had heard what everyone in Corsicana had heard.

Furthermore, all of these jurors testified that they could set aside anything they had heard about the case and judge the case solely upon the evidence heard at trial.

***358** Appellant has failed to prove that these articles and televised statement amounted to pervasive, prejudicial, or inflammatory publicity. After reviewing the record, we conclude that the trial court did not abuse its discretion in overruling appellant's motion for change of venue and proceeding with the trial in Navarro County. Appellant's first point of error is overruled.

[15] In his second point of error, appellant argues that the trial court erred in refusing to admit evidence offered by the defense to impeach the testimony of a witness for the State. Johnny Webb, a State's witness, testified that appellant confessed to him that he committed the offense; that appellant explained in detail how he poured lighter fluid throughout the house, purposely burned one of the children, set the house on fire, fled, and refused to go back into the house to rescue the children.

During appellant's cross-examination of Webb, no inquiry was made concerning Webb's alleged interest in the case, and Webb was not afforded an opportunity to explain or deny the significance of any such circumstances. Appellant then offered the testimony of James McNally for the purpose of impeaching the State's witness Webb. The Court sustained the State's objection to this testimony. In a bill of exceptions, defense witness McNally testified that Webb had at one time stated he had been threatened by prison deputies, and that "he was hoping to get out-get time cut or something was supposed to happen with his lawyer in a couple of months." When asked whether Webb was threatened in connection with obtaining a statement on the case at bar, no clear answer was given. Appellant urged that this testimony was admissible to show motive of the State's witness to perjure himself. The State reurged its objection and the trial court sustained the objection.

[16] [17] Impeachment of a witness means adducing proof that such witness is unworthy of belief or credit. *Ransom v. State*, 789 S.W.2d 572, 587 (Tex.Cr.App.1989); *cert. denied,* 497 U.S. 1010, 110 S.Ct. 3255, 111 L.Ed.2d 765 (1990); *Jackson v. State*, 516 S.W.2d 167, 175 (Tex.Cr.App.1974). The credibility of a witness may be attacked, inter alia, by evidence that the witness is slanting his testimony against or in favor of a party as a result of personal interest or bias in the cause. Tex.R.Crim. Evid. 612(b).

[18] [19] [20] What first must be established is a specific connection between the witness' testimony and the cause, disclosing an actual bias or motive, *see* *London v. State*, 739 S.W.2d 842, 846 (Tex.Cr.App.1987), and this nexus must be demonstrated by laying the proper foundation. To lay a proper predicate for impeachment the witness should be asked about any possible interest or bias he may have before there is an attempt to prove interest or bias otherwise. *See* *Green v. State*, 566 S.W.2d at 88. The witness must first be informed as to the circumstances supporting a claim of bias or interest and must be given an opportunity to explain or deny such circumstances. Tex.R.Crim.Evid. 612(b); *Green v. State*, 566 S.W.2d 578, 587-88 (Tex.Cr.App.1978).

[21] No nexus was established between the admission made by appellant to Webb and Webb's alleged hopes of early release. Furthermore, trial counsel failed to lay a proper foundation upon which to impeach the testimony of the State's witness Johnny Webb. When a party does not lay the proper predicate for impeaching a witness, it is not error to refuse to allow the admission of such testimony. *See* *Moore v. State*,652 S.W.2d 411, 413 (Tex.Cr.App.1983). Appellant's second point of error is overruled.

[22] Appellant contends in point of error number three that the trial court erred in its charge to the jury during the punishment phase of the trial by failing to instruct the jury on the effect of parole, as parole would qualify as a "mitigating circumstance" under the facts of this case. Appellant posits that the jury discretion was impermissibly channeled to a sentence of death, in violation of the Eighth Amendment. Appellant cites *Lockett v. Ohio*, 438 U.S. 586, 604, 98 S.Ct. 2954, 2964, 57 L.Ed.2d 973 (1978), which holds that a jury may not be "... precluded from considering, as a mitigating factor, any ***359** aspect of the defendant's character or record, and any of the circumstances of the offense that the defendant proffers as a basis for a sentence less than death," in support of his argument that appellant did not receive individualized treatment.

[23] [24] The concept of parole eligibility bears no relationship to the defendant's character or record, or circumstances of the offense. *Smith v. State*, 898 S.W.2d 838, 853 (Tex.Cr.App.1995), and cases cited therein. Rather, mitigating evidence is defined as any evidence that a juror might regard as reducing the defendant's moral blameworthiness. Tex.Code Crim.Proc.Ann. art. 37.071 § 2(f)(4). For purposes of the Eighth Amendment, mitigating circumstances are those circumstances of "the defendant's background and character [which will support a] belief, long held by this society, that defendants who commit criminal acts that are attributable to [such circumstances] may be less culpable than defendants who have no such excuse." *Penry v. Lynaugh*, 492 U.S. 302, 319, 109 S.Ct. 2934, 2947, 106 L.Ed.2d 256 (1989); *Lewis v. State*, 815 S.W.2d 560, 567 (Tex.Cr.App.1991), *cert. denied,* 503 U.S. 920, 112 S.Ct. 1296, 117 L.Ed.2d 519 (1992). Such evidence may be considered by the jury when deliberating at punishment. *Penry v. Lynaugh*,492 U.S. at 328, 109 S.Ct. at 2951.

Thus, we hold the matter of parole eligibility is not a proper consideration for the jury's deliberations on punishment. *Smith*, 898 S.W.2d at 853-54. Accordingly, we hold the trial court's refusal to charge the jury on the effect of parole was proper. Appellant's third point of error is overruled.

The judgment and sentence of the trial court are affirmed.

CLINTON, Judge, concurring.

In his third point of error appellant argues that the trial court erred in failing to charge the jury at the punishment phase of trial that, if sentenced to life imprisonment, he would have to serve a minimum of 35 years in the penitentiary before becoming eligible for parole. He seems to argue that this information in and of itself constitutes mitigating evidence in contemplation of the Eighth Amendment to the United States Constitution. The majority rejects this argument on the basis of its naked conclusion that "parole eligibility bears no relationship to the defendant's character or record, or the circumstances of the offense." At 859. I agree, at least, that appellant fails to establish in his brief how minimum parole eligibility constitutes constitutionally mitigating evidence in this case.

In my view, minimum parole eligibility is constitutionally mitigating only to the extent that, in combination with other evidence, it tends to show that the capital defendant will not "commit criminal acts of violence that would pose a continuing threat to society." Article 37.071, § 2(b)(1), V.A.C.C.P. See *Smith v. State*, 898 S.W.2d 838 (Tex.Cr.App.1995) (Clinton, J., dissenting, 898 S.W.2d at 864 & 867-68; Maloney, J., dissenting,898 S.W.2d at 882-84). It has no intrinsically mitigating significance

otherwise. *Id.,* (Maloney, dissenting, 898 S.W.2d at 874-75). Appellant does not argue that he put on evidence to show, e.g., that for the duration of his lengthy incarceration he will pose no threat to the prison population or that by the time he is eligible for parole he will not pose a threat to any facet of society. Compare *Matson v. State*, 819 S.W.2d 839 (Tex.Cr.App.1991). In combination with such evidence, information about minimum parole eligibility is "indisputably relevant" to the issue of future dangerousness. Had appellant adduced such evidence, to prevent him from also informing the jury of his minimum parole eligibility date would likely have violated the Eighth Amendment in much the same way it would violate due process. *Smith v. State*, supra (Clinton, J., dissenting).

Because he did not, however, I join the judgment of the Court. I do not join its opinion.

MALONEY, J., joins this opinion.

BAIRD, J., joins this opinion for the reasons stated in ***360** *Matson v. State*, 819 S.W.2d 839 (Tex.Cr.App.1991), but for the reasons stated in his concurring opinion in *Smith v. State*, 898 S.W.2d 838 (Tex.Cr.App.1995) (Baird, J., concurring), specifically does *not* join that portion of the opinion referring to the dissenting opinions in *Smith*, 898 S.W.2d 838 at 857 and 872 (Clinton, J., dissenting and Maloney, J., dissenting.).

OVERSTREET, Judge, concurring.

In point number three, appellant alleges, "The Trial Court erred in its charge to the jury during the punishment phase of the trial by failing to instruct the jury on the effect of parole, as parole would qualify as a 'mitigating circumstance' under the facts of this case." Appellant's argument in support of that point focuses upon the second special issue asking whether, after consideration of all of the mitigating evidence, there is a good reason for the defendant to be sentenced to life imprisonment rather than death. He notes that the United States Supreme Court has grappled with the proper role that the State may play in guiding juries in the assessment of punishment versus an improper restriction of the sentencing authority's ability to exhibit mercy. He suggests that since the State must restrict the conduct for which the defendant becomes eligible for death, but must not restrict the sentencer in consideration of factors that might weigh against imposing a death sentence, the trial court's absolute refusal to give the jury information about parole amounted to an instruction that the jury may not,

or should not, consider it. Appellant insists that such impermissibly channeled the jury's discretion to a sentence of death in violation of the Eighth Amendment of the United States Constitution.

As appellant's claim avers error in terms of instructions on parole being mitigating evidence, I agree with the majority's conclusion that the trial court's refusal to charge the jury on the effect of parole was proper because I do not believe that such evidence is necessarily within the ambit of *Penry.* I also point out that this Court's previous caselaw has held that a trial court properly refuses to instruct the jury at the punishment stage of a capital murder trial on the parole laws in Texas. *Elliott v. State*, 858 S.W.2d 478, 490 (Tex.Cr.App.1993), *cert. denied,* 510 U.S. 997, 114 S.Ct. 563, 126 L.Ed.2d 463 (1993); *Boyd v. State*, 811 S.W.2d 105, 121 (Tex.Cr.App.1991), *cert. denied,* 502 U.S. 971, 112 S.Ct. 448, 116 L.Ed.2d 466 (1991);*Knox v. State*, 744 S.W.2d 53, 62-64 (Tex.Cr.App.1987), *cert. denied,* 486 U.S. 1061, 108 S.Ct. 2834, 100 L.Ed.2d 934 (1988); *Andrade v. State*, 700 S.W.2d 585, 587-88 (Tex.Cr.App.1985), *cert. denied,* 475 U.S. 1112, 106 S.Ct. 1524, 89 L.Ed.2d 921 (1986).

Nevertheless, I point out that in *Simmons v. South Carolina*, 512 U.S. 154, 114 S.Ct. 2187, 129 L.Ed.2d 133 (1994) the U.S. Supreme Court has recently found denial of the constitutional right to due process and therefore reversible error in a trial court refusing to inform a jury of the defendant's parole ineligibility. While we have initially interpreted *Simmons'* application to our Texas capital punishment procedures, *see Smith v. State*, 898 S.W.2d 838 (Tex.Cr.App.1995), I cannot agree with the majority's broad blanket statement that "the matter of parole eligibility is not a proper consideration for the jury's deliberations on punishment."*Willingham v. State,* 897 S.W.2d 351, 359 (Tex.Cr.App.1995). Pursuant to *Simmons,* and the Due Process Clause of the U.S. Constitution, there are circumstances in which it may be appropriate and/or necessary to inform the jury of parole law in capital punishment situations. I also note that in the case at bar, during punishment deliberations the jury sent out a note asking about what a life sentence means in terms of years and about whether parole could be denied.

Article 37.07, § 4, V.A.C.C.P., enacted after an amendment to the Texas Constitution, mandates that the trial court, i.e. the judicial department, include instructions on parole law in non-capital felonies; thus, jury instructions on parole law are now constitutionally permissible and are not in violation of separation of powers principles. I also note that while Art. 37.07, § 4, V.A.C.C.P. provides for the jury to be informed of various matters as to parole eligibility in non-capital punishment proceedings, it does not prohibit ***361** such information from being provided to juries in capital proceedings. I also do not believe that the Legislature's silence in not

amending Article 37.071, V.A.C.C.P. to provide for parole law instructions in capital proceedings should necessarily be construed to mean that the Legislature affirmatively meant that such instructions should not be given in capital cases. I am unwilling to conclude that such silence absolutely indicates that the legislative body of Texas reviewed our decisions in caselaw and somehow affirmatively decided that this Court's opinions on the issue represented its intentions.

Because I agree that information about the effect of parole is not necessarily within the ambit of *Penry* mitigating evidence, I agree with the majority's disposition of point of error number three. I therefore concur only in the results reached.

Tex.Cr.App.,1995.
Willingham v. State
897 S.W.2d 351

116 S.Ct. 385

516 U.S. 946, 116 S.Ct. 385, 133 L.Ed.2d 307, 64 USLW 3316

(Cite as: 516 U.S. 946)

H

Supreme Court of the United States

Cameron Todd WILLINGHAM, petitioner,

v.

TEXAS.

No. 95-5391.

Oct. 30, 1995.

Case below, 897 S.W.2d 351.

Petition for writ of certiorari to the Court of Criminal Appeals of Texas denied.

U.S.,1995

Willingham v. Texas

516 U.S. 946, 116 S.Ct. 385, 133 L.Ed.2d 307, 64 USLW 3316

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C

Supreme Court of the United States
Cameron Todd WILLINGHAM, petitioner,
v.
TEXAS.

No. 97-7724.
June 8, 1998.

Petition for writ of certiorari to the Court of Criminal Appeals of Texas denied.

U.S.,1998
Willingham v. Texas
524 U.S. 917, 118 S.Ct. 2299, 141 L.Ed.2d 159, 66 USLW 3782

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REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

Trial Court No. 24,4670 (B)

EX PARTE & IN THE DISTRICT COURT

& 366th JUDICIAL DISTRICT

CAMERON TODD WILLINGHAM & NAVARRO COUNTY, TEXAS

PETITIONER'S SUBSEQUENT APPLICATION
FOR WRIT OF HABEAS CORPUS
AND REQUEST FOR STAY OF EXECUTION
(DEATH PENALTY - ARTICLE 11.071, SECTION 5, V.A.C.C.P.)

TO THE HONORABLE JUDGES OF SAID COURT:

Comes now Walter M. Reaves, Jr., appointed counsel for Petitioner and file this petition for writ of habeas corpus, and as grounds therefore would show the court as follows:

I.
BACKGROUND HISTORY

Petitioner was convicted of the offense of capital murder and sentenced to death. Petitioner appealed to the Texas Court of Criminal Appeals. His conviction and sentenced were affirmed in a published opinion, delivered on March 22, 1995, *Willingham v. State, 897 S.W.2d 351 (Tex. Crim. App. 1995)* Following an unsuccessful Motion for Rehearing, a Petition for Writ of Certiorari to this court was denied.

Prior Writ History

Petitioner filed an application for writ of habeas corpus in the trial court on December 11, 1996. Without a hearing, the trial court entered findings of fact and conclusions of law on August 28, 1997, and recommended that relief be denied. The Texas Court of Criminal Appeals followed that recommendation, and denied the application for writ of habeas corpus on October 31, 1997. Petitioner then filed another petition for writ of certiorari, which was denied.

While his petition for writ of certiorari was pending petitioner filed an application for writ of habeas corpus in the United States District Court for the Northern District of

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Texas on April 21, 1998. The application was referred to a United States magistrate, who made findings and recommended that relief be denied. (R-171-208) Petitioner objected to those findings, (R. 208-225) and the District Court reviewed the application *de novo*. The court subsequently adopted the magistrate's findings and dismissed the application in a decision delivered on December 31, 2001. (R.226-235)

Petitioner then filed an application for Certificate of Appealability, which was deneid by the District Court. Petitioner took his appeal to the United States Court of Appeals for the Fifth Circuit. The court denied the certificate of appealability, and affirmed the denial of relief, in an unpublished opinion delivered on February 17, 2003. Petitioner then filed a petition for writ of certiorari in the United States Supreme Court, which was denied on November 3, 2003.

II.
ARTICLE 11.071, SECTION 5 JURISDICTION

Petitioner now submits his Subsequent Writ Of Habeas Corpus to this Court and contends that "newly discovered expert opinion" regarding the cause and origin of the fire in this case, reflecting Petitioner's factual innocence, requires review of these claims under Section 5 of Article 11.071.

This case was based on the claim that petitioner set fire to the house in which he and his children were sleeping. At trial, the state presented expert testimony from the State Fire Marshall, Manuel Vasquez. His opinion were that marks on the floor were indicative of a liquid being poured out. He believed the marks indicated that liquid had been poured in a line from the front porch, down the hall, and into the children's bedroom. In the bedroom, he believed an "X" was made with the liquid. He concluded the liquid was some type of accelerant. He also testified that burn markings in the house established the fire started on the floor. His conclusion was that the fire was intentionally set, and furthermore, that petitioner was the person who set it.

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Newly Discovered Evidence

Petitioner has recently been able to obtain the services of Dr. Gerald Hurst, who agreed to review the case without compensation. Petitioner has only recently been able to secure the services of Dr. Hurst. Petitioner has no money, nor does his family. As a result, he has been unable to obtain the services of any type of expert witness since his first state habeas petition. Petitioner's family has been seeking assistance for several years. The obstacle has been financial, with no one willing to review the case *pro bono*. Dr. Hurst was contacted some time ago, but was not available at the time. He was contacted again this week, and agreed to review the case. Given the limited amount of time available, Dr. Hurst has not been able to conduct a complete and thorough review. However, he has been able to review the fire marshal's report, which was the basis of Vasquez's trial testimony. Dr. Hurst's affidavit is submitted as exhibit "A". As that exhibit shows, his opinion is directly opposed to that of Vasquez. In Dr. Hurst's opinion, there is no evidence that the fire was set intentionally set. He also believes there is no evidence of any type of acelerant used in the fire. Thus, his opinion supports petitioner's claim of innocence.

Not only has petitioner been only recently able to secure the services of Dr. Hurst, there is also additional support for this claim constituting newly discovered evidence. As Dr. Hurst states in his affidavit, the science of arson investigation is rapidly evolving, and the understanding of fires is increasing. As a result, what many experts assumed 10 years ago is no longer. Dr. Hurst's opinion is based on the current science of arson investigation, which is far different than what existed in 1991. One difference is the increasing acceptance and recognition of "flashover", which would account for the burn patterns seen on the floor. Additionally, there have been more studies of "controlled" fires. What is seen in "non-intentionally" set fires is almost identical to what was present in this case. Additionally, there have been burn tests using various forms of accelerants

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

and various types of materials, which indicates that material like that present in petitioner's house (vinyl floor tiles) would not burn for any length of time. All these studies have been conducted within the last several years, and have increased the ability of experts to distinguish between intentionally set fires, and fires that are the result of some type of accident.

SECTION 5 JURISDICTION IS SHOWN

Pursuant to the provisions of Article 11, 071, Code Of Criminal Procedure, Section 5, this is a "Subsequent" Writ Of Habeas Corpus and the District Court of Navarro County does not have authority to rule upon the merits of this Petition. Rather, the claims presented herein must be certified by the District Clerk to the Texas Court Of Criminal Appeals as being a "subsequent Writ" immediately upon filing of this Petition. See Ex Parte Davis, 947 S.W.2d 216.

In the instant case, these issues are being raised after the original time limits set out in Section 4 of the statute have expired and after the first petition was denied. However, petitioner contends that there are exceptions for the filing and consideration of this petition, under the provisions of Subsection (5)(a) of the statute, which requires this Court to consider of the merits alleged herein.

Under the provisions of Section 5, Subsection 1, it is stated that:

> "(A) The current claims and issues have not been and could not have been presented previously in a timely initial application or (B) in a previously considered application filed under this article or article 11.07 because the factual or legal bases for the claim was unavailable, either on the date the applicant filed the previous application, or if the applicant did not file an initial application, on or before the last date for the filing of an initial application." (emphasis supplied)

Petitioner suggests the issues raised in this petition "could not have been presented" earlier, because the scientific basis for these claims was not available when the first habeas petition was filed. Thus, Petitioner's could not have utilized such tests in

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support of petitioner's claims.

Petitioner would further show that this petition presents "*newly discovered evidence*" of innocence. Had such evidence been available at trial, it is reasonable to believe that the jury would not have convicted petitioner. In fact petitioner suggests that if such evidence had been available no charges would have filed, because there is no evidence of a criminal act. Further, even if a conviction would've been obtained, it is probable that no death penalty would have been assessed because of the questionable nature of the evidence presented. Clearly, Dr. Hurst's opinion has only recently become available within the last two days, since he has only recently reviewed the case.

Petitioner submits that the requirements for an "exception" to these Subsequent Habeas Corpus rules have been shown in the instant case, thus requiring a review on the merits.

III.

GROUNDS FOR HABEAS CORPUS RELIEF

GROUND FOR HABEAS RELIEF NO. 1

PETITIONER HAS BEEN DENIED DUE PROCESS OF LAW AS GUARANTEED BY ARTICLE I, SECTIONS 14 AND 19, TEXAS CONSTITUTION, BY THIS CONVICTION AND DEATH PENALTY BEING ASSESSED, WHERE NEWLY DISCOVERED EVIDENCE HAS BEEN OBTAINED IN THE INSTANT HABEAS CORPUS PROCEEDINGS WHICH WOULD ALTER THE OUTCOME OF THE JURY VERDICT IN THIS CASE, THUS REQUIRING THAT PETITIONER RECEIVE A NEW TRIAL, UNDER THE AUTHORITY OF Holmes v. Third Court Of Appeals, 885 S.W.2d. 386; Ex Parte Elizondo, 947 S.W.2d 202.

GROUND FOR HABEAS RELIEF NO. 2

THE PETITIONER IS BEING DENIED THE DUE PROCESS OF LAW AS GUARANTEED BY ARTICLE 1, SECTION 14 AND 19, TEXAS CONSTITUTION AND BY THE 14TH AMENDMENT TO THE UNITED STATES CONSTITUTION, BECAUSE HE IS

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

AN *INNOCENT PERSON* WHO HAS BEEN IMPROPERLY CONVICTED OF A CRIMINAL OFFENSE AND ASSESSED THE DEATH PENALTY.

Because this habeas corpus petition is designated as a "Subsequent Habeas Corpus Petition", an initial showing to this Court of "jurisdiction" to review this matter under the provisions of Article 11.071, Section 5, Texas Code Of Criminal Procedure, has been set out above in the JURISDICTION Section, II, above.

Under the Court of Criminal Appeals decision of Holmes v. Third Court of Appeals, 885 S.W.2d 389, a habeas corpus Petitioner who can show newly discovered evidence of *actual innocence* is entitled to habeas corpus relief, if his evidence is relevant, material and admissible upon the issues presented at trial. Cf. Herrera v. Collins, 506 U.S. 390. Petitioner suggests Dr. Hurst's opinion is clearly admissible evidence, which could have been presented to the jury had it been available.

Under all of the circumstances, petitioner submits that this Issue must be accepted for review under the jurisdictional restraints of Section 5, of Article 11.071, requiring the Texas Court of Criminal Appeals to find that such evidence as presented is *cognizable* in a Subsequent Writ Of Habeas Corpus under the present law of the state. See Ex Parte Elizondo, 947 S.W.2d 202 and Ex Parte Mowbray, 942 S.W.2d 461.

Petitioner submits that he is completely **INNOCENT** of involvement in the death of his children. Petitioner suggests that upholding his conviction and death sentence would deprive the Petitioner of Equal Protection of the laws and Due Process Of Law under the provisions of the Texas Constitution and of the Federal Constitution. See Herrera v. Collins, 506 U.S. 390; Holmes v. 3rd Court of Appeals, supra.

Petitioner has consistently maintained his innocence, even though he did

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

not testify at trial. Petitioner suggests that the affidavit should be sufficient to corroborate his claims of innocence in any involvement in this death of his children. This is not simply a claim that petitioner is innocent of involvement in the crime. Instead, as Dr. Hurst's affidavit establishes, there is no crime, and therefore neither petitioner or anyone else can be guilty. Petitioner will show that Dr. Hurst is well qualified to give this opinion. He has been involved in several other cases across the country, and successfully obtained the release of persons who were convicted of crimes almost identical to this one. Significantly, he seen cases where there clearly was an error in concluding the fire was intentionally set, an is able to compare those cases with this one. As set forth in his affidavit, this case involves a number of similar factors that have resulted in erroneous conclusions. Petitioner requests that the Court of Criminal Appeals accord justice herein and set aside this conviction and death penalty. Ex parte Elizondo, 947 S.W.2d 202; Ex Parte Mowbray, 942 S.W.2d 461; Holmes v. Third Court of Appeals, supra;

In Carriger v. Stewart, 132 F.3d 463 (9th Cir. 1997), the Court of Appeals noted that the United States Supreme Court did not *absolutely foreclose* federal court jurisdiction on habeas corpus to grant relief based solely upon a "freestanding" claim of innocence in their decision of Herrera v. Collins. In Carriger, the Court stated:

> "Carriger's first contention in his petition and on appeal is that all of the evidence now available establishes that he is actually innocent of the Shaw robbery and murder. Carriger argues that the evidence sufficiently establishes his innocence to render his execution unconstitutional, irrespective of any constitutional error at his trial or sentencing. This is a "freestanding" actual innocence claim like that discussed in *Herrera v. Collins*, 506 U.S. 390, 113 S.Ct. 853, 122 L.Ed.2d 203 (1993), where a majority of the Supreme Court assumed, without deciding, that execution of an innocent person would violate the Constitution. A different majority of the Justices would have explicitly so held. *Compare id.* at 417, 113 S.Ct. at 869 (majority opinion) *with id.* at 419, 113 S.Ct. at 870 (O'Connor, J., joined by Kennedy, J., concurring) *and id.* at 430-37, 113 S.Ct. at 876-79

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

(Blackmun, J., joined by JJ. Stevens and Souter, dissenting). [88] In *Herrera,* the Supreme Court did not specify what showing would be required for a habeas petitioner to make out a successful freestanding claim of actual innocence. The Court stated only that the threshold would be "extraordinarily high," and that the showing would have to be "truly persuasive." *Herrera,* 506 U.S. at 417, 113 S.Ct. at 869; *accord id.* at 426, 113 S.Ct. at 874 (O'Connor, J., concurring). The Court found it unnecessary to be more specific, because Herrera's showing was unconvincing under any standard. *See id.* at 417-19, 113 S.Ct. at 869-70; *accord id.* at 424-27, 113 S.Ct. at 873-74 (O'Connor, J., concurring)..... Justice White, assuming with the majority that a freestanding claim of innocence could entitle a habeas petitioner to relief, stated that the required showing would have to be, at the bare minimum, the same as that required to invalidate a conviction because of insufficient evidence under *Jackson v. Virginia,* 443 U.S. 307, 324, 99 S.Ct. 2781, 2792, 61 L.Ed.2d 560 (1979), taking into account *all* the evidence, including both the newly proffered evidence and the evidence at trial. *See Herrera,* 506 U.S. at 429, 113 S.Ct. at 875 (White, J., concurring in the judgment).....Justice Blackmun stated that to be entitled to relief, a habeas petitioner asserting a freestanding innocence claim must go beyond demonstrating doubt about his guilt, and must affirmatively prove that he is probably innocent. *See Herrera,* 506 U.S. at 442-44, 113 S.Ct. at 882-83 (Blackmun, J., dissenting).....The actual-innocence inquiry is therefore distinguishable from review for sufficiency of the evidence, where the question is not whether the defendant is innocent but whether the government has met its constitutional burden of proving the defendant's guilt beyond a reasonable doubt. When a defendant seeks to challenge the determination of guilt after he has been validly convicted and sentenced, it is fair to place on him the burden of proving his innocence, not just raising doubt about his guilt. *Herrera,* 506 U.S. at 443, 113 S.Ct. at 882-83 (Blackmun, J., dissenting); *accord id.* at 399-400 & 407 n.6, 113 S.Ct. at 860 & 864 n.6 (majority opinion) (noting that a valid conviction strips petitioner of the presumption of innocence and attaches a presumption of guilt)."

Accord: Holmes v Third Court of Appeals. The petitioner would therefore submit that he has a separate "constitutional complaint" which he may raise, as recognized by the United States Supreme Court in Herrera, that he is "*Factually Innocent*" of this offense, as he has claimed from the outset, which has now

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

been shown by opinion of Dr. Hurst, which establishes that no crime has even been committed. Petitioner contends that the Court must deal also with this Issue in this case.

For the above reasons, Petitioner requests that the court enter findings consistent with a ruling that Petitioner is "*factually innocent*" of this offense, in order to properly safeguard Petitioner's rights as guaranteed under law.

IV

REQUEST FOR STAY OF EXECUTION

As set forth above, petitioner has only obtained the opinion of Dr. Hurst within the last few days. Because of petitioner's pending execution date, Dr. Hurst has not been able to conduct a complete and thorough review of the evidence in this case. What he has reviewed supports the conclusions in his affidavit, which is that no crime was committed. Petitioner needs additional time to fully present this claim to the court, and include a complete and thorough review of the evidence. Petitioner believes he has presented sufficient evidence to support the relief requested in this petition. Even if the court does not agree, at a minimum, petitioner suggests he presented more than enough evidence to warrant further review. For these reasons petitioner requests the court enter an order staying his execution until the court can fully review the claim presented in this petition.

PRAYER FOR RELIEF

WHEREFORE, premises considered, Petitioner respectfully prays that the Texas Court of Criminal Appeals will grant full and complete relief to the Petitioner, granting a new trial, as prayed for herein.

REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

Respectfully submitted,

Walter M. Reaves, Jr.
Attorney at Law
[redacted]
FAX [redacted]
State Bar No. 16644200
Counsel for Petitioner

OATH OF VERIFICATION

BEFORE ME, the undersigned authority, on this day personally appeared Walter M. Reaves, Jr., who first being duly sworn did state that the facts contained in the foregoing document are true and correct.

SUBSCRIBED AND SWORN TO, before me, on this the 13th day of February, 2004.

SUSAN L. JACKSON
Notary Public, State of Texas
My Commission Expires
November 04, 2007

Notary Public, State of Texas

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and a correct copy of the above and foregoing document was served upon Navarro County District Attorney and the State's Prosecuting Attorney, by first class mail, on the 13th day of February 2004.

Walter M. Reaves, Jr.

Not Reported in F.Supp.2d, 2001 WL 1677023 (N.D.Tex.)
(Cite as: 2001 WL 1677023 (N.D.Tex.))

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Only the Westlaw citation is currently available.

United States District Court, N.D. Texas, Dallas Division.

Cameron Todd **WILLINGHAM**, Petitioner,

v.

Gary L. **JOHNSON**, Director, Texas Department of Criminal Justice, Institutional Division, Respondent.

No. Civ.A. 3:98-CV-0409-L.

Dec. 31, 2001.

ORDER

LINDSAY, J.

***1** After making an independent review of the pleadings; files and records in this case; the Findings, Conclusions, and Recommendation of the United States Magistrate Judge, filed July 25, 2000; and Petitioner's Objections to Findings, Conclusions, and Recommendation of the United States Magistrate Judge ("Petitioner's Objections"), filed August 4, 2000; the court concludes that the findings and conclusions of the United States Magistrate Judge are correct, and they are therefore accepted as those of the court. Petitioner's Objections are overruled.

Petitioner made objections regarding the Magistrate Judge's findings that Petitioner did not have the right to represent himself on appeal; that no conflict of interest existed between Petitioner and his appellate counsel; that Petitioner's appellate counsel was effective, although he (counsel) chose not to raise as grounds for appeal that: 1) the trial court struck two venirewomen for cause, 2) the trial court limited Petitioner's voir dire questions, 3) the trial court allegedly failed to follow proper jury selection procedures, 4) the trial court admitted hearsay testimony, 5) a state expert was permitted to give opinion testimony, and 6) a defense witness was allegedly improperly impeached. Petitioner further objected to the Magistrate Judge's findings that evidence admitted during the punishment phase of Petitioner's trial did not violate the Eighth and Fourteenth Amendments, that Texas's appellate review of death penalty convictions is constitutional, and that Petitioner was not entitled to a jury instruction on parole. Upon de novo review of the Magistrate Judge's findings and conclusions to which these objections pertain, it is fairly apparent that the objections regarding self-representation on appeal, the alleged conflict of interest, jury selection procedures, the expert's opinion testimony, the defense witness's impeachment, evidence admitted during the punishment phase of trial, Texas's death penalty appellate review, and the lack of a jury instruction on parole are without merit and should be overruled without further discussion.

The objections regarding whether Petitioner's appellate counsel was ineffective when he did not appeal the trial court's disqualification of the venirewomen, the limitations placed on Petitioner's voir dire questions, and the admission of hearsay testimony appear, at first blush, to have possible merit; however, a more detailed analysis reveals that they also lack merit. Because the lack of merit is not apparent initially, the court deems it appropriate to discuss the bases for overruling these objections. Accordingly, the court makes the following findings and conclusions regarding these three areas of objections.

I. Standard of Review

A habeas corpus petition is reviewed in light of standards set forth by 28 U.S.C. § 2254(d).

> An application for a writ of habeas corpus on behalf of a person in custody pursuant to the judgment of a State court shall not be granted with respect to any claim that was adjudicated on the merits in State court proceedings unless the adjudication of the claim-
>
> ***2** (1) resulted in a decision that was contrary to, or involved an unreasonable application of,

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clearly established Federal law, as determined by the Supreme Court of the United States; or

(2) resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented in the State court proceeding.

28 U.S.C. § 2254(d). The Supreme Court has construed federal law to guarantee a criminal defendant effective assistance of counsel, which includes the right to effective assistance of counsel on a defendant's first appeal as of right. *See Evitts v. Lucey,* 469 U .S. 387, 396 (1985).

The court evaluates whether counsel was effective by using the standard set forth in *Strickland v. Washington,* 466 U.S. 668 (1984). *See Williams v. Taylor,* 529 U.S. 362, 390-91. (2000). Under the *Strickland* test, in order to prove that counsel was ineffective, a Petitioner must prove that counsel's performance was deficient and that this deficient performance *prejudiced* his defense to the point that his trial was unfair and unreliable. 466 U .S. at 687. The prejudice requirement dictates that, "[a]n error by counsel, even if professionally unreasonable, does not warrant setting aside [a] judgment [in] a criminal proceeding if the error had no effect on the judgment." *Id.* at 691. Thus, a "defendant must show that there is a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different." *Id* at 694. "A reasonable probability is a probability sufficient to undermine confidence in the outcome." *Id.*

II. Application

Petitioner's habeas corpus petition asserts that he is entitled to habeas relief because his appellate counsel was ineffective in violation of *Evitts v. Lucey.* Petition for Writ of Habeas Corpus at 15. Petitioner argues that his appellate counsel was ineffective because, among other things,[FN1] counsel did not raise on appeal that: 1) the trial court struck two venirewomen for cause; 2) during voir dire, the trial court denied Petitioner's counsel an opportunity to rehabilitate a venirewoman with a rebuttal question; and 3) the trial court admitted hearsay testimony during the punishment phase of Petitioner's trial. Petition for Writ of Habeas Corpus at 15-36.

FN1. In ruling on Petitioner's other objections, the court has already addressed his other bases for habeas relief and finds it unnecessary to further discuss them.

1. Strikes for Cause

With respect to the strikes for cause, the Magistrate Judge concluded that the Supreme Court permits venirewomen to be stricken if their views on the death penalty are such that they would " 'prevent or substantially impair the performance of [their] duties as a juror in accordance with [their] instructions and ... oath." ' Findings and Conclusions at 12 (citing *Wainwright v. Witt,* 469 U .S. 412, 420 (1985)).[FN2] The Magistrate Judge further concluded that the venirewomen were stricken because they gave voir dire testimony that revealed they held views on the death penalty which would have substantially impaired their ability to perform as jurors. *Id.* at 14. The Magistrate Judge then cited *Broxton v. State,* 909 S.W.2d 912, 916 (Tex.Crim.App.1995), to illustrate that Petitioner was not prejudiced by his counsel's failure to raise this issue on appeal, because a Texas appellate court would have concluded the trial court acted within its discretion when it found that the venirewomen's ability to perform as jurors was substantially impaired. Findings and Conclusions at 14. The Magistrate Judge therefore concluded that an appellate court would not have reversed the trial court's decision to strike the venirewomen for cause. *Id.*

FN2. The relevant language in *Wainwright* is actually found at page 424.

***3** Petitioner objects to this conclusion by asserting "the [M]agistrate [J]udge failed to consider Texas law on the exclusion of jurors [and][w]ithout doing so, [P]etitioner suggests [he] could not make a determination of whether this claim would have

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been successful on direct appeal." Petitioner's Objections at 8. This objection is unfounded. The Magistrate Judge relied on *Broxton*, and *Broxton* illustrates that Texas appellate courts show deference to trial courts' determinations that venirepersons' views will substantially impair their ability to perform as jurors. 909 S.W.2d at 916-17. Thus, the Magistrate Judge *did* consider Texas law, and his findings reveal that under such law, the outcome of Petitioner's appeal would not have changed if his appellate counsel had raised the strikes for cause. Additionally, even if the Magistrate Judge did not consider Texas law, this court has considered such law and concludes that the Magistrate Judge's findings were correct. *See Rachal v. State*, 917 S.W.2d 799, 810-11 (Tex.Crim.App.1996) (en banc) (discussing voir dire testimony analogous to the testimony of the stricken venirewomen, and concluding that such testimony presents a situation where an appellate court must defer to the trial court). Accordingly, the Magistrate Judge correctly held that Petitioner was not prejudiced when his appellate counsel did not raise the strikes for cause on appeal, because the outcome would have been no different if this issue had been raised. Petitioner has therefore failed to show that his appellate counsel was ineffective.

2. Voir Dire of Venirewoman

With respect to rehabilitating one of the venirewomen, Petitioner's trial counsel wanted to ask, "whether, irrespective of [your] personal beliefs, if [you take] an oath, whether [you can] follow the law and decide the questions based upon the evidence." Findings and Conclusions at 15. The trial court did not allow Petitioner's trial counsel to ask this question. The Magistrate Judge concluded that this was within the trial court's discretion, because the question was duplicative of questions that had already been asked. *Id.* (citing *Allridge v. State*, 762 S.W.2d 146, 167 (Tex.Crim.App.1988), *cert. denied*, 489 U.S. 1040 (1989)). The Magistrate Judge then concluded that counsel was not ineffective when he did not appeal this issue, because it had no merit. Findings and Conclusions at 16.

Petitioner objects to this conclusion and argues that Texas authority required the trial court to permit Petitioner's trial counsel to ask the question. Petitioner's Objections at 11-12. The initial flaw in Petitioner's objection is that-assuming Texas authority requires the foregoing question-Petitioner merely complains that he was not allowed to *clearly* ask the question. Petitioner's Objections at 11-12. This does not adequately challenge the Magistrate Judge's finding that the trial court prohibited the question only after similar questions had been asked, because *Allridge* protects the court's discretion in this regard. In fact, *Allridge* holds that "[a]s a trial court may impose reasonable restrictions on exercise of the voir dire, it may cut off duplicitous questioning, and if the prospective juror states his or her position clearly, unequivocally and without reservation, the court may properly refuse to permit further questioning." 762 S.W.2d at 168.

***4** Additionally, Petitioner is mistaken that the trial court was even obligated to allow counsel to ask the question. *See Colella v.. State*, 915 S.W.2d 834, 841-42 (Tex.Crim.App.1995) (en banc) (holding that before a venireperson is disqualified, Texas courts no longer require that she be asked whether she can "give honest answers to questions of fact, even if it meant that the death penalty might be assessed as a result"). The question proposed by Petitioner's trial counsel tracks the question the *Colella* court held is no longer required before a venireperson is disqualified. Accordingly, Petitioner was not prejudiced when his counsel did not appeal this issue, because it would not have changed the appeal's outcome. Petitioner therefore cannot rely on this argument to demonstrate that his counsel was ineffective.

3. Hearsay Testimony

With respect to the hearsay testimony, the Magistrate Judge found that the trial court allowed several hearsay statements to be admitted during the punishment phase of Petitioner's trial. Findings and Conclusions at 18-19. The hearsay consisted of statements that Petitioner abused his wife and that

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Petitioner had once said he would trade his daughter for the family VCR. *Id.* Regarding abuse, Petitioner's wife gave direct testimony that Petitioner never abused her and that she never told anyone that Petitioner abused her. *Id.* at 18. The state then called two rebuttal witnesses who testified that Petitioner's wife made statements that Petitioner abused her. *Id.* at 18-19. The Magistrate Judge concluded that the rebuttal witnesses' testimony was used to impeach Petitioner's wife's testimony. *Id.* at 19. The Magistrate Judge then concluded that Texas evidentiary rules permit the use of hearsay in this fashion. *Id.* (citing Tex.R. Evid. 613(a)).[FN3] The Magistrate Judge therefore concluded that, on appeal, Petitioner's counsel was not ineffective when he did not raise this issue. Findings and Conclusions at 19.

> FN3. The Judge also found that the content of several hearsay statements overlapped the testimony of two witnesses who based their testimony on direct observations, as opposed to hearsay. Findings and Conclusions at 19. Thus, even if these hearsay statements were inadmissible, they caused no prejudice to Petitioner because the content of the statements was presented to the jury in an admissible form.

Regarding the "VCR statement," the Magistrate Judge concluded that it could not be used for impeachment purposes. *Id.* at 20. It therefore was not admissible hearsay. *Id.* The Magistrate Judge nevertheless found that Petitioner was not prejudiced when his appellate counsel did not raise this issue, because the statement was insignificant given the wealth of admissible testimony regarding the nature of Petitioner's relationship with his wife and children. *Id.* Accordingly, the Magistrate Judge concluded that admission of the "VCR statement" was harmless error. *Id.* at 20-21. The admission therefore was not subject to reversal on appeal.

Petitioner does not object to the Magistrate Judge's conclusion that he was not prejudiced when his appellate counsel did not appeal the "VCR statement." Petitioner instead objects to the Magistrate Judge's conclusion that his wife was properly impeached. Findings and Conclusions at 13. He argues that although hearsay may be used to impeach a witness, the state cannot call a witness solely for impeachment purposes. *Id.* Petitioner cites *Hughes v. State*, 4 S.W.3d 1 (Tex.Crim.App.1999), to support this argument. Findings and Conclusions at 13. *Hughes* is not controlling, however, because there is no evidence that the state called Petitioner's wife solely for impeachment purposes. The court has not been directed to facts that indicate the state knew Petitioner's wife would deny being abused by Petitioner. Thus, the court will not assume the state called Petitioner's wife solely to later impeach her abuse testimony with the hearsay statements. Additionally, even if the state knew that it would impeach her abuse testimony, the state nevertheless elicited testimony that did not relate to the abuse.[FN4] Accordingly, the state did not call Petitioner's wife solely to impeach her; it also elicited evidence that independently supported its case. Petitioner's reliance on *Hughes* is therefore misplaced. As such, the trial court did not err when it admitted the hearsay statements for impeachment purposes, and the outcome of Petitioner's appeal would not have changed if his counsel had raised this issue. Petitioner therefore was not prejudiced, and his appellate counsel was not ineffective.

> FN4. Petitioner's wife gave testimony related to: 1) Petitioner's criminal history, 2) tattoos that Petitioner had on his body, and 3) insurance payments that were related to Petitioner's crime. *See* Respondent Johnson's Answer, Motion for Summary Judgment, and Supporting Brief at 10.

***5** The Findings, Conclusions, and Recommendation of the United States Magistrate Judge are therefore correct, and they are accepted as those of the court. Respondent's Motion for Summary Judgment, filed July 1, 1998 is hereby granted, and Petitioner's Petition for Writ of Habeas Corpus, filed April 21, 1998 is hereby denied. This action is

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therefore dismissed with prejudice.

FINDINGS, CONCLUSIONS, AND RECOMMENDATION OF THE UNITED STATES MAGISTRATE JUDGE

STICKNEY, Magistrate J.

This cause of action was referred to the United States Magistrate Judge pursuant to the provisions of Title 28, United States Code, Section 636(b), implemented by an order of the United States District Court for the Northern District of Texas. The Findings, Conclusions, and Recommendation of the United States Magistrate Judge follow:

FINDINGS AND CONCLUSIONS

I. NATURE OF THE CASE

A state prison inmate has filed a petition for writ of habeas corpus pursuant to Title 28, United States Code, Section 2254.

II. PARTIES

Petitioner, Cameron Todd Willingham, is an inmate in the custody of the Texas Department of Criminal Justice, Institutional Division (TDCJ-ID). Respondent, Gary L. Johnson, is the Director of TDCJ-ID.

III. PROCEDURAL HISTORY

A jury convicted Petitioner of capital murder, and his punishment was assessed at death by lethal injection. *State v. Willingham*, Cause No. 92-00-24467-CR (13th Judicial District Court of Navarro County, Tex. Aug. 21, 1992). The case was appealed to the Texas Court of Criminal Appeals, and the Court of Criminal Appeals affirmed the conviction and death sentence in a published opinion. *Willingham v. State*, 897 S.W.2d 351 (Tex.Crim.App.1995), *cert. denied*, 516 U.S. 946 (1995). Petitioner subsequently filed a state application for writ of habeas corpus. The Court of Criminal Appeals denied relief in a written order, adopting the trial court's findings of fact and conclusions of law excepting, without explanation, the findings pertaining to grounds two, six, and eight through twelve. *Ex parte Willingham*, No. 35,162 (Tex.Crim.App. Oct. 1, 1997).

Petitioner filed his federal petition for writ of habeas corpus on April 21, 1998. Respondent filed an answer and motion for summary judgment on July 1, 1998, a supplemental answer on October 15, 1998, and furnished the state court records. Petitioner filed a supplemental petition on May 10, 2000.

IV. RULE 5 STATEMENT

Respondent states that Petitioner has exhausted all of his state court remedies, except for his seventh ground for relief, which Respondent claims Petitioner did not address in his state writ of habeas corpus. Nonetheless, Respondent asserts that this claim should be denied on its merits pursuant to 28 U.S.C. § 2254(b)(2).

V. ISSUES

In seven claims, Petitioner raises the following issues:

A. Petitioner was unconstitutionally denied the right to represent himself on appeal;

B. There was a conflict of interest between Petitioner and his appellate counsel, caused by Petitioner's assertion that his appellate counsel was not adequately and diligently representing him;

***6** C. Petitioner received ineffective assistance of counsel on appeal;

D. The punishment phase of Petitioner's trial was rendered fundamentally unfair, and resulted in Petitioner receiving a death sentence in violation of the Eighth and Fourteenth Amendments to the U.S. Constitution, by the admission of inadmissible evidence;

E. The Texas death penalty scheme is unconstitutional as applied because there is no appellate review of the jury's verdict on the mitigation special issue;

F. The trial court violated Petitioner's Eighth Amendment rights because it denied a request from the defense that the jury receive an instruc-

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tion regarding Petitioner's parole eligibility if given a life sentence; and

G. The Texas death penalty scheme violated Petitioner's equal protection rights under the Fourteenth Amendment because it prohibited the jury in Petitioner's case from receiving an instruction on parole, whereas juries in non-capital cases receive such an instruction.

VI. STANDARD OF REVIEW

The pertinent terms of the Antiterrorism and Effective Death Penalty Act of 1996 (the AEDPA), 28 U.S.C. § 2254, provide:

(d) An application for a writ of habeas corpus on behalf of a person in custody pursuant to the judgment of a state court shall not be granted with respect to any claim that was adjudicated on the merits in State court proceedings unless the adjudication of the claim -

(1) resulted in a decision that was contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States; or

(2) resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented in a State court proceeding.

28 U.S.C.A. § 2254(d) (West 2000).

Under the "contrary to" clause, a federal habeas court may grant the writ of habeas corpus if the state court arrives at a conclusion opposite to that reached by the United States Supreme Court on a question of law or if the state court decides a case differently from the United States Supreme Court on a set of materially indistinguishable facts. *Williams v. Taylor*, 529 U.S. 362, 120 S.Ct. 1495, 1523(2000). Under the "unreasonable application" clause, a federal court may grant a writ of habeas corpus if the state court identifies the correct governing legal principle from the United States Supreme Court's decisions, but unreasonably applies that principle to the facts of the prisoner's case. *Williams*, 120 S.Ct. at 1523.

This amendment applies to all federal habeas corpus petitions which were filed after April 24, 1996, provided that they were adjudicated on the merits in state court. *Lindh v. Murphy*, 521 U .S. 320, 326, 117 S.Ct. 2059, 2063, 138 L.Ed.2d 481 (1997). Resolution on the merits in the habeas corpus context is a term of art that refers to the state court's disposition of the case on substantive rather than procedural grounds. *Green v. Johnson*, 116 F.3d 1115, 1121 (5th Cir.1997).

VII. FACTUAL BACKGROUND

***7** The Texas Court of Criminal Appeals recited the following factual background in its opinion on direct appeal:

The evidence adduced at trial was that on December 23, 1991, appellant poured a combustible liquid on the floor throughout his home and intentionally set the house on fire, resulting in the death of his three children. Amber, age two, and twins Karmon and Kameron, age 1, died of acute carbon monoxide poisoning as a result of smoke inhalation, according to autopsy reports. Neighbors of appellant testified that as the house began smouldering, appellant was "crouched down" in the front yard, and despite the neighbors' pleas, refused to go into the house in any attempt to rescue the children. An expert witness for the State testified that the floors, front threshold, and front concrete porch were burned, which only occurs when an accelerant has been used to purposely burn these areas. This witness further testified that this igniting of the floors and thresholds is typically employed to impede firemen in their rescue attempts.

The testimony at trial demonstrates that appellant neither showed remorse for his actions nor grieved the loss of his three children. Appellant's neighbors testified that when the fire "blew out" the windows, appellant "hollered about his car" and ran to move it away from the fire to avoid its

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being damaged. A fire fighter also testified that appellant was upset that his dart board was burned. One of appellant's neighbors testified that the morning following the house fire, Christmas Eve, appellant and his wife were at the burned house going through the debris while playing music and laughing.

At the punishment phase of trial, testimony was presented that appellant has a history of violence. He has been convicted of numerous felonies and misdemeanors, both as an adult and as a juvenile, and attempts at various forms of rehabilitation have proven unsuccessful.

The jury also heard evidence of appellant's character. Witnesses testified that appellant was verbally and physically abusive toward his family, and that at one time he beat his pregnant wife in an effort to cause a miscarriage. A friend of appellant's testified that appellant once bragged about brutally killing a dog. In fact, appellant openly admitted to a fellow inmate that he purposely started this fire to conceal evidence that the children had recently been abused.

Dr. James Grigson testified for the State at punishment. According to his testimony, appellant fits the profile of an extremely severe sociopath whose conduct becomes more violent over time, and who lacks a conscience as to his behavior. Grigson explained that a person with this degree of sociopathy commonly has no regard for other people's property or for other human beings. He expressed his opinion that an individual demonstrating this type of behavior can not be rehabilitated in any manner, and that such a person certainly poses a continuing threat to society.

***8** *Willingham,* 897 S.W.2d at 354-5.

VIII. EXAMINATION OF THE ISSUES [FN1]

FN1. An evidentiary hearing is not required in this case because Petitioner's grounds are either legal claims or factual claims where the record is complete and the facts are not in dispute. *See Amos v. Scott,* 61 F.3d 333, 346 (5th Cir.), *cert. denied,* 516 U .S. 1005 (1995).

A. Petitioner's Right to Represent Himself on Appeal.

In his first ground for relief, Petitioner claims that his constitutional right to represent himself on appeal was violated. State records reflect that Petitioner's brief on direct appeal was filed in the Court of Criminal Appeals on January 11, 1993, and the State's response brief was filed on July 12, 1993. On June 10, 1993, prior to the State's brief being filed, but five months after a brief was filed on Petitioner's behalf, Petitioner filed a motion in the Court of Criminal Appeals entitled "Appellant's Motion to Strike Counsel's Brief and to Proceed Pro Se on Appeal." In this motion, Petitioner stated that the brief his appellate attorney, Greg White, filed did not reflect the true merits of his case, but Petitioner did not state in this motion what issues he wanted raised by appellate counsel that were not raised in the original brief. This motion was denied by the Court of Criminal Appeals on June 11, 1993. In his first ground for relief, Petitioner claims that the Court of Criminal Appeals' denial of this motion violated his constitutional right to represent himself on appeal.

In *Faretta v. California,* 422 U.S. 806, 807 (1975), the United States Supreme Court held that a criminal defendant has the constitutional right under the Sixth Amendment to represent himself at trial. But recently, in *Martinez v. Court of Appeal of California, Fourth Appellate District,* 528 U.S. 152 120 S.Ct. 684, 692, 145 L.Ed.2d 597 (2000), the Supreme Court declined to extend the holding in *Faretta* to criminal appeals and instead held that a criminal defendant has no federal constitutional right to represent himself on appeal. The state habeas court in the instant case, which was also the trial court in this case, made its findings of fact and conclusions of law before *Martinez* was handed

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down by the Supreme Court. In making its finding with regard to this issue, the trial court instead relied on *Webb v. State,* 533 S.W.2d 780 (Tex.Crim.App.1976), a case in which the Texas Court of Criminal Appeals, in interpreting *Faretta,* held that a criminal defendant had a federal constitutional right to represent himself on appeal, but that the right of self-representation was not "a license to capriciously upset the appellate timetable or to thwart the orderly and fair administration of justice." *Id.* at 786. The trial court made the following finding on this issue:

> The Court finds that Applicant's first ground of error, concerning the defendant's right to represent himself on appeal is without merit. The Court finds that Applicant's appointed counsel filed his appellate brief on January 11, 1993. The Court further finds that it was at least five months later before Applicant requested to proceed pro se. This request came shortly before the State [*sic*] brief was due to be filed. The Court finds that the Applicant was attempting to use his right of self-representation to obstruct the orderly procedure in the Courts and the fair administration of justice. Therefore, based on the Court of Criminal Appeals holding in *Webb v. State,* 533 S.W.2d 780 (Tex.Cr.App.1976), this Court finds that this ground for relief is without merit and is denied.
>
> ***9** (State Habeas Findings at 2).

Given that the Supreme Court has subsequently held that a criminal defendant has no federal constitutional right to represent himself on appeal, the State court's ruling that this ground for relief was without merit did not result in a decision that was contrary to clearly established Federal law. This ground is therefore without merit.

B. Conflict of Interest on Appeal

In his second ground for relief, Petitioner contends that his motion to proceed pro se on appeal created a conflict of interest between Petitioner and his appellate counsel. Specifically, Petitioner claims that, because he alleged in his motion that his appellate counsel was not adequately representing him, a conflict of interest was created by this claim of ineffective assistance of counsel because Petitioner's appellate counsel "could not support Petitioner's motion to strike his brief without essentially admitting misconduct," and appellate counsel was thus "forced to choose between evaluating the alternative strategies posed by Petitioner, and protecting his interests." (Petition at 12). In its order denying Petitioner's state habeas application, the Court of Criminal Appeals denied this particular claim, but specifically declined to adopt the trial court's finding on this issue. (*Ex parte Willingham* at 1, n. 1).

Cuyler v. Sullivan, 446 U.S. 335 (1980), is the United States Supreme Court case that announced the general rule with respect to conflicts of interest between attorneys and clients. In that case, a state defendant had filed a federal writ of habeas corpus in which he alleged that his trial attorney was operating under a conflict of interest because he represented Sullivan and his two codefendants in three separate criminal trials. The Supreme Court held that the mere *possibility* of a conflict of interest is insufficient to overturn a conviction. Rather, in order for a criminal defendant to demonstrate a violation of Sixth Amendment rights that would entitle him to relief, the defendant must establish that his attorney was actively representing conflicting interests and that an actual conflict of interest adversely affected his attorney's performance. Once a criminal defendant demonstrates such a conflict, prejudice is presumed. *Id.* at 349-50.

In *Beets v. Scott,* 65 F.3d 1258 (5th Cir.1995), *cert. denied,* 511 U.S. 1151 (1996), the Fifth Circuit held that *Cuyler v. Sullivan* was only applicable in situations where an attorney was representing multiple interests. The Fifth Circuit further held that the *Cuyler* standard for ineffective assistance of counsel did not extend to conflicts between an attorney's personal interest and his client's interest, as those types of situations were best analyzed under the *Strickland* standard for ineffective assist-

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ance of counsel. *Beets*, 65 F.3d at 1269-72. The examples given by the Court in *Beets* for situations where there was a conflict between an attorney's personal interest and his client's interest include: matters involving payment of fees; doing business with a client; a lawyer's status as a witness; and a lawyer's actions when exposed to malpractice claims. *Beets*, 65 F.3d at 1269.

***10** Petitioner's contention that his appellate attorney was operating under a conflict of interest is best characterized as a claim that a situation where an attorney *might* have been accused by Petitioner of malpractice for failing to raise certain claims in the direct appeal brief resulted in an actual conflict of interest. Petitioner suggests that his appellate attorney had to choose between representing Petitioner to the fullest and his own self-interest of attempting to avoid a malpractice claim, and this choice *might* have prevented Petitioner's appellate attorney from filing a supplemental brief alleging the claims Petitioner wished for him to allege and/or arguing these issues in oral argument. Clearly, looking at the opinions in *Culyer* and *Beets*, this type of possible conflict between self-interest and the duty of loyalty to a client is not the type of conflict controlled by *Culyer* and is best examined under the normal *Strickland* standard for ineffective assistance of counsel.[FN2]

> FN2. *See also Moreland v. Scott*, 175 F.3d 347, 348 (5th Cir.) (holding that a defense attorney's anticipated employment as the district attorney did not create an actual conflict of interest as defined in *Culyer* at the time he represented Moreland at his plea negotiations), *cert. denied*, __ U.S. __, 120 S.Ct. 342, 145 L.Ed.2d 267 (1999) ; *Cf. Perillo v. Johnson*, 205 F.3d 775, 800-801 (5th Cir.2000) (holding that an attorney's successive representation of multiple clients may create an actual conflict of interest under *Cuyler* when the attorney is placed in a position of divided loyalty between the clients.).

As support for his argument, Petitioner cites two cases decided by the Second Circuit, *Lopez v. Scully*, 58 F.3d 38 (5th Cir.1995), and *Mathis v. Hood*, 937 F.2d 790 (2nd Cir.1991). But, even if the state court's decision on this issue did conflict with the holdings in these cases, the state court's decision would not be contrary to or an unreasonable application of clearly established federal law as determined by the Supreme Court, because the ruling in *Culyer* does not encompass conflicts of interest in situations other than those involving multiple representation. Moreover, unlike the Fifth Circuit, the Second Circuit has extended the scope of *Culyer* to include conflicts between the interests of a defendant and the interests of his attorney. *See United State v. Fulton*, 5 F.3d 605, 609 (2d Cir.1993). Nevertheless, the cases cited by Petitioner are distinguishable on their facts and scope.

In *Mathis*, the Court held that the fact that Mathis filed a grievance against his appellate attorney for failing to file a brief in a timely manner caused his attorney to have an actual conflict of interest in the outcome of the case because, if the case was overturned on appeal, Mathis' appellate attorney would become liable for the lengthy delay that caused Mathis to spend years in prison due to an erroneous conviction, whereas an affirmance would protect the attorney from any disciplinary action. *Mathis*, 937 F.2d at 795. In *Lopez*, the Court ruled that a criminal defense attorney was laboring under an conflict of interest during a sentencing hearing after his client filed a motion to withdraw his guilty plea in which he claimed that his plea was induced through threats and coercion from his attorney. *Lopez*, 58 F.3d at 40.

Even if these cases were binding on the state court, which they are not, the situation in the case at hand does not rise to the level of conflict in either of these two cases. In the instant case, Petitioner's appellate counsel had already filed his brief on behalf of Petitioner when Petitioner filed his motion to proceed pro se, and in his motion Petitioner merely alleged that his counsel had not raised

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some unspecified issues in the brief, but he did not allege that his attorney had violated the law or his ethical duties as a lawyer. Accordingly, because the state court's decision overruling this issue on state habeas review is neither contrary to or an unreasonable application of Supreme Court law, nor is it contrary to the cases cited by Petitioner in support of his claim, this claim is without merit.[FN3]

> FN3. Although Petitioner's complaints about his appellate attorney do not reflect that his attorney was operating under an actual conflict of interest as defined in *Culyer*, Petitioner may still argue that his appellate counsel was ineffective under the *Strickland* standard, which Petitioner has done in his third ground for relief, *infra.*

C. Ineffective Assistance of Appellate Counsel

***11** In his third ground for relief, Petitioner contends that his appellate counsel was ineffective for failing to raise the following issues on direct appeal: 1) whether the trial court erroneously granted two challenges for cause made by the State during voir dire; 2) whether the trial court placed improper limitations on the questioning of prospective jurors by defense counsel; 3) whether the trial court failed to follow the proper statutory jury selection procedures; 4) whether improper hearsay testimony was admitted during the punishment phase of the trial; 5) whether the state's expert witness was permitted to give improper opinion testimony; and 6) whether a defense witness at punishment was improperly impeached on a collateral matter. The state habeas court denied relief on this issue as did the Court of Criminal Appeals, although it did not adopt the trial court's finding on this issue.

Standard of Review

The federal constitution guarantees a criminal defendant the effective assistance of counsel on appeal. *Evitts v. Lucey*, 469 U.S. 387, 396 (1985). Whether counsel has been ineffective is determined by using the standard enunciated in *Strickland v. Washington*, 466 U.S. 668 (1984). Under the *Strickland* test, in order to prove that his counsel was ineffective, a defendant must prove by a preponderance of the evidence both that counsel's performance was deficient and that this deficient performance prejudiced his defense. *Id.* at 687. Courts, however, should "indulge a strong presumption" that counsel's conduct falls within the range of reasonable assistance, and a defendant must overcome the presumption that an action is sound trial strategy. *Id.* at 689. In the context of appeals, the Constitution does not require an appellate attorney to advance every conceivable argument, and it can be effective assistance of counsel on appeal to focus on a few key issues. *Evitts v. Lucey*, 469 U.S. at 394; *Mayo v. Lynaugh*, 882 F.2d 134, 139 (5th Cir.1989), *modified on other grounds*, 920 F.2d 251 (5th Cir.1990).

Individual Claims of Ineffective Assistance of Counsel

1. Challenges for Cause

Petitioner first contends that his appellate counsel was ineffective for failing to argue on appeal that the trial court had erred in granting two of the State's challenges for cause during voir dire. Specifically, Petitioner asserts that appellate counsel should have argued on appeal that a reversal of Petitioner's conviction was warranted under *Adams v. Texas*, 448 U.S. 38 (1980), because the two jurors, Allen and Ovalle, were not challengeable for cause because of their views on the death penalty. In *Adams*, the Supreme Court held that it was improper to exclude a juror merely because he would approach a death penalty case with greater care or caution or where the decision would involve him emotionally. *Adams*, 448 U.S. at 49-50. The Supreme Court has also held that a prospective juror may be excused for cause from a capital case when the juror's views on the death penalty are such that they would "prevent or substantially impair the performance of his duties as a juror in accordance with his instructions and his oath." *Wainwright v. Witt*, 469 U.S. 412, 420 (1985); *Adams*, 448 U.S. at 45. In addition, the Supreme Court stated in *Wainwright v. Witt* that deference must be paid to the decision to grant or deny a challenge for cause be-

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cause he or she saw and heard the juror. 469 U.S. at 425.

***12** In the instant case, during voir dire questioning by the State, Juror Ovalle testified that she was the type of person who could not vote for the imposition of the death penalty and that this was a firm belief that she had held for some time. (SR V:150-2).[FN4] She also stated that because of this belief, if she was sworn in as a juror in the case, she could not vote in favor of the death penalty, regardless of what the evidence might be, and would instead automatically vote against the death penalty. (SR V:152-3). Juror Ovalle further testified that she therefore could not render a fair verdict because of her feelings about the death penalty, and these feelings would substantially impair her duties as a juror. (SR V:154-5). When defense counsel attempted to rehabilitate Juror Ovalle, she testified that she knew she would have to take an oath as a juror, and she would consider that oath a binding oath that she must follow. Ovalle also testified that, if given an oath to follow the law, she would follow the law. She further stated that she thought she could answer the special issues based upon the evidence, despite her personal reluctance about the death penalty. (SR V:156-8). When questioned again by the State, Juror Ovalle once again stated that she could not vote to impose the death penalty. (SR V:159). The State made a challenge for cause against Ovalle, and the trial court granted the challenge. (SR V:155, 162).

FN4. "SR" refers to the state court record of Petitioner's trial.

When questioned by the State, Juror Allen testified that she did not believe in capital punishment for moral and religious reasons, she felt strongly about this, and had never felt differently on the subject. (SR IX:162-4). Allen further stated that, because of her beliefs, if she was selected as a juror she would answer the punishment special issues in order to assess life imprisonment, rather than the death penalty, regardless of the evidence that might be presented at trial. (SR IX:164-7). Allen further agreed that it would be impossible for her to swear that she would render a verdict solely on the law and evidence in a case where the death penalty is involved. (SR IX:168). When defense counsel questioned Allen, she stated that she thought she could answer the punishment special issues based upon the evidence, and she would not intentionally disregard her oath because of her opposition to the death penalty. (SR IX:170). When questioned again by the State, Allen again stated that she could not base her verdict on the evidence where the death penalty was involved. (SR IX:171).

Jurors Ovalle and Allen both stated more than once that they could not render a verdict based solely on the evidence at trial. Although it is true that both of them also said that they thought they could follow their oaths and answer the punishment special issues based on the evidence, both when questioned again reiterated that they could not vote in such a way as to impose the death penalty. Given the deference that must be given to trial judges in making decisions on whether to grant challenges for cause, the trial judge in this case was well within his discretion in granting the State's challenges for cause. Jurors Ovalle and Allen held views on the death penalty that, under the standard as stated in *Wainwright v. Witt*, would have substantially impaired them from fulfilling their duties as jurors in Petitioner's case. Because the trial judge did not abuse his discretion in granting the State's challenges for cause to these two jurors, had this issue been brought on direct appeal, Petitioner would not have prevailed. *See Broxton v. State*, 909 S.W.2d 912, 916 (Tex.Crim.App.1995). Accordingly, Petitioner's appellate counsel was not ineffective for failing to raise this claim on direct appeal.

2. Limitations on Voir Dire Questioning

***13** Petitioner argues that his appellate counsel was ineffective for failing to argue on appeal that the trial court erred in limiting defense counsel questioning of one of the venire members during voir dire. After the trial court granted the State's challenge for cause against Juror Ovalle, defense

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counsel made a bill of exception that, had he been allowed to do so by the trial court, he would have asked Ovalle "whether, irrespective of her personal beliefs, if she took an oath, whether she could follow the law and decide the questions based upon the evidence." (SR V:162-3).

As noted in the previous subsection, Juror Ovalle testified on direct examination by the prosecutor that she was the type of person who could not vote for the imposition of the death penalty and that she this was a firm belief that she had held for some time. She also stated that because of this belief, if she was selected as a juror she could not vote in favor of the death penalty, regardless of what the evidence might be. After stating to defense counsel that she would consider her oath to be binding on her and that she thought she could answer the punishment special issues based on the evidence, she once again stated, in response to questions posed by the prosecutor, that she could not vote to assess the death penalty. Under Texas state law, a trial judge has wide discretion over the voir dire process and may impose reasonable restrictions on this process. And a trial judge acts within his discretion when he prevents duplicitous questions so long as the court does not limit investigation into proper matters during voir dire. *Allridge v. State*, 762 S.W.2d 146, 167 (Tex.Crim.App.1988), *cert. denied*, 489 U.S. 1040(1989). Given that defense counsel had asked Ovalle essentially the same question earlier and the fact that many of Ovalle's previous answers to questions indicated that she could not render a verdict based on the law and evidence, the trial judge did not abuse his discretion when he prevented defense counsel from asking the above question. Accordingly, Petitioner's appellate counsel was not ineffective for not raising this unmeritorious issue on appeal.

3. Jury Selection Procedure

Petitioner next argues that his appellate counsel was ineffective for failing to argue on appeal that the trial court erred in overruling defense counsel's motion to quash the jury panel. This motion, which was filed by defense counsel before jury selection began in Petitioner's case, alleged that the jury wheel from which the venire in Petitioner's case was obtained was not composed pursuant to Section 62.001 of the Texas Government Code, as required.

Effective January 1, 1992, section 62.001 of the Texas Government Code, entitled "Jury Source; Reconstitution of Jury Wheel," was amended to read, in applicable part, as follows:

> (a) The jury wheel must be constituted by using, as the source:
>
> (1) the names of all persons on the current voter registration list from all the precincts in the county; and
>
> ***14** (2) all names on a current list to be furnished by the Department of Public Safety, showing the citizens of the county who hold a valid Texas driver's license and the citizens of the county, other than persons are disqualified from jury service, who hold a valid personal identification card or certificate issued by the department.

TEX. GOV'T CODE ANN. § 62.001(a) (Vernon 1992). Prior to this change, it was not required that persons holding valid drivers' licenses and identification cards be included in the jury wheel.

In the motion to quash the jury panel, defense counsel alleged that the contents of the jury wheel was not reconstituted using the names of all persons who held valid driver's licenses and valid personal identification cards. (SR I:113). Defense counsel further alleged that, therefore, the method used to select the venire for Petitioner's trial "did not provide a fair, impartial and objective method of selecting names of persons for jury service ..." (SR I:114). A copy of the venire for Petitioner's trial was attached as an exhibit to this motion, but no other evidence was presented in support of this motion. (SR I:116). The trial court denied this motion without comment on August 3, 1992. (SR I:115;

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SR. III:2).

Petitioner's appellate counsel was not ineffective for not arguing on appeal that the trial court had erred in denying this motion. First, no evidence was presented to the trial court, through either affidavits or testimony, that the jury wheel for Navarro County had not been properly reconstituted pursuant to the new requirements of Section 62.001. Without any evidence to support the allegation that section 62.001 had not been followed, Petitioner could not have prevailed on this issue on appeal. Furthermore, Texas courts have consistently held that, to successfully challenge a criminal conviction based upon noncompliance with the jury selection procedures, a defendant must establish that the noncompliance compromised the fairness of the trial. *See Cooks v. State,* 844 S .W.2d 697, 726-7 (Tex.Crim.App.1992), *cert. denied,* 509 U.S. 927 (1993); *Lewis v. State,* 815 S.W.2d 560, 563 (Tex.Crim.App.1991), *cert. denied,* 503 U.S. 920 (1992); *Tidrow v. State,* 916 S.W.2d 623, 632 (Tex.App.-Fort Worth 1996, no pet.); *Calloway v. State,* 818 S.W.2d 816, 838 (Tex.App.-Amarillo 1991, pet. ref'd). And, in fact, in the same year that Petitioner's case was decided on direct appeal, in *Lawton v. State,* 913 S.W.2d 542, 554 (Tex.Crim.App.1995), *cert. denied,* 519 U.S. 826 (1998), a case where the defendant made the same allegation that the amended version of section 62.001 had not been followed in his case, the Texas Court of Criminal Appeals reaffirmed this rule that the defendant had to establish actual prejudice in order to prevail on this issue. The Court then went on to rule that, because Lawton had not established any prejudice but, to the contrary, the record reflected that the panel was summoned from a fair cross-section of the county's population, the trial court had not abused its discretion in denying the motion to quash the venire. *Id.*

***15** Because defense counsel at trial presented no evidence that section 62.001 was not followed in creating the jury wheel in Petitioner's case and because, even if such evidence had been presented, there was no showing at the trial court level that Petitioner was prejudiced in that the jury in his case was not obtained from a fair cross-section of the community, Petitioner's appellate counsel was not ineffective for not raising this unmeritorious issue on direct appeal.

4. Admission of Evidence at Punishment Phase

Petitioner claims that his appellate counsel was ineffective for not arguing that the trial court admitted inadmissible hearsay evidence at the punishment phase of the trial. Petitioner's wife, Stacy Willingham (Willingham), was called as a hostile witness by the State during the punishment phase of Petitioner's trial. During her testimony, she denied that Petitioner had ever hurt her or her children or that her children were afraid of him. (SR XIV:3-5). She also denied that she had ever told Karen or Kim King that Petitioner had beaten her while she was pregnant in an attempt to cause a miscarriage. (SR XIV:17). She further denied that Petitioner had ever made the statement after they had separated at one point that it would be a good trade if she took their daughter and he took the VCR. (SR XIV:20).

Subsequently, Karen King was called by the State. She testified that she had been friends with Willingham since they were children. Karen testified that she had seen Willingham with a busted lip, two black eyes, bruises up and down her legs, and a red spot on her stomach. She also testified that Willingham told her that she believed that Petitioner had beaten her and kicked her in the stomach while she was pregnant because he wanted to cause a miscarriage. (SR XIV:22-6). Kim King then testified for the State. Kim testified that Willingham had spoken to her about Petitioner beating her while she was pregnant and that Willingham had told her at one point that Petitioner had made a statement that he wanted the VCR and that it would be a fair trade for her daughter Amber. (SR XIV:28-9). Defense counsel made hearsay objections to both Karen's and Kim's statements regarding what Willingham told them, and these objections were overruled. (SR XIV:24, 26, 29).

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Petitioner claims that the testimony given by Karen and Kim King regarding any statements Willingham made to them was inadmissible hearsay. It is clear that any testimony Karen and Kim King gave regarding Willingham's appearance was not hearsay as they could testify about their personal observations. Karen King's testimony about what Willingham had told her regarding the reason she thought Petitioner had beaten her while she was pregnant was hearsay, but under Texas law the State was entitled to elicit this testimony for purposes of impeaching Willingham's testimony that she never made this statement to either of the Kings. *See* TEX.R. EVID. 613(a) (formerly the Texas Criminal Rules of Evidence). Under Rule 105 of the Texas Rules of Evidence, defense counsel would have been entitled to have the trial court instruct the jury that this testimony by Karen King was for the limited purpose of impeaching Willingham's testimony, but defense counsel did not request such an instruction and, in the absence of such a request, the admission of such evidence without limitation cannot be a ground for complaint on appeal. *See* TEX.R. EVID. 105(a); *Garcia v. State*, 887 S .W.2d 862, 878 (Tex.Crim.App.1994), *cert. denied*, 514 U.S. 1021 (1995). Thus, appellate counsel was not ineffective for not raising this issue on appeal.[FN5]

FN5. The prosecutor in this case failed to follow all of the requirements of Texas Rule of Evidence 613(a) when confronting a witness with a prior inconsistent statement, as he told Stacy Willingham to whom she made the statement and the contents of the statement, but did not tell her the time when and the place where the statement was made. *See* TEX.R. EVID. 613(a). Nevertheless, although Petitioner's federal habeas counsel does not argue this point, because trial defense counsel did not object that the prosecutor had not laid the proper predicate for impeaching Stacy Willingham, error was not preserved, and appellate counsel was not ineffective for not raising this issue on appeal.

***16** The testimony given by Karen King regarding the statement that Petitioner allegedly made to his wife was, however, inadmissible hearsay, because Willingham denied that Petitioner had ever made this statement, but never denied that she had made such a statement. Thus, this statement is double hearsay that was not admissible for purposes of impeachment and does not fit into a hearsay exception.[FN6] Nevertheless, had this issue been raised on appeal, it would have been subject to a harmless error analysis under Rule 81(b)(2) of the Texas Rules of Appellate Procedure (now rule 44.2). In determining whether an error is harmless beyond a reasonable doubt, an appellate court must focus upon whether the error contributed to a defendant's conviction or punishment. *Ethridge v. State*, 903 S.W.2d 1, 11 (Tex.Crim.App.1994), *cert. denied*, 516 U.S. 920 (1995). Under this harmless error analysis, the question that must be answered is whether a rational trier of fact might have reached a different result if the error had not occurred. *Harris v. State*, 790 S.W.2d 568, 588 (Tex.Crim.App.1989). Given that, in addition to the horrific nature of the crime itself, the jury heard evidence at the punishment phase of the trial of Petitioner's extensive criminal background, a statement he made in which he bragged about killing a dog, the other testimony given by the Kings regarding Willingham's appearance after being beaten by Petitioner, and testimony by a neighbor who witnessed Petitioner slap his wife and once helped Willingham call the police because of her concern about Petitioner's violence (SR XIV:67-8), it cannot be said that the jury would have reached a different decision on punishment had there not been testimony given about one comment that Petitioner allegedly made about preferring a VCR to his daughter. Because any error in admitting this testimony was harmless, Petitioner has failed to establish any prejudice because appellate counsel did not raise this issue on appeal.

FN6. While Petitioner's statement about

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the VCR might be considered as fitting into the exception to the hearsay rule of a statement against interest, *see* TEX.R. EVID. 803(24), Stacy Willingham's statement itself as recounted by Kim King does not fit into any hearsay exception.

5. Admission of Expert Testimony

Petitioner further contends that his appellate attorney was ineffective for not arguing on appeal that the trial court erred in admitting expert testimony at trial. During the guilt phase of the trial, Manuel Vasquez, a deputy state fire marshall and arson investigator, testified for the State as an expert witness. Vasquez testified that, based upon the burn patterns and pour patterns on the floor in the front bedroom and the hallway and the stains on the concrete front porch, in his expert opinion the fire was set intentionally with the use of an accelerant.. (SR XI:238, 246-9, 255). Vasquez also testified that he did not believe that Petitioner's two-year-old child could have started the fire because, in his opinion, the accelerant liquid was deliberately poured throughout the hallway and the bedroom and because the fire was started in three different places. (SR XI:261-2). Vasquez further testified that Petitioner had told him that his daughter had awakened him while he was sleeping, the bedroom was full of smoke, he kicked open the door with his bare foot, and he ran down the hallway and out of the door. (SR XI:260-2). Vasquez then testified that, in his opinion, Petitioner's story was not true because Petitioner could not have exited the house after it was on fire and smoke had reached his bedroom without injury to his feet or substantial smoke inhalation damage. (SR XI:265-7). Finally, Vasquez testified that, contrary to Petitioner's story, Vasquez believed that Petitioner had intentionally set the fire. (SR XI:268). Defense counsel objected that Vasquez' opinion regarding the truth of Petitioner's story and his opinion that Petitioner set the fire were based on speculation. (SR XI:258, 260, 267-8).

***17** Petitioner argues that Vasquez' testimony regarding his opinion about the story Petitioner told him was improper expert testimony because it not only embraced an ultimate issue in the case, but it decided an ultimate fact for the jury. Under Rule 702 of the Texas Rules of Evidence (formerly the Texas Rules of Criminal Evidence), scientific, technical and other specialized expert testimony is admissible if it will assist the jury to determine a fact in issue and/or understand the evidence. TEX.R. EVID. 702. And, testimony in the form of an opinion otherwise admissible is not objectionable even though it embraces an ultimate issue to be decided by the trier of fact. TEX.R. EVID. 704. According to Texas case law, however, expert testimony may not decide an ultimate fact for the jury, and an expert cannot testify regarding the truthfulness of a particular witness who testified at trial. Rather, the use of expert testimony should be limited to situations in which the expert's knowledge and experience are beyond that of an average juror. *Yount v. State*, 872 S.W.2d 706, 710-11 (Tex.Crim.App.1993); *Duckett v. State*, 797 S.W.2d 906, 914 (Tex.Crim.App.1990).

Vasquez' testimony that, in his opinion, the fire was intentionally set using an accelerant was proper expert testimony because that opinion was based on his special knowledge about fires and their causes. Likewise, Vasquez' testimony that the story Petitioner told him about escaping the fire through the hallway was a fabrication was also admissible opinion testimony. Although this opinion did embrace an ultimate issue, it was not testimony regarding the veracity of a witness because Petitioner did not testify at trial. Instead, Vasquez testified that, based upon his specialized knowledge which the average juror would not possess, in his opinion Petitioner could not have exited the house through the hallway and not sustained substantial injuries to his feet, and therefore the story he told Vasquez was not correct.

Vasquez' opinion testimony regarding Petitioner's guilt, however, was impermissible expert testimony because it invaded the jury's province as the

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decision maker regarding guilt or innocence. Therefore, the trial court erred in admitting this opinion testimony into evidence. But, had this issue been raised on appeal to the Court of Criminal Appeals, the Court would have conducted a harmless error analysis to determine whether this inadmissible opinion contributed to Petitioner's conviction, by looking at the source and nature of the error, the extent to which it was emphasized by the State, how much weight a juror would place on the inadmissible evidence, and its collateral implications. *See* TEX R.APP. PROC. 81(b)(2); *Lockhart v. State*, 847 S.W.2d 568, 570 (Tex.Crim.App.1992), *cert. denied*, 510 U.S. 849 (1993). And overwhelming evidence of guilt can be a factor in the evaluation of whether an error was harmless error. *Harris v. State*, 790 S.W.2d at 587.

***18** In the instant case, there was substantial circumstantial evidence of Petitioner's guilt, including: the uncontroverted expert testimony from two fire experts that an accelerant was used to start the fire intentionally (SR XI:163, 168, 248-51, 256-8); Petitioner's refusal to try and save his children during the fire (SR XI:19, 58-9, 88); Petitioner's lack of concern or grief in the hospital after the fire (SR XI:89-92, 142-3); the absence of any substantial injuries to Petitioner (SR XI:117, 145-7); Petitioner's carefree attitude one day after the fire (SR XI:63-5, 106); Petitioner's statement to the arson investigators on the day of the children's funeral that they might find something on the floor of the twins' bedroom because he poured cologne in there at one point (SR XI:132); Petitioner's attempt on that same day to enlist the help of these same investigators in finding his dartboard in the ruins of the house (SR XI:130); and finally the fact that a container containing traces of kerosene was found on the porch and a similar petroleum distillate was found on the wood threshold of the front door (R. XI: 215-221). Furthermore, there was testimony given that Petitioner confessed to a fellow jailhouse inmate that he started the fire in order to hide recent child abuse. (SR XI:18-9, 46). Moreover, the only portion of Vasquez' testimony mentioned in the State's closing argument was his testimony about the symptoms of smoke inhalation, and no mention was made of his testimony regarding the story Petitioner had told him about what had occurred. (R. XIII:41). Finally, in addition to the one inadmissible opinion given by Vasquez, he also gave admissible opinion testimony that a child could not have set this fire and that Petitioner's story of what occurred did not match the physical evidence and was contradicted by his lack of injuries.

Given all of the other evidence supporting the jury's guilty verdict and the absence of any emphasis on the objectionable expert testimony, it cannot be said that this error contributed to Petitioner's guilt. Accordingly, Petitioner has failed to meet both prongs of the *Strickland* test because the opinion testimony to which he objects was either admissible or harmless. Thus, Petitioner cannot establish any prejudice in his appellate counsel's failure to raise this issue on appeal.

6. Impeachment on a Collateral Matter

Finally, Petitioner contends that his appellate counsel was ineffective for failing to argue on appeal that one of the defense witnesses at the punishment phase of the trial was improperly impeached on a collateral matter. Amy O'Shea testified for the defense at the guilt phase of Petitioner's trial. On cross-examination, the prosecutor asked O'Shea whether she was present at the hospital when the Petitioner and his wife switched urine samples. Defense counsel objected that this question assumed facts that were not in evidence, and this objection was overruled. O'Shea responded that she had no knowledge that anything like that had happened. (SR XII:122-3). Subsequently, Carl Jones testified for the State on rebuttal that Petitioner had told him that his wife had provided a urine sample for Petitioner. (SR XII:140). Defense counsel objected to this testimony on the basis that it was improper rebuttal testimony. (SR XII:141-2).

***19** Citing *Alexander v. State*, 740 S.W.2d 749 (Tex.Crim.App.1987), and *Ramirez v. State*, 802 S.W.2d 674 (Tex.Crim.App.1990), Petitioner al-

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leges that the State impermissibly impeached the witness O'Shea on the collateral matter of his wife providing a urine specimen for Petitioner. Petitioner then asserts that his appellate counsel was ineffective for failing to raise this issue on direct appeal. Under Texas law, a party cannot impeach a witness on a collateral matter, and a collateral matter is evidence that would be inadmissible in the party's case-in-chief. *Ramirez*, 802 S.W.2d at 675. The prosecutor in this case, however, did not impeach O'Shea, and the matter was not collateral.

In her testimony on direct examination, O'Shea testified that she babysat for Petitioner and his wife in the past and had noticed a kerosene lamp in the house. (R. XII:120-1). On cross-examination, O'Shea testified in response to the prosecutor's questions that she was Petitioner's wife's cousin and that she had been at the hospital and had been in Petitioner's room. The prosecutor then asked her whether she was there when Petitioner switched urine specimens. (R. XII:121-3). This question did not impeach and was not an attempt to impeach O'Shea as it did not attempt to call into question the truthfulness of her testimony that she babysat for the family and saw a kerosene lamp at the house, but instead was a question about her knowledge of a particular matter.

Moreover, this was not a collateral matter. Other wrongs or bad acts are not admissible to prove the character of the defendant, but may be admissible to prove motive, opportunity, intent, or preparation, and such acts may also be admissible to prove consciousness of guilt. *See* TEX.R. EVID. 404(b); *Peoples v. State*, 874 S.W.2d 804, 809 (Tex.App.-Fort Worth 1994, pet. ref'd). Prior to resting its case-in-chief in Petitioner's trial, the State established through the testimony of an emergency room doctor that the urine specimen obtained from Petitioner was an unsupervised test. (SR XII:117-8). Petitioner's apparent attempt to conceal drug and/or alcohol use immediately after the death of his three daughters in a fire he escaped with minor injuries is arguably relevant as evidence of consciousness of guilt. Furthermore, Carl Jones' testimony that Petitioner told him that he committed this extraneous bad act was not inadmissible hearsay because Petitioner's statement was an admission by a party opponent. *See* TEX.R. EVID. 801(d)(2). Thus, because evidence that Petitioner had his wife provide a urine specimen for him was admissible evidence during the guilt/innocence phase of Petitioner's trial, Petitioner's appellate counsel was not ineffective for not raising this issue on appeal.

Furthermore, even if this evidence was inadmissible, Petitioner cannot establish that he was prejudiced by his attorney's failure to raise this issue on appeal because error was not properly preserved on the trial level. Under Texas law, when evidence of an extraneous act is offered, opposing counsel must timely and properly object in order to preserve error. *McLennan v. Benson*, 877 S.W.2d 454 (Tex.App.-Houston [1 st. Dist.] 1994, no writ). Defense counsel objected that the question regarding the urine specimen assumed facts not in evidence and that evidence of the urine sample was improper rebuttal testimony, but did not object that this was an extraneous act offered for improper purposes. Because trial counsel did not preserve error on this issue, appellate counsel could not have prevailed on this issue on appeal. Therefore, appellate counsel was not ineffective for not raising this issue on appeal, and Petitioner was not prejudiced because this issue was not raised on appeal.

Conclusion

***20** Petitioner's appellate counsel alleged four points of error on direct appeal, arguing that: the evidence was insufficient to support the jury's answer to the punishment special issues; the trial court erred in denying the defense motion to change venue; the trial court erred in refusing to admit impeachment testimony; and the trial court erred in declining to instruct the jury on parole law. *See Willingham*, 897 S.W.2d at 354. Petitioner's appellate counsel was not ineffective under the test set forth in *Strickland v. Washington* for failing to raise

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any of the six issues Petitioner contends he should have raised. Either the claims themselves are without merit or Petitioner cannot show that there is a reasonable probability that counsel's failure to raise the issues on direct appeal would have affected the outcome of his direct appeal. Because Petitioner has not established that his appellate counsel was ineffective, the state court's denial of this ground for relief was not an unreasonable application of federal law. This ground for relief is without merit.

D. Evidence Admitted at the Punishment Phase

In his fourth ground for relief, Petitioner claims that he was sentenced to death in violation of the Eighth and Fourteenth Amendments because inadmissible evidence was admitted at the punishment phase of his trial. Specifically, Petitioner refers to his allegations in the previous ground for relief that inadmissible hearsay evidence regarding Petitioner's abusive relationship with his wife and children was admitted into evidence at the punishment phase of the trial.[FN7] Citing numerous Supreme Court cases, Petitioner claims that the admission of this evidence infected the sentencing proceeding with unfairness that rendered the imposition of the death penalty a denial of Petitioner's due process. Although it did not adopt the trial court's finding on this issue, the Court of Criminal Appeals denied relief on this ground for review when it was raised in Petitioner's state habeas application.

> FN7. Petitioner also mentions the admission of Manuel Vasquez' expert testimony and the testimony regarding Petitioner's urine specimen. This evidence, however, was admitted in the guilt phase of the trial.

Evidence of Petitioner's abusive relationship with his wife was admitted into evidence other than through inadmissible hearsay. Karen King testified that she saw Petitioner's wife with a “busted” lip, two black eyes and bruises all over her body (SR XIV:26), and Kim King testified that she had personal knowledge that Petitioner regularly beat his wife (SR XIV:28). Furthermore, Petitioner's neighbor, John Bailey, testified that he had witnessed Petitioner slap his wife, had heard Petitioner on another occasion tell his wife to “get up bitch, and I'll hit you again,” and had allowed Stacy Willingham to call the police from his house one time when she and Petitioner were fighting. (SR XIV:66-8). Given that this admissible evidence regarding Petitioner's abusive behavior towards his wife was admitted into evidence at the punishment phase of the trial, hearsay testimony that Stacy Willingham told a friend that she believed that Petitioner beat her in order to cause a miscarriage or hearsay testimony that Petitioner once said that a VCR was an even trade for his daughter did not so infect the punishment phase of Petitioner's trial as to render Petitioner's death sentence a violation of the federal constitution. Accordingly, the state court's denial of relief on this ground was not an unreasonable application of federal law, and this ground is therefore without merit.

E. Appellate Review of Mitigation Special Issue

***21** In his fifth ground for relief, Petitioner claims that the Texas death penalty scheme is unconstitutional as applied because the Court of Criminal Appeals does not conduct a sufficiency review of the mitigation special issue, and this lack of appellate review provides capital juries with unconstitutionally unfettered discretion in assessing or choosing not to assess the death penalty. Pursuant to Article 37.071 of the Texas Code of Criminal Procedure, the jury was required to answer the following two special issues at the punishment phase of Petitioner's trial:

> Do you find from the evidence, beyond a reasonable doubt, there is a probability that the defendant would commit criminal acts of violence that would constitute a continuing threat to society?
>
> Do you find, taking into consideration all of the evidence, including the circumstances of the offense, the defendant's character and background, and the personal moral culpability of the defendant, there is a sufficient mitigating circumstance

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> or circumstances to warrant that a sentence of life imprisonment rather than a death sentence be imposed?

(SR I:158-9). The Court of Criminal Appeals conducted a sufficiency review of the jury's answer to the future dangerousness special issue in Petitioner's case on direct appeal, *see Willingham*, 897 S.W.2d at 354-6, but has consistently held that a sufficiency review of the mitigating special issue is both inappropriate and not constitutionally required. *See Colella v. State*, 915 S.W.2d 834 (Tex.Crim.App.1995). Petitioner contends, however, that the absence of appellate review of the mitigation special issue violates his constitutional rights under the Eighth and Fourteenth Amendments because it gives a capital jury the open-ended discretion to impose the death penalty that was prohibited by the Supreme Court in *Furman v. Georgia*, 408 U.S. 238 (1972).

The mitigation special issue was added by the Texas legislature in response to the Supreme Court's decision in *Penry v. Lynaugh*, 492 U.S. 302 (1989). *See Shannon v. State*, 942 S.W.2d 591, 598 (Tex.Crim.App.1996). In *Penry*, the Supreme Court held that the jury in Penry's capital murder trial was unable to consider Penry's mitigating evidence of mental retardation and childhood abuse through the special issues as they existed at that time, because a juror could have believed that Penry committed the murder deliberately and that he would be a future danger to society and also believed that he should not be executed because of his retardation and the abuse he suffered, but would have been unable to vote to spare his life. 492 U.S. at 322-5. And, in response to the State's argument that a special mitigation issue would return to unbridled discretion on the jury's part, an argument similar to the argument Petitioner makes here, the Supreme Court disagreed and stated that:

> To be sure, Furman held that "in order to minimize the risk that the death penalty would be imposed on a capriciously selected group of offenders, the decision to impose it had to be guided by standards so that the sentencing authority would focus on the particularized circumstances of the crime and the defendant." But as we made clear in Gregg, so long as the class of murderers subject to capital punishment is narrowed, there is no constitutional infirmity in a procedure that allows a jury to recommend mercy based on the mitigating evidence introduced by a defendant.

***22** *Penry*, 492 U.S. at 326-7 (quoting *Gregg v. Georgia*, 428 U.S. 153, 199 (1976) (joint opinion of Stewart, Powell, and Stevens, JJ.)).

Subsequently, in *Tuilaepa v. California*, 512 U.S. 967, 974 (1994), the Supreme Court noted that, "[i]n providing for individualized sentencing, it must be recognized that the States may adopt capital sentencing processes that rely upon the jury, in its sound judgment, to exercise wide discretion." And, citing *Zant v. Stephens*, 462 U.S. 862, 875 (1983), the Court in *Tuilaepa* specifically stated that a sentencer may be given unbridled discretion in determining whether to impose the death penalty once it is determined that the defendant is a member of the class that is eligible to receive the death penalty. *Tuilaepa*, 512 U.S. at 979-980. Thus, Supreme Court precedent has clearly held that the mitigation special issue is constitutionally acceptable.

Nonetheless, Petitioner contends that appellate review of the sufficiency of the evidence to support a *negative* answer to this special issue is constitutionally required. The Supreme Court has held that the Constitution does not require any appellate proportionality review of a death sentence (either with other cases in which the defendants received the death penalty or with cases in which defendants did not receive the death penalty) where the statutory procedure adequately channels the sentencer's discretion. And the Supreme Court has specifically stated that Texas has a statutory scheme that adequately channels the sentencer's discretion. *See McCleskey v. Kemp*, 481 U.S. 279, 306-7 (1987); *Pulley v. Harris*, 465 U.S. 37, 50-1 (1984).

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Recently, in *Hughes v. Johnson*, 191 F.3d 607 (5th Cir.1999), *cert. denied*, __ U.S. __, 120 S.Ct. 1003, 145 L .Ed.2d 945 (2000), the Fifth Circuit applied *Pulley v. Harris* in a case in which the petitioner argued that the Fourth and Eighth Amendments required that the mitigating evidence in his case be examined "independently" on appeal in order to determine whether or not the petitioner was death-worthy. The Fifth Circuit rejected this argument, stating that Hughes' argument was an argument, in essence, for a proportionality review of his case as compared to other death penalty cases, because implicit in his argument was that other death penalty defendants did not have the same amount or type of mitigating evidence as he did. The Fifth Circuit therefore held that, pursuant to *Pulley v. Harris*, an independent appellate review of mitigating evidence was not constitutionally required. *Hughes*, 191 F.3d at 621-3. Thus, neither Supreme Court precedent nor Fifth Circuit interpretation of these precedents dictates that Petitioner was entitled to appellate review of the sufficiency of the evidence to support the jury's decision *not* to dispense mercy in his case.

The state habeas court made a finding that this ground for relief, when alleged by Petitioner at the state level, was not supported by the law, and cited *McFarland v. State*, 928 S.W.2d 482 (Tex.Crim.App.1996), *cert. denied*, 519 U.S. 1119 (1997), *Shannon v. State*, 942 S.W.2d 591 (Tex.Crim.App.1996), and *Pondexter v. State*, 942 S.W.2d 577 (Tex.Crim.App.1996), *cert. denied*, 522 U.S. 825 (1997), as support for this finding.[FN8] In *McFarland* and in *Pondexter*, the Court of Criminal Appeals declined to review the sufficiency of the evidence to support the negative answer to the mitigation special issue because the weighing of mitigating evidence is a subjective determination by each individual juror. *McFarland*, 928 S.W.2d at 498; *Pondexter*, 942 S.W.2d at 587. In *Shannon*, the Court of Criminal Appeals held that the mitigation special issue could not be reviewed for sufficiency of the evidence on appeal because would "amount to an exercise in speculation." Nonetheless, the Court held that the mitigation special issue was constitutionally required by *Penry* and was not unconstitutional merely because a sufficiency review is not possible. *Id.* at 599.

FN8. This finding with regard to ground thirteen in Petitioner's state habeas application was one of the findings that was adopted by the Court of Criminal Appeals.

***23** Because Supreme Court precedent does not dictate that appellate review of mitigating evidence is constitutionally required, the state court's denial of this ground for relief based upon these Court of Criminal Appeals' precedents was not a decision contrary to clearly established federal law. This ground for relief is without merit.

F. Whether the Absence of a Parole Instruction violated Petitioner's Eighth Amendment and Due Process Rights

In his sixth ground for relief, Petitioner claims, in essence, that the trial court violated his Eighth Amendment and due process rights by refusing to instruct the jury in his case regarding his parole eligibility if given a life sentence.[FN9] The Texas Court of Criminal Appeals addressed this issue on appeal in the context of whether the trial court violated Petitioner's Eighth Amendment rights because parole was a mitigating circumstance that Petitioner was entitled to present to the jury. On direct appeal, the Court of Criminal Appeals overruled this claim, holding that parole eligibility is not a proper consideration for the jury's deliberations on punishment. *Willingham*, 897 S.W.2d at 358-9.

FN9. Petitioner submitted a written request to the trial court that the jury be instructed regarding Petitioner's parole eligibility. This request was denied by the trial court, and the jury received no instruction regarding parole. (SR I:151, 155-7). At the time that Petitioner committed this offense, the law in Texas was that a person who received a life sentence would be eligible for parole in thirty-five years. *See* TEX.CODE

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CRIM. PROC. ANN. art. 42.18 § 8(b)(2) (Vernon Supp.1991).

In making this claim in his federal petition, Petitioner relies on the Supreme Court case *Simmons v. South Carolina*, 512 U.S. 154 (1994). *Simmons* is a death penalty case in which a plurality of the Supreme Court held that, where a defendant's future dangerousness is an issue in a capital case, and the sentencing options are death or life without the possibility of parole, due process allows the defendant to inform the sentencing jury about his parole ineligibility. *Id.* at 156. Petitioner argues that *Simmons* is applicable to his case because, had he received a life sentence, he would not have been eligible for parole for thirty-five years, a time period Petitioner asserts is comparable to a life sentence without parole.

Contrary to Petitioner's argument, however, the plurality opinion in *Simmons* specifically limited its holding to cases where the sentencing option is between death and life *without parole*. Justice Blackmun, writing for the Court, went further and stated that "[i]n a State in which parole is available, how the jury's knowledge of parole availability will affect the decision whether or not to impose the death penalty is speculative, and we will not lightly second-guess a decision whether or not to inform a jury of information regarding parole." *Id.* at 168. And the opinion also noted that, differing from South Carolina, Texas has no life-without-parole sentencing option. *Id.* at 168, n. 8. Moreover, since the Supreme Court's decision in *Simmons*, the Fifth Circuit has held that a trial court does not violate a Texas capital murder defendant's Eighth Amendment rights or due process rights by refusing to instruct the jury regarding parole eligibility because *Simmons* does not apply in Texas cases, but only in cases where life-without-parole is a sentencing option. *Miller v. Johnson*, 200 F.3d 274 (5th Cir.2000); *Allridge v. Scott*, 41 F.3d 213, 222 (5th Cir.1994).

***24** Therefore, although the Court of Criminal Appeals did not specifically address *Simmons* in its decision on direct appeal, based on the decision in *Simmons* and subsequent case law interpreting *Simmons*, Petitioner cannot show that the Court of Criminal Appeal's decision on direct appeal was contrary to clearly established federal law. Accordingly, this ground for relief is without merit.

G. Whether the Absence of a Parole Instruction violated Petitioner's Equal Protection Rights

In his seventh ground for relief, Petitioner claims that the Texas Death Penalty Scheme violated his equal protection rights because he was prohibited from instructing the jury in his case regarding his parole eligibility, whereas Texas statutory law requires that juries in non-capital cases be instructed regarding parole eligibility. Respondent argues in response that Petitioner is procedurally barred from raising this claim because he has failed to exhaust his state claims and because the Texas Court of Criminal Appeals would now find that this claim has been procedurally defaulted. Respondent further contends that even if the claim is considered on its merits, it fails.

Procedural default occurs when a petitioner fails to exhaust all available state remedies *and* the state court to which he would be required to petition would now find that the claim is procedurally defaulted. *Bledsoe v. Johnson*, 188 F.3d 250, 254 (5th Cir.1999). In his state writ of habeas corpus, Petitioner raised sixteen grounds for relief. None of these grounds alleged any error regarding the fact that the jury did not receive an instruction on parole eligibility. (State Habeas Petition at i-iii). Moreover, although Petitioner raised the issue of the absence of a parole eligibility jury instruction on direct appeal to the Texas Court of Criminal Appeals, he argued that the exclusion of this instruction violated his Eighth Amendment rights. Petitioner did not argue on direct appeal, however, that his equal protection rights were violated by the absence of such an instruction. Therefore, Petitioner has failed to exhaust his state remedies on this issue.[FN10]

FN10. The exhaustion requirement is satis-

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> fied when the substance of the federal claim has been fairly presented to the highest state court, but it is not satisfied if the federal petition presents a new legal theory or a new factual claim. *See Whitehead v. Johnson*, 157 F.3d 384, 387 (5th Cir.1998), *citing Picard v. Conner*, 404 U.S. 270, 275-8 (1971).

Furthermore, were this claim now brought in a subsequent state writ of habeas corpus, the Court of Criminal Appeals would consider this claim to be procedurally defaulted under Article 11.071 § 5 of the Texas Code of Criminal Procedure, which prohibits a claim from being raised in a subsequent habeas application unless: 1) it could not have been raised in the previous application because the factual or legal basis was unavailable at the time; or 2) the claim contains sufficient facts establishing that, but for a violation of the United States Constitution, no rational juror would have found Petitioner guilty or would have answered the punishment issues in the State's favor. *See* TEX.CODE CRIM. PROC. ANN. art 11.071 § 5(a) (Vernon Supp.1999). Clearly, the legal claim presented in this ground for relief was available to Petitioner at the time he filed his state habeas application, and Petitioner has presented no facts that would establish that, even if it were a constitutional violation to exclude a jury instruction on parole eligibility, no rational juror would have sentenced him to death if such an instruction had been given. Accordingly, because Petitioner has failed to exhaust his state remedies with regard to this claim, and because the Court of Criminal Appeals, if presented with a successive state habeas petition on this claim, would find it barred under article 11.071 § 5(a), Petitioner is procedurally barred from raising this ground for relief in a federal petition for writ of habeas corpus.[FN11]

> FN11. Petitioner fails to allege, much less argue, any cause and prejudice for failing to present this claim in state court.

***25** Moreover, even if this issue were considered on its merits, as permitted under § 2254(2), it fails. Petitioner contends that, because at the time of his trial in 1992 Article 37.07 § 4 of the Texas Code of Criminal Procedure, the statute governing the sentencing of non-capital defendants, contained a provision requiring that juries in non-capital cases be instructed regarding parole eligibility, but it specifically excluded capital cases from this requirement, Petitioner's equal protection rights were violated .[FN12] The Fifth Circuit, however, has held that capital defendants are not members of a suspect class for equal protection purposes. *Woods v. Johnson*, 75 F.3d 1017, 1036 (5th Cir.), *cert. denied*, 117 S.Ct 150 (1996); *Thompson v. Lynaugh*, 821 F.2d 1054, 1062 (5th Cir.), *cert. denied*, 483 U.S. 1035 (1987). Therefore, the legislation classification should be upheld so long as it is rationally related to a legitimate state interest. *Heller v. Doe*, 509 U.S. 312, 319-20 (1993); *City of Cleburne, Tex. v. Cleburne Living Center*, 473 U.S. 432, 440 (1985).

> FN12. *See* TEX.CODE CRIM. PROC. ANN. art. 37.07 § 4(a) (Vernon Supp.1992). Article 37.071 of the Texas Code of Criminal Procedure, the article which addresses the procedure used in capital cases, now contains a provision permitting capital defendants to instruct juries regarding parole eligibility if they so desire. This provision was not, of course, in existence at the time of Petitioner's trial. *See* TEX.CODE CRIM. PROC. ANN. art. 37.071 § 2(e)(2) (Vernon Supp.2000).

As argued by Respondent, the State of Texas has a legitimate state interest in limiting a jury's reliance on parole eligibility as a factor in sentencing a capital defendant if this reliance may, in fact, be detrimental to a capital defendant who will become parole eligible at some point if given a life sentence. Therefore, there is a rational basis for a statute that requires that non-capital juries be instructed about parole eligibility but does not require this instruction in capital trials. Because Texas' different treatment of capital defendants is rationally related

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to a legitimate state interest, Petitioner's equal protection rights were not violated when the trial court refused to instruct the jury in his case regarding parole eligibility. This ground is both procedurally barred and without merit.

RECOMMENDATION

Petitioner has failed to make a substantial showing of the denial of a federal right. The state court adjudication on the merits neither resulted in a decision that was contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States, nor resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented in the State court proceeding. Petitioner's petition for a writ of habeas corpus should be DENIED.

N.D.Tex.,2001.
Willingham v. Johnson
Not Reported in F.Supp.2d, 2001 WL 1677023 (N.D.Tex.)

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H

This case was not selected for publication in the Federal Reporter.

Not for Publication in West's Federal Reporter See Fed. Rule of Appellate Procedure 32.1 generally governing citation of judicial decisions issued on or after Jan. 1, 2007. See also Fifth Circuit Rules 28.7, 47.5.3, 47.5.4. (Find CTA5 Rule 28 and Find CTA5 Rule 47)

United States Court of Appeals,
Fifth Circuit.
Cameron Todd **WILLINGHAM**, Petitioner-Appellant,
v.
Janie **COCKRELL**, Director, Texas Department of Criminal Justice, Institutional Division, Respondent-Appellee.

No. 02-10133.
Feb. 17, 2003.

Appeal from the United States District Court for the Northern District of Texas. USDC No.: 3:98-CV-409-L.

Before JOLLY, SMITH, and BENAVIDES, Circuit Judges.

E. GRADY JOLLY, CIRCUIT JUDGE: [FN1]

FN1. Pursuant to 5TH CIR. R. 47.5, the Court has determined that this opinion should not be published and is not precedent except under the limited circumstances set forth in 5TH CIR. R. 47.5.4.

***1** Cameron Todd Willingham was convicted of capital murder and sentenced to death. He seeks a Certificate of Appealability ("COA") to appeal the district court's denial of federal habeas relief. For the reasons that follow, we DENY a COA.

I

On December 23, 1991, Willingham's one-year-old twin daughters and his two-year-old daughter died of smoke inhalation when the family's residence burned. Willingham, who escaped the burning residence, was charged with capital murder of the children. The State presented evidence, including Willingham's confession to an inmate, that Willingham poured an accelerant on the floor of the twins' bedroom, the floor of the hallway outside their bedroom, and around the front door and lit three separate fires. There was also evidence that, before setting the fires, he burned his two-year-old daughter's arm and forehead so as to make it appear that the fire was caused by the child playing with fire.

The jury found Willingham guilty of capital murder. He was sentenced to death based on the jury's affirmative answer to the special punishment issue on future dangerousness and its negative answer to the special punishment issue on mitigating circumstances. The Texas Court of Criminal Appeals affirmed his conviction and sentence on direct appeal, and the Supreme Court denied certiorari. *Willingham v. State*, 897 S.W.2d 351 (Tex.Crim.App.), *cert. denied*, 516 U.S. 946, 116 S.Ct. 385, 133 L.Ed.2d 307 (1995).

In December 1996, Willingham filed an application for state habeas relief. The Texas Court of Criminal Appeals adopted the trial court's recommendation that relief be denied, and the Supreme Court denied certiorari. *Ex parte Cameron Todd Willingham*, No. 35,162 (Tex.Crim.App. Oct. 1, 1997), *cert. denied*, 524 U.S. 917, 118 S.Ct. 2299, 141 L.Ed.2d 159 (1998).

Willingham filed a petition for federal habeas relief in April 1998. The magistrate judge recommended that relief be denied. The district court overruled Willingham's objections to the magistrate judge's report and recommendation and denied relief. *Willingham v. Johnson*, 2001 WL 1677023

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(N.D.Tex. Dec.31, 2001). The district also denied Willingham's request for a COA.

II

He has now filed in this court his "Application for Certificate of Appealability," in which he lists eight issues: (1) whether his right to due process was violated when he was denied the right to represent himself on appeal; (2) whether he received ineffective assistance of counsel on direct appeal as a result of his counsel's failure to raise issues regarding the erroneous exclusion of several jurors for cause, the improper introduction of hearsay testimony, and the improper questioning of at least two witnesses for the State; (3) whether the district court erred by holding that there was no error in the exclusion of two jurors based on their beliefs about the death penalty; (4) whether the district court erred by holding that there was no error in the trial court's restriction of Willingham's questioning of a prospective juror; (5) whether the district court erred by holding that hearsay statements made by Willingham's wife were properly admissible as impeachment evidence; (6) whether the district court erred by holding that the opinion testimony of the State's expert witness was admissible; (7) whether the Texas death penalty scheme is unconstitutional because it fails to provide for meaningful appellate review; and (8) whether Willingham's rights to due process and equal protection were violated because the jury was not instructed on the effect that Texas parole law would have on his sentence. He did not, however, brief issues (3), (4), (5), and (6) in his brief in support of his COA application (although the subject matter of these issues is addressed in relation to his ineffective assistance of counsel claim). Accordingly, we address only the four COA requests that Willingham briefed. *See Hughes v. Johnson*, 191 F.3d 607, 613 (5th Cir.1999) (issues not raised in brief in support of COA application are waived), *cert. denied*, 528 U.S. 1145, 120 S.Ct. 1003, 145 L.Ed.2d 945 (2000)

A

Standard of Review

***2** To obtain a COA, Willingham must make "a substantial showing of the denial of a constitutional right." 28 U.S.C. § 2253(c)(2). To make such a showing, he must demonstrate that "reasonable jurists could debate whether (or, for that matter, agree that) the petition should have been resolved in a different manner or that the issues presented were adequate to deserve encouragement to proceed further." *Slack v. McDaniel*, 529 U.S. 473, 484, 120 S.Ct. 1595, 146 L.Ed.2d 542 (2000). For those claims on which the district court has denied relief on the merits, Willingham "must demonstrate that reasonable jurists would find the district court's assessment of the constitutional claims debatable or wrong." *Id.*

"[T]he determination of whether a COA should issue must be made by viewing [Willingham]'s arguments through the lens of the deferential scheme laid out in 28 U.S.C. § 2254(d)." *Barrientes v. Johnson*, 221 F.3d 741, 772 (5th Cir.2000), *cert. dismissed*, 531 U.S. 1134, 121 S.Ct. 902, 148 L.Ed.2d 948 (2001). When a claim has been adjudicated on the merits in state court, a federal habeas court must defer to the state court's decision unless it "[is] contrary to, or involve[s] an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States; or ... [is] based on an unreasonable determination of the facts in light of the evidence presented in the State court proceeding." 28 U.S.C. § 2254(d)(1) and (2). A decision is "contrary to ... clearly established Federal law, as determined by the Supreme Court of the United States" "if the state court arrives at a conclusion opposite to that reached by [the Supreme Court] on a question of law or if the state court decides a case differently than [the Supreme Court] has on a set of materially indistinguishable facts." *Williams v. Taylor*, 529 U.S. 362, 412-13, 120 S.Ct. 1495, 146 L.Ed.2d 389 (2000). A decision "involve[s] an unreasonable application of[ ] clearly established Federal law, as determined by the Supreme Court of the United States" "if the state court identifies the correct governing legal principle from [the Supreme Court's]

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decisions but unreasonably applies that principle to the facts of the prisoner's case." *Id.* at 413. The state court's factual findings are accorded a presumption of correctness that Willingham may rebut only by "clear and convincing evidence." 28 U.S.C. § 2254(e)(1).

B

Denial of the Right to Self-Representation

We address first Willingham's request for a COA for his claim that his right to due process was violated when he was denied the right to represent himself on appeal. Willingham's appointed counsel filed his brief on direct appeal on January 11, 1993. Five months later, prior to the filing of the State's brief, Willingham filed a motion to strike his appointed counsel's brief and to proceed *pro se* on appeal. In that motion, he asserted that the brief filed by his appellate counsel did not reflect the true merits of his case. He did not, however, specify the issues he wanted to raise. In support of his motion, Willingham submitted an affidavit in which he indicated his belief that he was able to prepare a brief and waived his right to the assistance of counsel. The Court of Criminal Appeals denied Willingham's motion. Willingham argues that this violated his constitutional right to represent himself on appeal.

The state habeas trial court denied relief for this claim on the ground that Willingham was attempting to use his right of self-representation to obstruct the orderly procedure in the courts and the fair administration of justice. *See Webb v. State,* 533 S.W.2d 780, 784 (Tex.Crim.App.1976) (holding that a criminal defendant has the right to represent himself on appeal, but that the "right of self-representation is not a license to capriciously upset the appellate timetable or to thwart the orderly and fair administration of justice"; and declining to rule on appellant's *pro se* motions that were filed long after his appointed counsel had filed an appellate brief).

***3** The district court denied this claim on the merits, in the light of *Martinez v. Court of Appeal, Fourth Appellate District,* 528 U.S. 152, 120 S.Ct. 684, 145 L.Ed.2d 597 (2000), which was handed down subsequent to the state habeas court's ruling. In *Martinez,* the Supreme Court held that there is no federal constitutional right to self-representation on direct appeal from a criminal conviction. *Id.* at 163.[FN2]

FN2. In *Faretta v. California,* 422 U.S. 806, 807, 95 S.Ct. 2525, 45 L.Ed.2d 562 (1975), the Supreme Court held that a criminal defendant has a Sixth Amendment right to represent himself at trial. Based on *Faretta,* our court held in 1993 (seven years prior to *Martinez*), that a state criminal defendant has a constitutional right to present *pro se* briefs and motions on appeal. *See Myers v. Collins,* 8 F.3d 249, 252 (5th Cir.1993). In the light of *Martinez,* which held that the Sixth Amendment does not apply to appellate proceedings, and which cited *Myers* as one of the cases expressing conflicting views on the issue, this aspect of *Myers* is no longer valid and is thus inapplicable to our resolution of Willingham's COA request.

Willingham argues that *Martinez* does not foreclose his claim, because *Martinez* is based on the assumption that states will consider *pro se* arguments, in addition to those raised by counsel. *See Martinez,* 528 U.S. at 164 (observing that "the rules governing appeals in California, and presumably those in other States as well, seem to protect the ability of indigent litigants to make *pro se* filings"). He maintains that, because Texas refuses to consider *pro se* arguments in addition to those raised by counsel, he can still establish a due process violation, notwithstanding *Martinez.*

The State argues that this claim is foreclosed by *Martinez.* It contends further that this claim is barred by the non-retroactivity doctrine of *Teague v. Lane,* 489 U.S. 288, 109 S.Ct. 1060, 103 L.Ed.2d 334 (1989). *See Vega v. Johnson,* 149 F.3d 354, 361-62 (5th Cir.1998) (holding that *Myers* created a

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new rule of constitutional law that was not applicable on collateral review, and that a rule establishing the extent and requirements of the right of self-representation on appeal would be a new rule barred by *Teague*). Finally, the State argues that this claim is procedurally barred because the state habeas court found that Willingham waived his right to self-representation when he accepted the assistance of counsel, allowed counsel to file an appellate brief, and then waited at least five months to assert his wish to proceed *pro se*.

In the light of *Martinez*, Willingham cannot demonstrate that reasonable jurists would find the district court's assessment of this claim "debatable or wrong." *See Slack*, 120 S.Ct. at 1604. Notwithstanding its observations about the ability of indigent litigants to make *pro se* filings under state appellate rules, the Supreme Court's refusal to recognize a due process right to self-representation on appeal is not conditioned on the appellant's ability to make such filings. The imposition of such a condition on collateral review is not permitted under *Teague*. Accordingly, Willingham's request for a COA for this claim is denied.

C

Ineffective Assistance of Counsel on Direct Appeal

***4** Next, we consider Willingham's request for a COA for his claim that he received ineffective assistance of counsel on direct appeal. Willingham's appointed counsel argued on direct appeal that: the evidence was insufficient to support the jury's answers to the special issues at the punishment phase; the trial court erred by denying the defense motion to change venue; the trial court erred in refusing to admit impeachment testimony; and the trial court erred by refusing to instruct the jury on parole law. Willingham argues that his appellate counsel rendered ineffective assistance by failing to argue, in addition, that: (1) the trial court erred by granting the State's challenges for cause of prospective jurors Allen and Ovalle; (2) the trial court erred by limiting voir dire examination of prospective juror Ovalle; (3) the trial court erred by admitting hearsay testimony; and (4) the trial court erred by admitting improper expert testimony.

Willingham's ineffective assistance claim is governed by the standard set forth in *Strickland v. Washington*, 466 U.S. 668, 104 S.Ct. 2052, 80 L.Ed.2d 674 (1984). To obtain a COA for this claim, Willingham must make a substantial showing that his appellate counsel performed deficiently and that the deficient performance prejudiced his defense. Prejudice is demonstrated if "there is a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different." *Id.* at 694. "A reasonable probability is a probability sufficient to undermine confidence in the outcome." *Id.* Accordingly, to establish prejudice, Willingham must show a reasonable probability that he would have prevailed on his appeal had counsel raised the omitted claims. *Smith v. Robbins*, 528 U.S. 259, 285-87, 120 S.Ct. 746, 145 L.Ed.2d 756 (2000). The Constitution does not require an appellate attorney to advance every conceivable argument, regardless of merit. *Evitts v. Lucey*, 469 U.S. 387, 394, 105 S.Ct. 830, 83 L.Ed.2d 821 (1985). Instead, counsel is required to raise and brief only those issues which are believed by counsel, in the exercise of professional judgment, to have the best chance of success. *See Jones v. Barnes*, 463 U.S. 745, 751-52, 103 S.Ct. 3308, 77 L.Ed.2d 987 (1983).

We now turn to examine each of the issues that Willingham contends his counsel should have raised on direct appeal.

1

Exclusion of Jurors for Cause

Willingham seeks a COA for his claim that his appellate counsel rendered ineffective assistance by failing to argue on appeal that the trial court erred by granting two of the State's challenges for cause during voir dire.

When questioned by the prosecutor, prospective juror Ovalle testified that she could not vote for the imposition of the death penalty and that this

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was a firm belief that she had held for a long time. She stated that, because of her belief, she could not vote in favor of the death penalty, regardless of what the evidence might be, and that she would automatically vote against the death penalty. She testified further that her feelings against the death penalty were so strong that they would interfere with her ability to vote to convict someone of capital murder, knowing that she would later face the decision regarding the death penalty. Finally, she testified that her views on capital punishment would substantially impair her duties as a juror and might keep her from following the court's instructions. When questioned by defense counsel, Ovalle stated that she would consider her oath as a juror to be binding and that, if she took an oath to follow the law, she would do so. She testified further that she thought she could answer the special issues based on the evidence, despite her views about the death penalty. When questioned again by the State, however, Ovalle reiterated that she could not vote to impose the death penalty.

Prospective juror Allen also did not believe in capital punishment. She testified that her belief was based on moral and religious reasons, that she had strong feelings about the subject, and that she had never felt differently. She testified that, because of her beliefs, she would answer the special punishment issues in such a manner that the death penalty could not be imposed, regardless of the evidence. She agreed that it would be impossible for her to swear that she would render a verdict solely on the law and evidence in a case where the death penalty was involved. She also indicated that her views about the death penalty would interfere with her ability to render a fair verdict at the guilt-innocence phase, knowing that she would face the decision of the death penalty if the defendant were convicted. When questioned by defense counsel, Allen stated that she thought she could answer the special punishment issues based on the evidence, and that she would not intentionally disregard her oath because of her opposition to the death penalty. When questioned again by the State, however, Allen stated that she could not base her verdict on the evidence if it involved the death penalty.

***5** The Supreme Court has held that a prospective juror may be excused for cause in a capital case when the juror's views on the death penalty are such that they "would prevent or substantially impair the performance of his duties as a juror in accordance with his instructions and his oath." *Wainwright v. Witt*, 469 U.S. 412, 424, 105 S.Ct. 844, 83 L.Ed.2d 841 (1985) (internal quotation marks and citation omitted). It is improper, however, to excuse a juror for cause when the juror would approach a death penalty case with greater care or caution or where the decision would involve him emotionally. *Adams v. Texas*, 448 U.S. 38, 49-50, 100 S.Ct. 2521, 65 L.Ed.2d 581 (1980). Because the trial judge has the opportunity to see and hear the prospective jurors, we give deference to the trial judge's credibility determinations. *Wainwright*, 469 U.S. at 425-26.

The state habeas trial court denied relief on Willingham's claim that the trial court erred by granting the State's challenges for cause, observing that the prospective jurors' responses to questioning showed that their views on the death penalty would substantially impair the performance of their duties in accordance with the court's instructions and the jurors' oath. It denied Willingham's claim that he received ineffective assistance of appellate counsel for the same reason.

In assessing the ineffective counsel claim, the district court held that Willingham was not prejudiced, because there was not a reasonable probability that the outcome of the appeal would have been different if his appellate counsel had raised the issue. The district court's assessment of this claim is neither debatable nor wrong, because the state court's decision is not contrary to federal law and is not based on an unreasonable application of the law or an unreasonable determination of the facts. Essentially, any such claim would have been meritless as an appellate issue. Both of the prospective jurors stated more than once that, because of their opposi-

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61 Fed.Appx. 918, 2003 WL 1107011 (C.A.5 (Tex.))
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tion to the death penalty, they could not render a verdict based solely on the evidence at trial. Although, when questioned by defense counsel, both of them said that they thought they could follow their oaths and answer the punishment issues based on the evidence, they both reiterated, in response to further questioning by the prosecutor, that they could not vote in such a way as to impose the death penalty. Because both of the prospective jurors held views about the death penalty that would have substantially impaired them in fulfilling their duties as jurors, the trial court was well within his discretion in granting the State's challenges for cause. Accordingly, Willingham cannot show that he was prejudiced by counsel's alleged failing: There is not a reasonable probability that Willingham would have prevailed on appeal had the issue been raised.

2

Limitation of Voir Dire

***6** Willingham also seeks a COA for his claim that his appellate counsel rendered ineffective assistance by failing to argue on appeal that the trial court erred by refusing to allow counsel to ask prospective juror Ovalle whether, irrespective of her personal beliefs, she could follow the law and decide the punishment issues based upon the evidence. He contends that, had counsel been allowed to ask this question, he could have shown that Ovalle could answer the questions truthfully based on the evidence and thus defeat a challenge for cause.

The state habeas trial court rejected this claim on the ground that Willingham was not prejudiced, because a similar question had already been asked, answered, and considered by the court. The district court held that, in the light of the fact that defense counsel had asked Ovalle essentially the same question earlier and the fact that many of Ovalle's previous answers to questions indicated that she could not render a verdict based on the law and the evidence, the trial court did not abuse its discretion by refusing to permit Willingham's counsel to ask the question.

Willingham is not entitled to a COA for this claim because the district court's assessment of this claim is neither debatable nor wrong. Consequently, Willingham has not made a substantial showing that he was prejudiced by his counsel's failure to raise this issue on appeal; there simply is not a reasonable probability that the outcome of the appeal would have been different had the issue been raised. As the state habeas court and the district court observed, the question that defense counsel wanted to ask is duplicative of similar questions that had already been asked by defense counsel.

3

Hearsay Testimony

Next, Willingham seeks a COA based on the failure of appellate counsel to argue that the trial court erred by admitting hearsay evidence at the punishment phase of his trial. The testimony at issue was introduced to impeach the testimony of Willingham's wife, who was called by the State as a hostile witness during the punishment phase. Willingham's wife testified that Willingham had never hurt her or her children, and that her children were not afraid of him. She also denied that she had ever told Karen or Kim King that Willingham had beaten or kicked her while she was pregnant in an attempt to cause a miscarriage. She further denied that Willingham had ever made the statement, after they had separated, that it would be a good trade if she took their daughter and he took the videocassette recorder ("VCR").

Karen King was called by the State to impeach Willingham's wife. She testified that she had seen Willingham's wife with a "busted" lip, two black eyes, bruised legs, and a red spot on her stomach. She also testified that Willingham's wife told her that Willingham had beaten her and kicked her in the stomach while she was pregnant because, she believed, he wanted to cause a miscarriage.

The State also called Kim King as a witness. She testified that Willingham's wife had spoken to her about Willingham beating her while she was pregnant. She testified further that Willingham's

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wife told her that Willingham had stated that he wanted the VCR and that it would be a fair trade for their oldest daughter.

The trial court overruled defense counsel's hearsay objections to Karen and Kim King's testimony. The state habeas trial court held that Willingham failed to present a ground for relief that was cognizable on habeas review. Furthermore, it held that any error in admitting the testimony was harmless, because it was more probable than not that the result would have been the same if the challenged testimony had been excluded. It denied Willingham's claim that he received ineffective assistance of appellate counsel for the same reason. The Texas Court of Criminal Appeals denied relief, but declined to adopt the trial court's findings of fact relating to this claim.

***7** On federal habeas, the magistrate judge stated that Karen King's testimony regarding Willingham's wife's statement about the reason she thought Willingham had beaten her while she was pregnant was hearsay, but that the testimony was admissible to impeach Willingham's wife's testimony that she never made such a statement to either of the Kings. The magistrate judge noted that Willingham's counsel did not request a limiting instruction.

The magistrate judge stated that Karen King's testimony regarding Willingham's statement to his wife about trading the VCR for his daughter was inadmissible hearsay, because Willingham's wife did not deny that she had made such a statement to King. Instead, she denied that Willingham had ever made the statement to her. The magistrate judge concluded, however, that, as far as his ineffective counsel claim was concerned, Willingham was not prejudiced by counsel's failure to raise the issue on appeal, because there was not a reasonable probability that the appellate court would have found reversible error. Instead, the magistrate judge concluded that the appellate court would have found the error harmless, because the jury would not have reached a different decision on punishment had the testimony been excluded. The magistrate judge reached this conclusion because of the horrific nature of the crime and the other evidence at the punishment phase-including Willingham's extensive criminal background, his bragging about killing a dog, the other testimony given by the Kings regarding Willingham's wife's appearance after being beaten by Willingham, and testimony of a neighbor who witnessed Willingham slap his wife and who once helped Willingham's wife call the police about Willingham's violence.

The district court held that, even if the State knew before it called her as a witness, that it would impeach Willingham's wife's denial that she had been abused by Willingham, the State also elicited testimony from her that did not relate to the abuse. Accordingly, the district court concluded that the State did not improperly call Willingham's wife solely to impeach her. The district court therefore concluded that the trial court did not err when it admitted the hearsay statements for impeachment purposes, and that, as the matter related to his ineffective counsel claim, there was not a reasonable probability that the outcome of Willingham's appeal would have been different if his counsel had raised the issue. The district court noted that Willingham did not object to the magistrate judge's conclusion that he was not prejudiced by appellate counsel's failure to appeal the admission of testimony regarding Willingham's statement that he would trade his daughter for a VCR. The district court concluded that Willingham was not prejudiced by the testimony, even if it were hearsay, because the testimony was insignificant in the light of other testimony regarding the nature of Willingham's relationship with his wife and children.

Willingham is not entitled to a COA for this issue, because the district court's assessment of this claim is neither debatable nor wrong. Willingham has not made a substantial showing that he was prejudiced by counsel's failure to raise this issue on direct appeal.

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Expert Testimony

***8** The last basis for Willingham's ineffective assistance of appellate counsel claim involves counsel's failure to appeal the admission of opinion testimony from the State's arson investigator, Vasquez. During the guilt phase of trial, Vasquez, a deputy state fire marshal and arson investigator, was called by the State as an expert witness. Vasquez testified that, based on the burn patterns and pour patterns and the stains on the concrete front porch, the fire was set intentionally with the use of an accelerant. He testified that he did not believe Willingham's two-year-old daughter could have started the fire, because the accelerant liquid was deliberately poured throughout the hallway and the bedroom, and because the fire was started in three different places. He testified that Willingham had told him that his daughter had awakened him while he was sleeping, the bedroom was full of smoke, he kicked open the door with his bare foot, and he ran down the hallway and out the door. Vasquez testified that, in his opinion, Willingham's story was not true, because Willingham could not have exited the house after it was on fire and smoke had reached his bedroom without sustaining injury to his feet or substantial smoke inhalation damage. Finally, Vasquez testified that it was his opinion that Willingham started the fire.

Willingham argues that Vasquez's opinion that Willingham's story was "pure fabrication" was improper expert testimony regarding the ultimate issue in the case. He also argues that Vasquez was improperly permitted to testify that Willingham intentionally set the fire.

The state habeas trial court held that any error in admitting Vasquez's opinion testimony was harmless. It denied Willingham's claim that he received ineffective assistance of appellate counsel for the same reason. The Texas Court of Criminal Appeals denied relief, but did not adopt the trial court's findings of fact relating to this claim.

The magistrate judge concluded that Vasquez's testimony that the fire was intentionally set using an accelerant was proper expert testimony because that opinion was based on his specialized knowledge about fires and their causes. The magistrate judge also concluded that Vasquez's testimony that Willingham fabricated the story about escaping the fire through the hallway was admissible opinion testimony. Although it embraced an ultimate issue, it was not testimony regarding the veracity of a witness, because Willingham did not testify at trial. Instead, Vasquez testified that he did not believe Willingham's story because, based upon his specialized knowledge, he did not believe that Willingham could have escaped the burning house without inhaling smoke and sustaining injuries to his bare feet. Although the magistrate judge concluded that Vasquez's opinion testimony regarding Willingham's guilt was admitted erroneously with respect to the ineffective counsel claim, he concluded that the Texas Court of Criminal Appeals would have found the error to be harmless had the issue been raised on appeal, considering the substantial circumstantial evidence of Willingham's guilt. That evidence included uncontroverted expert testimony from two fire experts that an accelerant was used to start the fire intentionally. In addition, there was testimony that Willingham refused to try to rescue his children from the fire; that he exhibited a lack of concern or grief in the hospital after the fire; that he did not sustain any substantial injuries; that he displayed a carefree attitude the day after the fire; that he told arson investigators on the day of the children's funeral that they might find something on the floor of the twins' bedroom because he had poured cologne there prior to the fire; that on the day of the children's funeral he sought help from the arson investigators to find his dartboard in the ruins of his house; and that a container containing traces of kerosene was found on the porch and a similar petroleum distillate was found on the wood threshold of the front door. Moreover, there was testimony that, while in jail awaiting trial, Willingham confessed to an inmate that he started the fire in order to hide evidence of recent child abuse. Finally, in addition to the one inadmissible opinion given by Vasquez, he also gave admissible opinion

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testimony that a child could not have set the fire and that Willingham's story did not match the physical evidence and was contradicted by his lack of injuries. The magistrate judge concluded that because the opinion testimony was either admissible or harmless, Willingham could not establish any prejudice as the result of his appellate counsel's failure to raise the issue. The district court agreed with the magistrate judge that Willingham was not prejudiced by his appellate counsel's failure to raise the issue on appeal, because any error would have been harmless in the light of the substantial evidence of Willingham's guilt.

Willingham is not entitled to a COA for this issue because the district court's assessment of this claim is neither debatable nor wrong. Even assuming that some of Vasquez's testimony was admitted erroneously, he cannot establish the second prong of his ineffective counsel claim: There is not a reasonable probability that the Texas Court of Criminal Appeals would have found the error to be prejudicial to the outcome of the case had the issue been raised on direct appeal.

5

Summary

***9** In sum, Willingham is not entitled to a COA for his claim that his appellate counsel rendered ineffective assistance. Willingham has not made a substantial showing that there is a reasonable probability that counsel's failure to raise the issues on direct appeal would have affected the outcome of his appeal.

D

Constitutionality of Texas Death Penalty Statute

Willingham also seeks a COA for his claim that the Texas death penalty scheme is unconstitutional because the Texas Court of Criminal Appeals will not review the sufficiency of the evidence supporting the jury's answer to the special punishment issue on mitigating evidence. Willingham argues that this results in the jury being given unlimited discretion in choosing whether to assess the death penalty, in violation of the Eighth and Fourteenth Amendments. Willingham does not deny that this claim is foreclosed by our precedent, but states that he is raising it to preserve the opportunity to present the issue to the Supreme Court. *See Woods v. Cockrell*, 307 F.3d 353, 358-60 (5th Cir.2002); *Moore v. Johnson*, 225 F.3d 495, 505 (5th Cir.2000), *cert. denied*, 532 U.S. 949, 121 S.Ct. 1420, 149 L.Ed.2d 360 (2001).

E

Jury Instruction on Parole

Finally, Willingham requests a COA for his claim that his constitutional rights were violated by the trial court's refusal to instruct the jury that he would be ineligible for parole for thirty-five years if sentenced to life imprisonment. As Willingham acknowledges, he is not entitled to a COA for this claim because it is foreclosed by Fifth Circuit precedent. *See Miller v. Johnson*, 200 F.3d 274, 290 (5th Cir.), *cert. denied*, 531 U.S. 849, 121 S.Ct. 122, 148 L.Ed.2d 77 (2000). He raises the issue in order to preserve the opportunity to present it to the Supreme Court.

III

For the foregoing reasons, Willingham's application for a COA is

DENIED.

C.A.5 (Tex.),2003.
Willingham v. Cockrell
61 Fed.Appx. 918, 2003 WL 1107011 (C.A.5 (Tex.))

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H

Supreme Court of the United States
Cameron Todd **WILLINGHAM**, petitioner,
v.
Doug **DRETKE**, Director, Texas Department of Criminal Justice, Correctional Institutions Division.

No. 03-5609.
Nov. 3, 2003.

Case below, 61 Fed.Appx. 918.

Petition for writ of certiorari to the United States Court of Appeals for the Fifth Circuit denied.

U.S.,2003
Willingham v. Dretke
540 U.S. 986, 124 S.Ct. 466, 157 L.Ed.2d 379, 72 USLW 3307

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REPRODUCED FROM THE HOLDINGS OF THE TEXAS STATE ARCHIVES

Trial Court No. 24,4670 (B)

EX PARTE	&	IN THE DISTRICT COURT
	&	366th JUDICIAL DISTRICT
CAMERON TODD WILLINGHAM	&	NAVARRO COUNTY, TEXAS

REPORT OF DR. GERALD HURST

The fire investigation report of the Texas State Fire Marshal's Office in this case is a remarkable document. On first reading, a contemporary fire origin and cause analyst might well wonder how anyone could make so many critical errors in interpreting the evidence. However, when the report is looked at in the context of its time and in light of a few key advances that have been made in the fire investigation field in the last dozen years, it becomes obvious that the report more or less simply reflects the shortcomings in the state of the art prior to the beginning of serious efforts to introduce standards and to test old theories that had previously been accepted on faith.

Within a few weeks of the issuance of the Fire Marshal's report, the first edition of NFPA 921, "a Guide to Fire and Explosion investigation was published by the National Fire Protection Association. This landmark publication was developed by a committee of over 30 well-respected fire experts elected by NFPA members. It was assembled through a process which met all the requirements of an ASTM standard. Since then, NFPA 921 has become the de facto standard of care for the fire investigation community and will appear in its 5th edition in early 2004. As will be shown later, most of the conclusions reached by the Fire Marshall would be considered invalid in light of current knowledge.

The following is a list of key references containing information which is relevant to the present case and which became known only after the subject fire investigation:

1. NFPA 921, "A Guide to Fire and Explosion Investigation," The National Fire Protection Association, 1992, 1995, 1998, 2001

2. "Unconventional Wisdom: The Lessons of Oakland," *The Fire and Arson Investigator*, Vol. 43, No. 4, June 1993.

3. "The Lime Street Fire: Another Perspective," *The Fire and Arson Investigator*, Vol. 43, No. 1, Sept. 1992.

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[Cites a full-scale reproduction of a fire analogous to Willingham's in which a fire thought to start in a hall by an accelerant is shown to have resulted from flashover in an adjacent room. Test was run by prosecution, who dropped arson case.]

4. USFA Fire Burn Pattern Tests, FA 178, 7/97 Federal Emergency Management Agency, United States Fire Administration, 1997

5. Flammable and Combustible Liquid Spill/Burn Patterns, NIJ Report 604–00, 1997

6. "Kirk's Fire Investigation," Fifth Edition, Copyright 2002

The fire scene

The fire scene structure was a small wood-frame house. The areas relevant to origin and cause determination were a bedroom in the northeast corner of the house, connected via a doorway in the west wall to a hallway which ran north and south. The southern end of the hallway opened through the front (north) door onto a cement porch. The doorway to the porch had an aluminum threshold plate.

The bedroom contained, presumably inter alia, two baby cribs, a bed and a heater. The room had one window in the south wall and two on the east wall. During the fire, extensive flaming had occurred out through the windows and there was extensive and variable fire damage to the floor as well as low burn on walls.

The heavy damage to the floor extended out the bedroom door into the hallway, where it ran a short way to the south and all the way north to the cement porch.

There was also peripheral low charring to the walls adjacent to the northern portion of the hallway and to the exterior face of the north wall of the bedroom adjacent to the porch.

The front door was consumed by fire, a screen door showed charring under its base and the wood under the aluminum threshold was charred.

In the bedroom there was a window with remnants of crazed glass present.

The Fire Marshal's Conclusions vs. New Technology

In his report, the investigator for the Texas State Fire Marshal's Office announced that he had found more than 20 indicators of incendiarism. The indicators he cited as such were crazed glass, multiple origins, brown rings on a cement porch, low burns on walls in the Bedroom/hall area, V-patterns on walls, charring to the base

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of a screen door, a positive analysis for kerosene ("mineral spirits of kerosene"), burned wood under an aluminum threshold, tiles burned from underneath, and an unnumbered occurrence of so-called "trailers," "pour patterns," and "puddle-configurations."

Trailers, pour patterns and puddle configurations: A decade ago, fire investigators would often look at a post-flashover fire scene and note various burn patterns of varying degree which appeared to be shaped like irregular pours of liquid. It was fairly common practice for the investigator to cite these patterns as proof of the use of an accelerant. With the advent of NFPA 921, it became more and more widely realized that post-flashover burning in a room or hallway produces floor burn patterns which cannot be differentiated from burns imagined to be caused by liquid accelerants. Full scale testing, as reported in reference 6 above, showed that post-flashover burning, even of relatively short duration, makes it impossible to identify accelerant burns visually. Thus it becomes impossible to visually identify accelerant patterns under these conditions.

The subject fire included post-flashover burning of considerable duration as evidence by the hallmark of flashover, flames pouring from windows and doors.

Multiple Origins: The Fire Marshall reported multiple fire origins. Actual multiple fire origins create a powerful case for arson. However, multiple origins can only be demonstrated when two or more areas of fire are completely isolated from one another. In this post-flashover fire, all of the burn areas were clearly contiguous in the sense that they were at least joined by obvious radiation and/or conduction mechanisms. The finding of multiple origins was inappropriate even in the context of the state of the art in 1991.

V-Patterns: Contrary to the Fire Marshal's report, V-patterns are only sometimes indicators of the point of origin of a fire and only rarely indicators of the use of a liquid accelerant. If a fire is snuffed out before flashover, a V-pattern, such as one above a coffee maker may suggest that the object below the V started the fire. However, once a fire passes the flashover stage, original patterns often become overwhelmed and new V-patterns will form from the burning of such common items as wooden door frames, combustible objects on the floor, etc. The effect of post-flashover burning on the appearance and disappearance of V-patterns parallels the effects on floor patterns.

Burned wood under aluminum threshold: The fire Marshal alleged that the charring of wood under the aluminum threshold was caused by a liquid accelerant burning under the threshold. This phenomenon is clearly impossible. Liquid accelerants can no more burn under an aluminum threshold than can grease burn in a skillet even with a loose-fitting lid. The charring of wood under a threshold is a

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common occurrence in post-flashover fires. The thermal radiation at doorways is extremely high because of the turbulent mixing of hot, fuel-rich gases with incoming fresh air. This radiation if often high enough to actually melt the threshold (660 degrees C).

Ten years ago melted thresholds or charred underlying wood were routinely classified as accelerant-induced phenomena. Today, it is textbook knowledge that the effects are caused by radiation. See "Kirk's Fire Investigation," Fifth Edition, Copyright 2002.

Tiles burned from accelerant underneath: A liquid accelerant will not burn underneath a tile on the floor any more than it will under an aluminum threshold. Burning underneath a tile is caused by the tile curling under post-flashover radiation and thereby exposing its lower surface to the heat. Kerosene-like materials will burn only with great difficulty even on the top surface of tile material. They tend to self-extinguish leaving unburned kerosene behind and have little effect on the tile. See reference 5 above, Flammable and Combustible Liquid Spill/Burn Patterns, NIJ Report 604–00, 1997

Crazed Glass: The idea that crazed glass is an indicator of the use of a liquid accelerant is now classified by the fire investigation as an "Old Wives Tale." Crazed glass is caused by the rapid chilling of hot glass by water used to extinguish the fire. This information was first published following the investigation of a fire storm in Oakland which destroyed many homes and later confirmed by laboratory tests. See reference 2 above, "Unconventional Wisdom: The Lessons of Oakland," 1993.

Brown rings on the cement porch: The identification of the presence of an accelerant based on brown rings on a cement floor is baseless speculation. A great deal of brown rust and soluble iron salts is created at fire scenes. When the puddles of fire hose water evaporate they often leave brown material trapped in the surface pores of the cement. The presence of al accelerant can only be established by chromatographic analysis in the laboratory.

The Positive Accelerant Analysis: The fire Marshal reported that kerosene was found in a single sample of wood taken from bottom the doorway adjacent to the cement porch. What the analyst actually reported was "mineral spirits of kerosene," which is not the same thing as kerosene. A burned can of charcoal lighter was also found on the same concrete floor. Charcoal lighter fluid belongs to the class of liquids labeled "mineral spirits of kerosene." Therefore, the presence of this material is an expected natural occurrence in the wake of a fire. Fluid from the can would be dispersed an floated across the concrete by the action of the immiscible water from the fire hoses.

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Signed on the 13 day of February 2004.

Gerald Hurst

Dr. Gerald Hurst

TEXAS BOARD OF PARDONS AND PAROLES
MINUTES

NAME / EXECUTION NUMBER: WILLINGHAM, Cameron Todd / 999041

DATE	BOARD ACTION
2/13/2004	Board decided to not recommend commutation of the death
	sentence to a lesser penalty and a 90-day reprieve. NFR
2/17/2004	Inmate was executed. HSR

NOTICE

TO

PETITIONER

OF

BOARD ACTION

JOB STATUS REPORT

TIME : 02/13/2004 13:20
NAME : EXECUTIVE CLEMENCY
FAX# : 4065786
TEL# : 4065852

DATE,TIME	02/13 13:19
FAX NO./NAME	8825482655572
DURATION	00:01:15
PAGE(S)	03
RESULT	OK
MODE	STANDARD ECM

Texas Board of Pardons & Paroles
8610 Shoal Creek Blvd.
P. O. Box 13401
Austin, Texas 78711

FACSIMILE TRANSMISSION

Date: 02/13/2004

Sending to:

NAME: Walter Reaves, Jr.
Attorney at Law

FAX: (254) 826-55712

Of PAGES (INCLUDING COVER PAGE): 03

From:

NAME: Maria Ramirez, Clemency Administrator

Texas Board of Pardons & Paroles
8610 Shoal Creek Blvd.
P. O. Box 13401
Austin, Texas 78711

FACSIMILE TRANSMISSION

Date: 02/13/2004

Sending to:

NAME: Walter Reaves, Jr.
Attorney at Law

FAX: (254) 826-5572

Of PAGES (INCLUDING COVER PAGE): 03

From:

NAME: Maria Ramirez, Clemency Administrator

DEPT: Executive Clemency Section

FAX: (512) 406-5786

PHONE: (512) 406-5852

NOTES:

POB 13401
Austin, Texas 78711
512-406-5852
Fax 512-406-5786

February 13, 2004

Walter Reaves, Jr.
Attorney at Law
P.O. Box 55
Waco, Texas 76691
254-826-5572 (telefax)

re: Cameron Todd Willingham #999041
Petition for Executive Clemency

Dear Mr. Reaves:

The Members of the Texas Board of Pardons and Paroles have completed their consideration of your petition requesting the commutation of death sentence to a lesser penalty and a 90-day reprieve.

After a full and careful review of the petition and exhibits, a majority of the Board has decided to not recommend commutation of the death sentence to a lesser penalty and a 90-day reprieve.

Enclosed please find a summary reflecting each Member's decision.

Sincerely,

Maria Ramirez
Clemency Administrator

c: Rissie Owens, Presiding Officer (Chair)
Keith Hottle, Board Administrator
Laura McElroy, General Counsel
file

enc: voting summary

BOARD VOTING: WILLINGHAM, CAMERON TODD #999041

Board Member	Recommend Reprieve	Not Recommend Reprieve	Recommend Commutation of Sentence	Not Recommend Commutation of Sentence
Lynn Brown		02/12/2004		02/12/2004
Paddy Burwell		02/13/2004		02/13/2004
LaFayette Collins		02/13/2004		02/13/2004
Linda Garcia		02/13/2004		02/13/2004
Roy Garcia		02/13/2004		02/13/2004
Juanita Gonzalez		02/13/2004		02/13/2004
Daniel Guerra		02/11/2004		02/11/2004
Rissie Owens		02/13/2004		02/13/2004
Filiberto Reyna		02/13/2004		02/13/2004
Brendolyn Rogers-Johnson		02/13/2004		02/13/2004
Lynn Ruzicka		02/13/2004		02/13/2004
Alvin Shaw		02/10/2004		02/10/2004
Charles Shipman		02/13/2004		02/13/2004
Lucinda Simons		02/13/2004		02/13/2004
Charles Speier		02/10/2004		02/10/2004
TOTAL VOTES		15		15

Board of Pardons & Paroles
Executive Clemency Section
P. O. Box 13401
Austin, Texas 78711
Phone (512) 406-5852
Fax (512) 467-0945

EXECUTIVE CLEMENCY SECTION

MEMORANDUM

Date: 01/28/2004

To: Review and Release Processing, TDCJ – Parole Division

From: Maria Ramirez
Clemency Administrator

Re: Fee Affidavit & Registration Form for Representation of Offender
Executive Clemency Process
Willingham, Cameron Todd
TDCJ-ID # 999041
SID # 04522128

The above referenced individual has retained Attorney Walter M. Reaves, Jr., who has submitted a Fee Affidavit Form and the Registration Form for Representation of Inmate.

These forms are forwarded for your files.

Thank you.

Att: fee affidavit and registration form

FEE AFFIDAVIT FORM

✓ Original _____ Supplemental

CLIENT: Cameron Todd Willingham PIA/TDCJ #: 041 S.I.D. #: 04522128

ATTORNEY INFORMATION:

Mr	Walter	M.	Reaves	Jr
MR./MS.	FIRST NAME	MIDDLE	LAST NAME	SUFFIX

TEXAS BAR NO. 16644200 ADDRESS P.O. Box 55

NAME OF BUSINESS Law Office of Walter Reaves BUSINESS ADDRESS P.O. Box 55

BUSINESS PHONE # 254-826-3713 | West | TX | 76691

CITY STATE ZIP

BCJ-BPP-TDCJ (FORMER OR CURRENT) EMPLOYEE(S) OR MEMBERS WITH WHICH ATTORNEY IS ASSOCIATED OR HAS A RELATIONSHIP AS AN EMPLOYER OR EMPLOYEE OR MAINTAINS A CONTRACTUAL RELATIONSHIP TO PROVIDE SERVICES (LIST ADDITIONAL NAMES ON BACK).

FIRST NAME: _____ MIDDLE: _____ LAST NAME: _____

RELATIONSHIP: _____ ENTITY: _____

HAVE YOU REGISTERED WITH THE TDCJ-PAROLE DIVISION WITHIN THE LAST 12 MONTHS? YES/NO

TEX. GOV'T. CODE §§ 508.084 and 508.085 require certain information relative to fees, or lack thereof. This affidavit must be completed in regards to the relevant areas, signed, sworn and subscribed to before a Notary Public prior to any representation.

I. NO FEE

I, OR ANY CORPORATION OR FIRM WITH WHICH I AM AFFILIATED, HAVE RECEIVED NO FEE NOR PROMISE OF FEE FOR SERVICES OF ANY NATURE RENDERED, OR TO BE RENDERED, IN CONNECTION WITH PAROLE OR EXECUTIVE CLEMENCY FOR THE ABOVE NAMED PERSON.

_____ Signature Printed Name Walter M. Reaves, Jr

II. COMPENSATED REPRESENTATION

TEXAS GOVERNMENT CODE § 305.002 DEFINES "COMPENSATION" AS MEANING MONEY, SERVICE, FACILITY, OR OTHER THING OF VALUE OR FINANCIAL BENEFIT THAT IS RECEIVED OR IS TO BE RECEIVED IN RETURN FOR OR IN CONNECTION WITH SERVICES RENDERED OR TO BE RENDERED.

TEX. GOV'T. CODE § 508.083 mandates that only an Attorney, licensed in the State of Texas, may receive compensation for representing an offender subject to the jurisdiction of the Texas Department of Criminal Justice.

AMOUNT OR DESCRIPTION OR VALUE OF COMPENSATION RECEIVED OR EXPECTED: $ _____

THE PERSON MAKING THE COMPENSATION: _____

FIRST NAME MIDDLE LAST NAME

ADDRESS _____ PHONE #: _____

CITY STATE ZIP

I HEREBY SWEAR AND AFFIRM THAT THE ABOVE INFORMATION IS TRUE AND CORRECT, AND FURTHERMORE, I HEREBY AGREE TO IMMEDIATELY SUPPLEMENT THIS AFFIDAVIT IF ANY OF THE STATEMENTS MADE HEREIN ARE AFFECTED BY A CHANGE IN FEE AGREEMENT, OR ARRANGEMENT, OR FACTUAL CONDITIONS.

PRINTED OR TYPED NAME _____ SIGNATURE _____

SWORN TO AND SUBSCRIBED BEFORE ME, THE UNDERSIGNED AUTHORITY, UNDER PENALTY OF PERJURY, ON THIS THE _____ DAY OF _____, A.D. 20 _____.

(SEAL)

RRP-12 Rev. 8/00

_____

SIGNATURE OF HEARING OFFICER OR NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

REGISTRATION FORM FOR REPRESENTATION OF OFFENDER

To be filed with the Texas Department of Criminal Justice - Parole Division

TEX. GOVT. CODE § 508.083 requires a person who represents an offender for compensation before the Board of Pardons and Paroles, a Parole Panel, or the Parole Division of the Texas Department of Criminal Justice:

1) To be an attorney licensed to practice in this state, and
2) To register with the Texas Department of Criminal Justice - Parole Division.

FOR OFFICE USE ONLY

Date received:

Date processed:

☐ Initial Filing ☐ Supplemental Filing ☒ Renewal Filing

I hereby declare my intention to represent one or more offenders before the Texas Board of Pardons and Paroles, a Parole Panel, or the Parole Division of the Department of Criminal Justice for compensation.

Texas Bar Number: 1664420

Registrant Name: Walter M. Reaves, Jr.

Street Address: 207 E. Oak **Apt./Suite #:**

P.O. Box 55

City, State, Zip: West, Tx 76691

Signature: 1/26/04

OTHER REQUIRED FILINGS

Any person representing an offender for compensation shall also:

1) File an Offender Representation Fee Affidavit with the Parole Division of the Texas Department of Criminal Justice.
   * A separate affidavit must be completed for each offender represented and must be on file with the department before the person first contacts a member or employee of the Board or an employee of the Parole Division on behalf of the offender.
   * Filings are at: Texas Department of Criminal Justice-Parole Division, 8610 Shoal Creek Blvd., Austin, Tx. 78757. For further information, call: (512) 406-5200.
2) File a yearly Offender Representation Summary Report with the Texas Department of Criminal Justice-Parole Division, no later than January 31 of the year following the year covered by the report.
3) File a Supplemental Registration Form with the Texas Department of Criminal Justice-Parole Division, no later than 10 days after any registrant information changes.

Not Reported in F.Supp.2d, 2004 WL 1812698 (W.D.Tex.)
(Cite as: 2004 WL 1812698 (W.D.Tex.))

H

Only the Westlaw citation is currently available.

No. P-01-CA-20.
Aug. 9, 2004.

United States District Court,
W.D. Texas, Pecos Division.
Ernest Ray **WILLIS**, Petitioner,
v.
Janie **COCKRELL**, Director, Texas Department of Criminal Justice, Institutional Division, Respondent.

AMENDED ORDER GRANTING PETITION FOR WRIT OF HABEAS CORPUS

FURGESON, J.

TABLE OF CONTENTS

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INTRODUCTION

***1** Ernest Willis brings this petition under 28 U.S.C. § 2254 for a writ of habeas corpus challenging his conviction and sentence of death in Texas state court for the murder of Elizabeth Grace Belue.[FN1] The parties filed cross motions for summary judgment.[FN2] After an extensive review of the state court determination, the parties' briefing and the applicable law, the Court finds that Willis's petition for writ of habeas corpus should be granted because both his conviction and sentence were obtained in violation of the United States Constitution. Specifically, the Court grants Willis's petition on the following grounds: 1) Willis's due process rights were violated by the State's administration of medically inappropriate antipsychotic drugs without Willis's consent; 2) the State suppressed evidence favorable and material to the sentencing determination; 3) Willis received ineffective assistance of counsel at the guilt-innocence phase; and 4) Willis received ineffective assistance of counsel at the sentencing phase. On all other grounds, Willis's petition is denied.

FN1. Petition, (Docket No. 13), filed Dec. 12, 2001 [hereinafter Pet .].

FN2. Respondent's answer and motion for summary judgment (Docket No. 19) and Petitioner's Reply (Docket No. 22). Petitioner's Reply indicates that Petitioner believes that the record before the Court is satisfactory and thus this petition is ripe for decision. *See* Pet.'s Reply, at 2.

FACTUAL AND PROCEDURAL BACKGROUND

In the early morning hours of June 11, 1986, a fire destroyed a home in Iraan, Texas. At the time, the house was occupied by four people: Elizabeth Belue, Gail Allison, Ernest Willis and Billy Willis. All were guests of the resident tenants of the house, Michael and Cheryl Robinson. The Robinsons were not home at the time. Two of the guests, Elizabeth Belue and Gail Allison, died in the fire due to smoke inhalation. Their remains were found in two of the bedrooms of the three bedroom house. The other two guests who survived the fire were Petitioner, Ernest Willis, and his cousin, Billy Willis. The Willis cousins did not know Belue or Allison prior to the day of the fire. Billy Willis escaped the fire when he jumped, naked, out of a bedroom window.

According to Ernest Willis, on the night of the fire he was sleeping on the sofa in the living room. Willis further claims that the smell of fire awakened him and that he ran through the house trying to awaken the occupants but could not enter the bedrooms due to the fire and smoke. Willis claims that when his attempts to reach the others failed, he ran out the front door and around the outside breaking windows in an attempt to secure an escape route for those still inside. The State of Texas disputes Willis's version of the events.

Willis was ultimately arrested and charged with the murder of Elizabeth Belue. The indictment charged Petitioner with intentionally and knowingly causing the death of Elizabeth Belue in the course of committing arson on a habitation. According to the State, Willis intentionally poured a flammable liquid accelerant on the floor of the house and set it afire.[FN3] But even if one relies exclusively upon the testimony of witnesses presented by the prosecution at trial, numerous discrepancies remain regarding the events leading up to the fatal fire. The State did not present at trial a theory of

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Willis's alleged motive.

FN3. Both of the individuals who survived the fire, Billy and Ernest Willis, were initially suspects.

***2** After a jury trial before the Honorable Brock Jones of the District Court of Pecos County, Texas, 112th Judicial District, Willis was convicted on August 4, 1987 of capital murder and sentenced to death for Belue's murder. Willis's sentencing phase was held on August 5, 1987. Willis's conviction was affirmed on direct appeal on June 7, 1989,[FN4] and on October 9, 1990, the United States Supreme Court denied certiorari.[FN5] Willis then filed for state post-conviction relief on October 8, 1991. On June 7, 2000, following five days of hearing, Judge Jones of the Texas trial court issued detailed findings of fact and conclusions of law and recommended granting relief to Willis.[FN6] On December 13, 2000, the Texas Court of Criminal Appeals ("CCA") denied Willis all relief.

FN4. *Willis v. State*, 785 S.W.2d 378, 387 (Tex.Crim.App.1989), *reh'g denied*, (Jan. 17, 1990), *cert. denied*, 498 U.S. 908 (1990).

FN5. *Willis v. Texas*, 498 U.S. 908 (1990).

FN6. Judge Jones was the judge for both Willis's trial and his state post-conviction hearing.

Willis then filed the instant petition alleging the following claims for relief: 1) Willis is innocent and thus the Eighth and Fourteenth Amendments require that his conviction and sentence be vacated; 2) the State's wrongful administration of antipsychotic medications to Willis violated his right to due process and other constitutional rights, including the right to counsel and the right to confront witnesses; 3) defense counsel rendered ineffective assistance at the guilt-innocence phase; 4) defense counsel rendered ineffective assistance at the sentencing phase; 5) the prosecution suppressed evidence material to the sentencing determination; and 6) the cumulative effect of error outlined in the above claims violated due process.

In support of his argument for habeas relief grounded in actual innocence, Willis relies upon evidence he introduced at the state post-conviction hearing supporting his account of the pertinent events. But, as will be detailed in Section IV addressing the innocence claim, Judge Jones rejected the innocence claim based upon insufficiency of the evidence Willis offered in support.

STANDARD OF REVIEW

The federal habeas statute, as amended by the Antiterrorism and Effective Death Penalty Act of 1996 (AEDPA), 28 U.S.C. § 2254, provides that:

> An application for a writ of habeas corpus on behalf of a person in custody pursuant to the judgment of a State court shall not be granted with respect to any claim that was adjudicated on the merits in State court proceedings unless the adjudication of the claim -
>
> (1) resulted in a decision that was contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States; or
>
> (2) resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented in the State court proceeding.[FN7]

FN7. 28 U.S.C. § 2254(d).

A state court's decision is deemed contrary to clearly established federal law if the state court arrives at a conclusion opposite to that reached by the Supreme Court on a question of law or if the state court decides a case differently than the Supreme Court on a set of materially indistinguishable facts.[FN8] Under the "unreasonable application" clause, a federal habeas court may grant the writ if the state court identifies the correct governing principle from the Supreme Court's decisions but unreasonably applies that principles to the facts of the prisoner's case.[FN9]

FN8. *Williams v. Taylor*, 529 U.S. 362 (2000).

FN9. *Id.*

***3** Pursuant to section 2254(e)(1), state court find-

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ings of fact are presumed to be correct, and the petitioner bears the burden of rebutting the presumption of correctness by clear and convincing evidence.[FN10] When the state habeas judge also served as the trial judge, as Judge Jones did in this case, the state judge's factual findings are entitled to particular deference.[FN11]

FN10. 28 U.S.C. § 2254(e). *See also Pondexter v. Dretke*, 346 F.3d 142, 146 (5th Cir.2003); *Valdez v. Cockrell*, 274 F.3d 941, 947 (5th Cir.2001).

FN11. *See Davis v. Blackburn*, 789 F.2d 350, 352 (5th Cir.1986); *Vuong v. Scott*, 62 F.3d 673, 684 (5th Cir.1995), *cert. denied*, 516 U.S. 1005 (1995).

LEGAL ANALYSIS

Before addressing each of Willis's claims, the determination must first be made whether the Texas trial court's post-conviction factual findings are properly before this Court in light of the CCA's denial of relief.

I. The State Trial Court's Post-Conviction Factual Findings are Properly Before the Court

At the outset, the Court notes that the posture of this dispute, cross-motions for summary judgment, indicates the parties' agreement that the state trial court's post-conviction findings of fact are properly before this Court on habeas review. Neither party requested an evidentiary hearing. Moreover, the Court, on independent review, finds the state trial court's factual findings are properly considered here, even in light of the Texas CCA's denial of relief.

According to *Craker v. Procunier*, the Fifth Circuit requires that deference is owed to the state court's post-conviction factual findings when denial by the Texas Court of Criminal Appeals was not inconsistent with those factual findings.[FN12] This must be the case because, for example, the appellate court might hold that the facts determined by the trial court did not warrant relief based on the appropriate legal standards, and such a holding would not be inconsistent with those factual findings.[FN13] Despite the deference typically afforded the state court's post-conviction factual findings, in some circumstances the state trial court's findings do not survive the CCA's denial of relief.[FN14] In *Micheaux v. Collins*, the Fifth Circuit held that the state trial court's findings did not survive the CCA's denial of relief where 1) the CCA denied relief without written order and 2) the factual findings were directly inconsistent with the CCA' peremptory denial of relief.[FN15]

FN12. *Craker v. Procunier*, 756 F.2d 1212, 1213-14 (5th Cir.1985). *See also Westley v. Johnson*, 83 F.3d 714, 721 n. 2 (5th Cir.1996).

FN13. *Westley*, 83 F.3d at 721 n. 2.

FN14. *Micheaux v. Collins*, 944 F.2d 231, 232 (5th Cir.1991) (en banc).

FN15. *Id. See also Singleton v. Johnson*, 178 F.3d 381, 384, 85 (5th Cir.1999). In *Walbey v. Dretke*, 2004 WL 909736 (5th Cir.2004) (per curiam) (unpublished), the Fifth Circuit applied *Micheaux* instead of *Craker* even though the CCA had issued a written order. However, the written order in *Walbey* was silent as to the state trial court's findings of fact and did not state whether the CCA accepted or rejected the factual findings of the trial court. In addition, the *Walbey* court stated that the facts found by the state trial court were directly inconsistent with the CCA's denial of habeas relief. In *Walbey*, the CCA's opinion contained no specific factual findings or reasoning to support its ultimate conclusion, and thus "the terse opinion of the ... CCA here is the functional equivalent of a denial without written order." *Id.* at *3. The Fifth Circuit remanded the case to the district court for an evidentiary hearing. Although unpublished because it provided no change or explanation of a generally established rule of law, *Walbey* is mentioned here because it demonstrates a helpful application of the distinction between *Micheaux* and *Craker*.

The CCA's order in the instant case more closely resembles *Craker* on the "*Craker/Micheaux* continuum."[FN16] This Court discusses the CCA's analysis

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of each of Petitioner's claims in the relevant section in this opinion. Generally though, for two of the claims before the Court-prosecutorial suppression of evidence and wrongful administration of antipsychotic drugs-the CCA identified a legal principle and found that the facts as found by the trial court did not meet the legal standard. For the other two claims-ineffective assistance of counsel at the guilt-innocence phase and at the sentencing phase-the CCA discussed facts from the record different than, but not inconsistent with, the facts relied upon by the trial court. Then, based on a determination of those different facts as legally significant, and on the basis of legal standards the CCA employed, the CCA denied relief. Because the CCA's opinion in this case included legal reasoning and discussion of the facts, it is not the functional equivalent of denial without written order. And for all four of the above claims, the CCA's opinion was based on the use of, in whole or in part, an erroneous legal standard irrespective of the relevant facts used in relation to that legal standard. Therefore, this Court must defer to the post-conviction factual findings of the state trial court.

FN16. *Walbey,* 2004 WL 909736 at *2.

II. The State Trial Court's Post-Conviction Findings of Fact

***4** Here, the Court provides a summary of the state trial court's post-conviction factual findings. The relevant facts will be reiterated or developed for the analysis of each of Petitioner's claims in the appropriate section, as well.

A. The State Unnecessarily Medicated Willis While Incarcerated and During Trial

Willis was arrested and incarcerated at Pecos County Jail on October 22, 1986. Willis was not taking any antipsychotic medications at the time of his arrest and initial incarceration in the Pecos County Jail. The State began administering Haldol (the brand name for the generic drug Haloperidol) to Willis on February 23, 1987. As of March 23, 1987, the State began administering 40 milligrams ("mg.") of Haldol per day to Willis; and on May 30, 1987, the State began administering between 8 mg. and 32 mg. of Perphenazine per day to Willis.

The State continued to daily administer these doses of Haldol and Perphenazine to Willis throughout the course of his trial, including the jury selection, guilt-innocence and penalty phases. These proceedings began on July 8, 1987 and concluded on August 5, 1987. Willis was formally sentenced on August 5, 1987. The State continued to administer Haldol and Perphenzine to Willis until August 27, 1987. The following day, Willis was transported from Pecos County to the Texas Department of Corrections ("TDC") in Huntsville. Willis has not been administered antipsychotic medication at any time since August 27, 1987-either during subsequent stays in the Pecos County Jail (pursuant to bench warrants) or while in the custody of TDC.[FN17]

FN17. This factual finding implies a lack of medication beyond the date of the trial court's post-conviction factual findings. While the record suggests that the finding remains true long after the trial court's hearing and until today, this Court makes no such finding and instead defers to the trial court's finding and that relevant period of time.

There are multiple reasons the medications administered to Willis were inappropriate according to Judge Jones. First, the dosages for Haldol (40 mg. per day) and Perphenazine (8 mg.-32 mg. per day) that the State gave to Willis during the course of the trial were high doses, even for acutely psychotic patients. The maximum dose of Haldol for a severely psychotic person is 15 mg. per day. Willis received more than twice that amount at 40 mg. per day. Second, Willis was administered two antipsychotic medications. Judge Jones found that the combination of two different antipsychotic drugs has more than an additive effect on a patient and that the administration of antipsychotic drugs to a non-psychotic individual increases the side-effects of the drugs.

Judge Jones also found that common side effects of antipsychotic medication include: flat or little facial expression, inexpressiveness, rigidity of the facial muscles, fixed gaze, drowsiness, confusion and diminished ability to communicate with others. Judge Jones stated that all of these side effects were exhibited by

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Willis during his trial, and Willis's demeanor at the evidentiary hearing on his habeas petition was markedly different from his demeanor at trial.[FN18] Judge Jones found that Willis's expression, from the moment he stepped into the courtroom for voir dire throughout the entire trial, reflected an apparent indifference to the proceedings. Judge Jones found that Willis's demeanor at trial was a direct result of the antipsychotic medications he was receiving, and was "absolutely typical" of known side effects of antipsychotic medications.[FN19] Finally, Judge Jones found that the prosecution seized upon Willis's demeanor in the guilt-innocence and punishment phases of the trial, asking the jury to draw inferences of guilt and future dangerousness from Willis's lack of apparent feeling or emotion.

FN18. Judge Jones also found that, while an individual's I.Q. is typically stable throughout one's life, Willis's intelligence test at the time of trial was significantly lower than at the time of the evidentiary hearing on the habeas petition. *Ex parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10.

FN19. *Id.*

***5** Judge Jones also made findings regarding the medical justifications for the antipsychotic medications. Judge Jones found that the State's administration of the drugs to Willis was without any medical need. Antipsychotic medications like Haldol and Perphenazine are not justified unless a patient is suffering "psychotic symptoms" as a result of a "lifelong" psychotic disorder.[FN20] " Psychosis is a very, very serious psychiatric condition ... manifest by symptoms such as schizophrenia, derangement, hallucinations, delusions, paranoia, and formal thought disorder."[FN21] Judge Jones found that nothing in any of Willis's records, or his social or medical history, indicates that he needed to take antipsychotic medications. Furthermore, the record does not show that the State established the requisite "overriding justification" and "medical appropriateness" findings before administering the mind-dulling or psychotropic drugs to Willis during his trial. Finally, the state court found that although Willis did not affirmatively object to the medication, his failure to object was not consent.[FN22]

FN20. *Id.* at 11.

FN21. *Id.*

FN22. As will be discussed later, although not so determined by Judge Jones, the evidence suggests that Willis was actually medicated without his knowledge for symptoms he did not manifest.

B. Findings of Ineffective Assistance of Counsel at the Guilt-Innocence and Sentencing Phases

Judge Jones found ineffective assistance of counsel at multiple stages in Willis's representation.

1. Failure to Investigate Willis's Demeanor and Discover the Administration of Antipsychotic Drugs

Judge Jones found that defense counsel took no steps to determine the cause of Willis's appearance or demeanor during the course of trial. As a result, defense counsel never learned that the State was administering high doses of antipsychotic medication to Willis during his incarceration at Pecos County Jail both before and during trial. Defense counsel did not speak with any person with medical training concerning Willis's physical and emotional appearance. Defense counsel did not attempt to review Willis's Pecos County Jail medical records.

Judge Jones found that Willis's defense counsel not only had the right to access those records, but that it was "rudimentary" and "basic" for counsel to gather such records. In addition, defense counsel recognized a problem with Willis's demeanor and suspected that the problem could be related to medication that Willis was taking but, nevertheless, failed to investigate Willis's demeanor and failed to gather medical records. Had defense counsel gathered Willis's Pecos County Jail records, counsel would have known Willis was unnecessarily receiving large doses of Perphenazine and Haldol prior to and during his trial.[FN23]

FN23. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 17.

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2. Failure to Object to the State's Use of Willis's Demeanor and the State's Descriptions of Willis as an Animal

Judge Jones found that the State referred to Willis's demeanor during trial as evidence of guilt and dangerousness and the State urged jurors to infer a lack of remorse based on Willis's demeanor. Defense counsel did not object to any of these references by the prosecution. FN24 The state trial court found that the prosecution characterized Willis as a "pit bull," an "animal," and a "rat," during voir dire, closing arguments and at the penalty phase. FN25

FN24. *Id.* The Court of Criminal Appeals, in its decision affirming Willis's conviction on direct appeal, held that failure to object to an impermissible jury argument generally waives any error. *See Willis,* 785 S.W.2d at 385.

FN25. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Cone. of Law at 18.

***6** Based upon these findings, Judge Jones concluded as a matter of law that defense counsel's failure to object to the State's use of Willis's demeanor contributed to defense counsel's failure to meet the standard of reasonableness required for effective assistance of counsel. The Court considers the legal conclusions related to the factual findings in the relevant section below.

3. Failure to Cross-Examine Aggravating Evidence and to Present Mitigating Evidence FN26

FN26. *Id.* at 19-22.

Judge Jones made the following findings of fact with respect to defense counsel's failure to cross-examine purported aggravating evidence and failure to present mitigating evidence on Willis's behalf. The penalty phase of Willis's trial lasted less than half a day. The transcript from the penalty phase consumes barely ten pages. The prosecution called two witnesses, both local law enforcement officers, who testified that Willis had a bad reputation in the unspecified communities in which he resided. On cross-examination, defense counsel asked these witnesses a total of two questions. Defense counsel knew in advance who the State's witnesses would be and what the subject matter of their testimony would be. Counsel did not investigate the veracity of the witnesses or otherwise develop evidence or arguments to respond to the government's penalty phase case.

Judge Jones also found that Willis's case was his counsel's first capital trial. The defense did not prepare for the penalty phase, did not meet with Willis in advance of the penalty phase, introduced no evidence, and presented no witnesses whatsoever on Willis's behalf. Despite being unprepared, defense counsel did not request a continuance or a recess to prepare for the penalty phase. In fact, defense counsel met with Willis less than three hours prior to July 1987, when jury selection commenced. Defense counsel spoke to four or five people who knew Willis but failed to follow-up on the limited information those individuals had pertaining to Willis.

Judge Jones found that defense counsel could have presented the following mitigating evidence but did not do so: testimony of at least five Pecos County Law Enforcement Officers that Willis was a respectful and well-behaved prisoner who was not the type to act violently or misbehave; testimony of other individuals that Willis was non-violent; testimony that Willis turned himself in when he learned of the outstanding indictment against him; testimony of heroic acts by Willis who, for example, saved the life of a drowning boy and assisted his infant niece who had been severely burned in a car fire; testimony of family and friends describing Willis as a caring family man and responsible individual. FN27 The state trial court found that the above mitigating evidence was readily accessible and available to defense counsel at little or no cost. Every character witness who testified at the post-conviction hearing stated that he or she would have been willing to testify on Willis's behalf at his trial.

FN27. Defense counsel contacted none of these witnesses. Some of the witnesses were present in the courtroom for portions of Willis's trial. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact

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and Conc. of Law at 21.

C. Prosecution's Failure to Disclose Pretrial Psychological Report

***7** At the post-conviction hearing in state court, Judge Jones heard evidence concerning a pretrial psychological report finding that Willis was not a future danger. The report was submitted to the prosecution and never turned over to the defense before or during trial. The findings of fact are summarized below. Based upon these findings of fact, Judge Jones held that the evidence suppressed by the prosecution was both favorable and material and that Willis was entitled to habeas relief for due process violations.[FN28]

FN28. *See Brady v. Maryland*, 373 U.S. 83, 87 (1963) (prosecutorial suppression of evidence that is favorable to an accused "violates due process where the evidence is material either to guilt or punishment, irrespective of the good faith or bad faith of the prosecution").

On December 2 and 3, 1997, before the post-conviction evidentiary hearing at the state trial court, Willis was interviewed by Dr. Mark Cunningham, a clinical and forensic psychologist. During this interview, Willis stated that he recalled having been examined by a psychologist while awaiting trial in the Pecos County Jail. No reference to a report of a pretrial psychological or psychiatric examination existed in the trial transcript, the trial exhibits, the case files of Willis's trial counsel, or the court's files. Consequently, an investigation was conducted to determine whether Willis's recollection was accurate.

As a result of the investigation, it was determined Dr. Jarvis Wright, a forensic psychologist, examined Willis on July 12, 1987 and prepared a written report memorializing his findings. Dr. Wright forwarded a copy of his report (the "Wright report") to Willis's post-conviction counsel in December 1997.

Dr. Wright conducted the examination and prepared the written report on behalf of the prosecution.[FN29] Before Willis's trial, the District Attorney's office contacted Dr. Wright and requested a psychological examination of Willis. On July 12, 1987, Dr. Wright examined Willis, who was then in the custody of the Pecos County Jail, to determine: 1) Willis's competency to stand trial; 2) Willis's sanity and the presence or absence of mental illness; and 3) the likelihood that Willis would present a future danger. Shortly after the examination, Dr. Wright orally reported his findings directly to J.W. Johnson in the District Attorney's office. Dr. Wright informed Johnson that, based on the evaluation of Willis, he "didn't think this was a good death penalty case," as he found no evidence to support a conclusion of future dangerousness for the purposes of the Texas capital sentencing statute.[FN30] Furthermore, Dr. Wright determined that Willis was competent to stand trial and did not exhibit any form of mental illness or mental retardation. At the time of Willis's trial, Dr. Wright did not discuss the psychological examination of Willis with anyone other than Johnson.

FN29. At the time Dr. Wright conducted the examination of Willis, there was a pending motion for a psychiatric evaluation. After the evaluation and report by Dr. Wright, the State withdrew its motion for a psychiatric evaluation and stated that no expert testimony of Willis's mental state would be offered at trial. Pet. at 156.

FN30. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 2.

On Monday, July 20, 1987, the first day of testimony in Willis's trial,[FN31] Dr. Wright sent, by Federal Express, a final copy of the Wright report and the Wright invoice from his office in San Angelo, Texas, to the District Attorney's office in Fort Stockton, Texas.[FN32] On Tuesday, July 21, 1987, at 2:41 p.m., the Federal Express package with the Wright report and the Wright invoice arrived at Johnson's office. Albert Valadez, the assistant prosecutor in Willis's trial, accepted and signed for this Federal Express package.[FN33]

FN31. Willis's trial lasted two and one-half weeks.

FN32. *Ex Parte Willis*, No. 27, 787-01 Find. of

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Fact and Conc. of Law at 3. Federal Express records, as well as Dr. Wright's records, are the source of all facts relating to the delivery and receipt of the Wright report.

FN33. During the state habeas hearing, the State repeatedly denied that the prosecution had any knowledge of the Wright report, a claim belied by the facts presented during hearing.

***8** Had Dr. Wright been called as a witness during the penalty phase of Willis's trial, he would have testified, based on his examination of Willis, that he "knew of no information" that would justify a conclusion that Willis would be dangerous in the future.[FN34] Furthermore, the Wright report stated that if "sworn testimony indicates that [Willis's] behavior until the time of the current alleged offense was no worse than his previous behaviors, we could probably say with safety that the current alleged behavior was an isolated event which he probably will not repeat."[FN35] Judge Jones found an abundance of available evidence, through the testimony of acquaintances of Willis and law enforcement officers, established that Willis had no history of violent behavior and that any prior episodes of misconduct were nonviolent.

FN34. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4, *citing* Dr. Wright's testimony at the state post-conviction hearing.

FN35. *Id.* at 2, *quoting* Def. E.H. Ex. 25, at 5-6.

Judge Jones therefore found that the prosecution failed to disclose the Wright report to the defense prior to or during Willis's trial. Although Willis's trial attorneys agreed to allow the prosecutors to conduct a pretrial psychological examination of Willis to ensure his competency to stand trial, the prosecution did not reveal that an assessment of future dangerousness had also been done.

D. Facts Related to Willis's Innocence Claim

The state trial court did not resolve substantial factual disputes related to Willis's claim that he is actually innocent. Willis's version of the incident leading to arrest and the events surrounding the incident differ from the State's theory of the case. Because the factual dispute was not resolved by Judge Jones's findings of fact, the parties' factual allegations and corresponding arguments are presented in the next section addressing the innocence claim.

III. Innocence Claim

Due to other relief given on different grounds, it is not necessary for this Court to resolve the parties' dispute regarding Willis's claim of innocence. But, to provide a background for the other substantive claims, the Court discusses in detail the facts Willis alleges. The factual allegations recited here are from Willis's petition and were not included in Judge Jones's factual findings. Although Willis's allegations of innocence and factual allegations supporting the claim were presented to the state trial court, the state trial court only made one factual finding concerning the innocence claim. The state trial court found that David Long, who had confessed to the crime for which Willis was convicted and sentenced to death, refused to testify at the state evidentiary hearing. The state trial court determined that Long's prior confession, which was tape recorded by law enforcement officers, was not sufficiently corroborated to be admissible.[FN36] Therefore, other than Long's confession, these facts related to Willis's innocence claim have been neither specifically rejected nor accepted by the state court, though the state court did say that the testimony was insufficient to support a finding that Willis is innocent.[FN37]

FN36. *Id.* at 25.

FN37. *Id.* at 33.

A. The State's Theory of the Fire

***9** At trial, the State's experts testified that the burn patterns and degree of burning indicated that a flammable liquid was poured on the floor of the house, throughout the living and dining areas, in front of the bedroom door jambs, around the front and back door entrances, and beneath and on top of the sofa in the living area. The State's experts also testified that the fire

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originated in the living area of the house and quickly, if not simultaneously, ignited the dining room and kitchen. Thereafter the fire spread to the bedrooms. The State's arson investigators testified that if Willis had been sleeping on the sofa he would have been burned.

The State asserted that Willis's version of events was incredible for two main reasons. First, while broken glass was found outside the house, none was found inside, and thus the State said that the evidence did not support Willis's claim that he ran around the outside of the house trying to break windows so that the people inside could escape. Second, Willis had no burn marks, no singed clothing, no singed hair, did not smell like smoke, and his clothing did not have cinder marks. FN38 Two days after the fire, Willis had a very bad burn mark on his shoulder which Willis claimed occurred in the fire but several witnesses, including Sheriff Wilson, stated Willis had no such injury the day of the fire.

FN38. A stain was found on the shirt, and the stain was identified as betadine, an antiseptic.

Other evidence included the fact that the day after the fire, Deputy Jackson, one of the investigators on the case, discovered that the front portion of the garden hose had been cut off. Jackson learned from the tenants that this was a new hose that had previously been intact. Later, Jackson found a smaller portion of the garden hose, a trace analysis of which indicated the presence of gasoline. No known accelerant was positively identified on Willis's pants.

B. Confession of David Martin Long FN39

FN39. While the state court found the corroboration of Long's confession insufficient, the corroborating witnesses were: David Paulk, Amelia Fuentes, Billy Willis, George Wheat, Michael and Cheryl Robinson and Marshall Smyth. *See* Pet. at 44-48.

Long was an inmate confined at the same facility with Willis. He was convicted of capital murder on an unrelated charge and has since been executed. While incarcerated, Long repeatedly told George Wheat, the supervisor of Psychiatric Services at Ellis One Unit, that he had set the Iraan fire. Initially, Long only told Wheat that there was an inmate on death row who Long knew was innocent because that inmate had been convicted of a crime Long had committed. Over time, Long identified Willis as the innocent inmate. FN40 Though Wheat was initially skeptical of Long's confession, Wheat became satisfied that the confession was truthful. Wheat decided the information had to be disclosed, and Long signed a consent form for disclosure. Wheat then informed the Warden, Pecos County law enforcement authorities, Willis and Willis's counsel at the time, of Long's confession. On September 11, 1990, Deputy Jackson, one of the primary investigators of the Iraan fire, conducted a nearly three-hour long videotaped interview of Long. FN41

FN40. Long and Willis first met during recreation time when Long asked Willis where he was from; Willis answered Pecos. Long said he knew Billy Willis from Pecos and Petitioner Willis said Billy Willis had testified at his trial. At this point, Long realized Petitioner Willis was convicted of the crime Long committed. Petitioner Willis was then transferred to a work program and so Willis and Long no longer communicated at recreation time. Long requested a legal visit with Willis but decided not to say anything until he saw how Willis's direct appeal resolved. Long contemplated not saying anything until the hour of his own execution. Long requested a second legal visit at which time Long asked about Willis's direct appeal. Willis said his conviction and sentence were affirmed. At this point, Long told Willis that he committed the Iraan fire.

FN41. Prior to the interview, Jackson read Long his *Miranda* rights.

The substance of Long's confession is as follows: Long set the fire because he wanted to hurt or kill Billy Willis, Petitioner's cousin. Billy and Long were longtime associates who participated in various criminal activities together, usually drug related. On June 10,

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1986, Long drove to Iraan from Round Rock, Texas, where Long lived, to purchase some drugs from Billy. In his pick-up truck, Long carried a half-gallon bottle of Wild Turkey alcohol mixed with Everclear grain alcohol and some methamphetamine. Long arrived in Iraan sometime between 2:00 a.m. and 4:00 a.m. He parked his truck about a block away from the Robinson house where Billy was staying. He sat in the truck for about twenty minutes drinking the Wild Turkey and Everclear mixture and injecting himself with methamphetamine. He then went into the house with the Wild Turkey and Everclear mixture.

***10** Long testified that as he was in the house he became overcome with anger,[FN42] and poured the Wild Turkey and Everclear mixture on the carpet around the dining room table and around the living room. Long did not pour any of the mixture on the couch where Willis was sleeping, because he did not want to wake him. Long then used his Bic lighter to ignite some clothing draped over a piece of furniture in the living room. After setting the fire, Long left the house, returned to his truck, and drove a couple of blocks down the street.[FN43] He then left Iraan. Long stated he used the same method to start the fire in Iraan as he did to start a fire in Bay City, Texas, that also killed someone.[FN44] Finally, during his confession, Long described the Robinson house in great detail.

FN42. Long stated that “the feeling started coming over me, the bitterness that I have toward Billy, which I had not ever went down into detail about, things that happened in the past. And when this happens to me, I kind of like get locked in my mind and things go black and white, and I started feeling an extreme bitterness toward him, because at one time I was going to shoot him ... because of some things that happened in the past....” Pet. at 22, *citing* Def. E.H. Ex. 4 at 14, ll. 17-24 (Long).

FN43. Mrs. Amelia Fuentes, who lived across the street from the Robinson house, saw a vehicle traveling slowly past her house on Fifth Street before any of the police or fire vehicles arrived. She had never seen the vehicle before. During the investigation of the fire, Mrs. Fuentes toldDeputy Jackson about the vehicle. He told her to forget about it. Pet. at 23, *citing*, Tr. at 146, ll. 19-23 (Fuentes), May 23, 1996.

FN44. The modus operandi of both fires was similar. Long set fire to the Bay City victim's trailer using liquor as an accelerant, as he claimed he did in the Iraan fire. The reason Long gave for killing the victim of the Bay City fire and for attempting to kill Billy Willis was the same, that he held a grudge against both and snapped in their presence. The Bay City fire confession was used by the State in Long's capital murder trial for a triple axe murder for which he was convicted and sentenced to death. Furthermore, in Long's direct appeal, the Court of Criminal Appeals upheld the admission of the Bay City confession and stated it was corroborated by other witness' testimony. *Long v. State*, 823 S.W.2d 259, 268 n. 12 (Tex.Crim.App.1991).

C. Willis's Evidence Contradicting the State's Theory of the Fire[FN45]

FN45. This opinion provides only a short summary of the evidence presented during the state post-conviction hearing that negates the State's theory of the fire. A full description of the evidence presented and a description of Mr. Smyth's qualifications and methodology can be found at Pet. at 25-36.

At the state post-conviction hearing, Marshall Smyth, a fire investigator, testified for Willis. Smyth's testimony corroborates Long's accounts, shows that the State's theory of the case was mistaken[FN46] and supports Willis's version of the events. The State had a “pour pattern” theory of the fire, meaning that in every area of the house where there was burn damage, an accelerant had been poured. Under this theory, Willis could not have run out of the house because the floor would have been in flames. According to the pour pattern theory, Willis would have had to spread accelerant in or near bedrooms and exits for the fire to burn as it

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did.

FN46. Deputy Jackson, one of the State's arson experts, admitted during his interview of Long that he is "not much of a[sic] arson investigator." Pet. at 26, *citing,* Def. E.H. Ex. 4 at 74, ll. 5-6.

Smyth testified that the pour pattern theory was physically impossible, and that the burn damage to the house could not have been caused by an accelerant such as gasoline. Instead, Smyth testified that the burn damage throughout the house was the result of "flashover" conditions throughout the house during various points in the fire.[FN47] Smyth also testified that, consistent with Long's account of the fire, the maximum "area of origin" of the fire was the living room and dining room.[FN48] Smyth's tests showed that it would have taken approximately ten to eleven minutes for the fire to spread from the chair where it was ignited, according to Long, to the surrounding carpeting soaked with the alcohol mixture. That period of time is consistent with Willis's description that, once awakened, he ran through the house and then exited through the front door without serious injury.

FN47. "Flashover is a transition point, actually, in the development of a fire inside a compartment or room. And it's the point at which the burning materials in this fire became so strong that they form a gas cloud under the ceiling of the room. And this gas cloud thickens up. And at some point temperatures on the floor are raised to their-the ignition point of the materials due to the radiation of the heat from the gas cloud. And, at that point, all the combustible materials in the room essentially simultaneously burst into flame. So it's that transition point in the buildup of a fire from something less than full room involvement to the point where all the materials in the room are involved in the flame." Pet. at 28, *citing* Tr. at 32, ll. 9-33 (Smyth), Jan. 12, 1998.

FN48. Pet. at 28, n. 12, *citing* Tr. at 112, ll. 7-14 (Smyth), Jan. 12, 1998.

Other evidence disputes the State's theory of the case. The clothes Willis wore on the night of the fire were submitted to the State's lab; no accelerant was found on the clothes. In addition, accelerant was not found on the carpet samples from the Robinson house that were submitted to the lab, and the State never produced any evidence regarding the type of accelerant used to start the fire, according to the State's theory. Finally, consistent with Willis's statement regarding his actions upon discovering the fire-that he awoke to the house already on fire and ran around trying to rouse others-Willis left in the house his boots, socks and pain medication.

***11** In addition, Willis argues that his post-fire demeanor, which the State used as evidence of guilt during Willis's trial, can be explained in a manner that also supports his innocence. At the time of the fire, Willis was receiving care for chronic back pain and had undergone four back surgeries as a result of injuries suffered in past years as an oil field worker. Willis's prior back surgeries resulted in a chronic condition called "arachnoiditis." As a result, at the time of the fire, Willis was taking prescription opiate drugs like Talwin and Percodan to make his back pain tolerable.[FN49] Two days before the fire, on June 9, Willis went to the emergency room because of excruciating back pain. He was given an injection of Butorphanal and some Phernergan. Later that day he took at least nine 50 mg. tablets of Talwin.

FN49. For exact quantities of the drugs taken, *see* Pet. at 39-40.

The next day, the day before the fire, at around 4:00 a.m., Willis again went to the emergency room, where he was given a dose of Demerol and some Emet-Con, a drug for treatment of nausea. He returned to the Robinson house at 7:00 a.m., took three tablets of Talwin and a muscle relaxant. Two hours later, he was still in pain, and he took another three tablets of Talwin. An hour later he went to see Dr. Edwin Franks, who gave him a steroid injection and a prescription for additional back pain medications. Throughout the rest of the day, Willis took at least six more Talwin tablets and one Percodan tablet. In addition, between 6:00 p.m. and midnight, Willis drank approximately six cans of beer, and took

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more Talwin and Percodan before going to sleep.[FN50]

FN50. Pet. at 40, *citing* Lipman Depo. at 17, ll. 18-19, Jun. 8, 1998. The levels of pain medication that Willis took on June 9-10, 1986 were not unusual for chronic back pain patients. *Id.* at 20, ll. 1-15.

Willis contends the drugs he took in the two days before the fire would have affected his outward appearance in the time period immediately after the fire. Specifically, he claims the drugs would make him appear unemotional and unexcited. Also, he claims the alcohol consumed would have contributed to his low affect and to the suppression of his coughing after the fire.[FN51]

FN51. *Id.* at 25, ll. 9-27.

The State asserted at trial that Willis's account of the fire was not believable because Willis was not injured. Two days after the fire, Willis did have a very bad burn on his shoulder, but the State claimed the burn was not present the day of the fire and thus was not caused by the fire. During the state post-conviction hearing, Willis put forth evidence that blistering does not necessarily occur immediately as a result of thermal burning and thus the appearance of the burn on Willis two days after the fire was not unusual.[FN52]

FN52. Pet. at 40, *citing* Lipman Depo. at 77, ll. 1-7, Jun. 8, 1998.

One of the state investigators, Deputy Jackson, testified at trial that Willis's account that he ran around the outside of the house breaking windows in an effort to help the people still inside could not be truthful because glass was found only on the outside of the house. Willis claims the windows to the Robinson house were a particular type that prevented the glass from falling into the house. Willis claims that the windows consisted of two panels, a lower portion and an upper. When opened, he claims, the lower portion slides above the upper portion, creating two layers of glass. Willis claims the windows were open the night of the fire and that when he broke the upper part of the window, the lower part, as a second layer, prevented the glass from falling inside the house.[FN53]

FN53. Pet. at 42, *citing* Trial Tr., vol. 19 at 140, ll. 8-13 (Deputy Jackson).

***12** Finally, Willis argues that there was no motive to support the State's theory of the fire and that Willis had no motive to set the fire. Willis argues that at no point in the investigation of the fire, the trial or the post-conviction proceedings did the State produce evidence of any motive. And Willis, who was forty-two years old at the time of the crime, had never before been charged with a violent crime.

D. Analysis of Willis's Innocence Claim

The state trial court rejected a finding of innocence in this case. The state trial court found that Willis "failed to produce sufficient evidence to corroborate the statement of Mr. Long,"[FN54] and thus found Mr. Long's confession inadmissible.[FN55] At post-conviction proceedings, the state trial court therefore held that "the testimony in the record does not support a finding that Willis is innocent."[FN56]

FN54. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 6.

FN55. The state trial court does not cite any authority requiring that or explaining why the confession must be corroborated to be admissible. However, under Texas law, an extrajudicial confession of wrongdoing, standing alone, is not sufficient to support a conviction; other evidence must exist, demonstrating that a crime has in fact been committed. *See Rocha v. State*, 16 S.W.3d 1, 4 (Tex.Crim.App.2000).

FN56. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 33.

In *Herrera v. Collins*, the Supreme Court held that "[c]laims of actual innocence based on newly discovered evidence have never been held to state a ground for federal habeas relief absent an independent constitutional violation occurring in the underlying state criminal proceeding."[FN57] In *Herrera*, the Court did assume "for the sake of argument ... that a truly persuasive

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demonstration of 'actual innocence' made after trial would render the execution of a defendant unconstitutional." FN58 Since *Herrera*, the lower courts dispute whether federal habeas relief is available based on a showing of innocence without a constitutional error at trial. While the Ninth and Seventh Circuits held that habeas relief is available based upon a post-conviction showing of innocence alone, FN59 the Fifth Circuit rejected this rule and holds that newly discovered evidence related to innocence is not sufficient grounds alone for habeas relief. FN60 Willis acknowledged that even if this Court found innocence, relief would nevertheless be unavailable to him under the law of this Circuit.

FN57. 506 U.S. 390, 400 (1993).

FN58. *Id.* at 417.

FN59. *See Jackson v. Calderon*, 211 F.3d 1148, 1164 (9th Cir.2000), *cert denied*, 531 U.S. 1072 (2001); *Carriger v. Stewart*, 132 F.3d 463, 476 (9th Cir.1997) (en banc), *cert denied*, 523 U.S. 1133 (1998); *Milone v. Camp*, 22 F.3d 693, 699 (7th Cir.1994), *cert denied*, 513 U.S. 1076 (1995).

FN60. *Lucas v. Johnson*, 132 F.3d 1069, 1074 (5th Cir.1998) (holding that "the existence merely of newly discovered evidence relevant to the guilt of a state prisoner is not a ground for relief on federal habeas corpus."). *See also Robinson v. Johnson*, 151 F.3d 256, 267 (5th Cir.1998), *cert denied*, 526 U.S. 1100 (1999). The Fourth Circuit has likewise refused to recognize an actual innocence claim alone. *See Royal v. Taylor*, 188 F.3d 239, 243 (4th Cir.1999).

The State did not address any of the factual allegations of innocence proffered by Willis. Instead, the State claims that because actual innocence is not a cognizable claim in habeas, Willis's innocence claim is barred by the nonretroactivity rule of *Teague v. Lane*. FN61 *Teague* prevents application of novel rules of law to petitioners whose convictions are final. FN62 There are two exceptions to the *Teague* rule. The first exception occurs when a new rule of law places "certain kinds of primary, private individual conduct beyond the power of the criminal law-making authority to proscribe." FN63 The second exception occurs when the new rule of law "requires the observance of those procedures that are implicit in the concept of ordered liberty." FN64

FN61. 489 U.S. 288 (1989).

FN62. *See Williams*, 529 U.S. at 380.

FN63. *Teague*, 489 U.S. at 307 (internal citations omitted).

FN64. *Id.*

If the Supreme Court were to find that an innocence claim were cognizable in habeas, this Court has no doubt that, for a petitioner who could make a showing of actual innocence, the first *Teague* exception would apply, and thus *Teague* would not bar relief. FN65 But under this Circuit's current jurisprudence, innocence alone is not a sufficient basis for federal habeas relief. FN66 While both parties' presentations to the Court in cross-motions for summary judgment raise strong reason to be concerned that Willis may be actually innocent, under *Herrera* and *Lucas*, innocence is not a cognizable claim in habeas; thus, it would be inappropriate for this Court to determine the issue. In any event, the determination is unnecessary because the Court must grant Willis's writ on other grounds.

FN65. The *Teague* exceptions are not part of section 2254(d)'s deference provisions. The Supreme Court has not yet resolved the tension between *Teague* and section 2254 in that regard.

FN66. *Herrera v. Collins*, 506 U.S. 390, 400 (1993); *Dowthitt v.. Johnson*, 230 F.3d 733, 741-42 (5th Cir.2000), *cert. denied*, 532 U.S. 915 (2001).

IV. Administration of Medically Inappropriate Antipsychotic Medications

***13** During the evidentiary hearing on Willis's state

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habeas petition, evidence and testimony were presented concerning his claim that the State's wrongful administration of antipsychotic drugs denied Willis of due process and other constitutional rights. At the conclusion of the hearing, Judge Jones entered detailed findings of fact regarding the administration of the medication by the State, the effect on Willis and the lack of any justification for the medication. These findings were summarized above. Judge Jones then entered conclusions of law recommending relief be granted on the claim.

Judge Jones held that the administration of antipsychotic medication to Willis during his trial denied him the ability to assist in his own defense in violation of his right to counsel,[FN67] and prejudicially affected his demeanor at trial in violation of substantive due process rights.[FN68] In addition, the trial court held that the State can only administer medication to a defendant involuntarily if the standard articulated by the Supreme Court in *Riggins* is met: 1) administration of the drugs was "medically appropriate and, considering less intrusive alternatives, essential for the sake of [the defendant's] own safety or the safety of others; 2) administration of the drugs was medically appropriate and that the prosecution could not "obtain an adjudication of [the defendant's] guilt or innocence by using less intrusive means;" or 3) that the administration of medication was "necessary to accomplish an essential state policy."[FN69]

FN67. *See Riggins v. Nevada,* 504 U.S. 127, 133, 142 (1992).

FN68. *See id.* at 131.

FN69. *Id.* at 135-36, 138. The state trial court based its analysis of this claim largely on *Riggins.* The CCA denied the claim based on a prior CCA opinion interpreting *Riggins.* In addition, both parties have extensively briefed *Riggins.* Though not raised by the state trial court, the CCA or either party, the Court notes that *Riggins* was decided in 1992, two years after Willis's conviction became final on direct appeal, on October 9, 1990. However, the Supreme Court's decision in *Washington v. Harper,* 494 U.S. 210, 222 (1990), was decided on February 27, 1990, before Willis's conviction became final. As explained in the text of this opinion, *Harper* explicitly states that State administered antipsychotic drugs must be medically appropriate. Furthermore, subsequent Supreme Court cases-namely *Riggins* and *United States v. Sell,* 539 U.S. 166 (2003)-state that the rule of law emanated from *Harper.* In *Penry v. Lynaugh,* 492 U .S. 302 (1989) (*Penry I*), the Supreme Court held that dicta in *Jurek v. Texas,* 428 U.S. 262 (1976), established law for *Teague* purposes. Thus, the statements in *Harper*-that due process requires that state administered antipsychotic drugs be medically appropriate-are sufficient for *Teague* purposes in Willis's case, even if they are dicta.

Judge Jones found that the administration of the drugs to Willis was not medically appropriate, not essential for the safety of Willis or others, and not necessary to accomplish an essential state policy. Furthermore, Judge Jones held a showing of prejudice was not required because under *Riggins,* there is a "strong possibility" that trial defense was impaired.[FN70]

FN70. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Conc. of Law at 13, *quoting Riggins,* 504 U.S. at 138.

Judge Jones also found that the administration of antipsychotic medications to Willis violated Willis's right to confront witnesses because a defendant's physical presence and demeanor in the courtroom are essential to the exercise of his confrontation rights.[FN71] The medication given to Willis left him unable to confer with counsel and unable to exhibit any emotive response to the testimony of adverse witnesses. Furthermore, Willis was prevented from reacting or responding to the proceedings and was not able to demonstrate sensitivity or compassion.[FN72]

FN71. *Id., citing Riggins,* 504 U.S. at 142. *See also Coy v. Iowa,* 487 U.S. 1012, 1020 (1988).

FN72. *Ex Parte Willis,* No. 27, 787-01 Find. of

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Fact and Conc. of Law at 13.

Judge Jones found the administration of the medication also violated a number of other constitutional rights. First, the medicine prevented Willis from assisting in his own defense and denied him his Sixth Amendment right to the effective assistance of counsel. Willis was unable to communicate with counsel or make tactical decisions during trial. Thus the administration of the medication was an actual or constructive denial of the right to counsel by the State and not subject to a prejudice showing. Second, the medication of Willis and his resulting demeanor effectively forced Willis to testify against himself in violation of the Fifth Amendment. This is especially so because the prosecution used Willis's demeanor as evidence of his guilt. Finally, Judge Jones found the administration of the medication violated Willis's right to an individualized capital sentencing determination.[FN73]

FN73. *Id.* at 14-16.

***14** The Court of Criminal Appeals overruled the trial court's recommended relief on this claim in one paragraph. Citing a Texas case, the CCA held that because there was no motion to terminate medication or an objection to the medication in the record, Willis "has not demonstrated his treatment was involuntary."[FN74] The CCA based its ruling on a legal determination that a showing of involuntariness requires an objection in the record. Because the CCA's overruling of the trial court was not inconsistent with the trial court's findings, but instead, a determination that the facts did not warrant relief under the legal standard, this Court must defer to the state trial court's findings of fact. Thus, the issues before this Court are: 1) whether the CCA's holding that an objection is a necessary condition for a finding of involuntariness is contrary to, or an unreasonable application of, clearly established federal law and 2) whether the CCA's implicit determination that the State can administer antipsychotic medication to pre-trial inmates with no established medical need is contrary to, or an unreasonable application of, clearly established federal law.[FN75]

FN74. *Ex Parte Willis*, No. 27, 787-01, Order at 2 (Tex.Crim.App.2000), *citing Ex Parte Thomas*, 906 S.W.2d 22 (Tex.Crim.App.1995).

FN75. Though the CCA addressed Willis's medication claim on the merits, the CCA did not address the lack of medical justification for the antipsychotic drugs the State administered to Willis. However, the state trial court made a finding of fact as to the lack of medical justification, and Willis raised the lack of medical justification on appeal to the CCA as part of his claim for relief. Thus, the CCA's rejection of Willis's medication claim is an implicit finding that the lack of medical justification is not a ground for relief.

As explained below, the CCA erred on both grounds. First, the State cannot administer antipsychotic drugs unless medically appropriate according to Supreme Court holdings, and thus the CCA's denial of relief when Willis was medicated with antipsychotic drugs without medical justification is contrary to clearly established federal law. Second, the CCA's determination that an objection is a necessary condition of involuntariness is contrary to clearly established federal law regarding waiver of constitutional rights. In this case, no evidence exists that either Willis or defense counsel knew of the existence or nature of the medication.

A. Administration of Medically Inappropriate Drugs

After the state habeas hearing, the trial court found the State administered the antipsychotic drugs to Willis without any medical need.[FN76] This determination is supported by the record. Three experts testified during the state habeas hearing that they were unable to find any evidence of psychosis or other mental disorder in Willis's medical or behavioral history.[FN77] Furthermore, none of the records from the Pecos County Jail indicate that Willis was suffering from a psychotic disorder or exhibiting symptoms of psychosis.[FN78] Numerous medical intake forms for Willis's admission to the Pecos County Jail state that Willis had never been treated for mental illness.[FN79] One of the forms was filled out after Willis received antipsychotic medication in the Pecos County Jail. Disciplinary records from the Pecos County Jail state that Willis is negative for a his-

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tory of mental illness.[FN80] The report of the psychological exam administered to Willis at the time of trial stated there was no evidence that Willis was psychotic.[FN81] Additionally, Willis's eleven-year records from TDC do not contain any evidence of a psychotic disorder.[FN82]

FN76. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 11.

FN77. *See e.g.*, Crowder Dep.; Lipman Dep.; Cunningham Dep.

FN78. *See e.g.*, Tr. at 267, ll. 1-14 (Cunningham).

FN79. Def. E.H. Ex. 30.

FN80. Def. E.H. Ex. 29 at 93, 117, 123, 129, 142; Crowder Dep., ll. 16-21.

FN81. Tr. at 177, ll. 2-14 (Wright).

FN82. Lipman Dep. at 44, ll. 16; Crowder Dep. at 42, ll. 18-23 ("We never see any psychosis appear in his extensive TDC records."); Crowder Dep. at 51, ll. 16-21.

***15** A significant liberty interest exists in avoiding unwanted administration of antipsychotic drugs under the Due Process Clause of the Fourteenth Amendment.[FN83] But, due process will allow "a mentally ill inmate to be treated involuntarily with antipsychotic drugs where there is a determination that ... the treatment is in the inmate's medical interest."[FN84]

FN83. *Harper*, 494 U.S. at 222; *Parham v. J.R.*, 442 U.S. 584, 600-601 (1979). *See also Youngberg v. Romeo*, 457 U.S. 307, 316 (1982) (core liberty protected by due process, freedom from bodily restraint, survives criminal conviction, incarceration and involuntary commitment).

FN84. *Riggins*, 504 U.S. at 135 (internal quotations and citations omitted) (stating the Supreme Court's holding in *Harper*, 494 U.S. at 227).

In upholding a state procedure for involuntary medication of antipsychotic drugs in *Washington v. Harper*, the Supreme Court was careful to recognize that the state procedure required that the administration of medication be medically appropriate.[FN85] Because the state procedure at issue in *Harper* recognized the petitioner's medical interests, it met the requirements of the Due Process Clause.[FN86] In a lengthy footnote, the Court detailed that it would not adopt the State's procedure if the procedure did not require a finding of medical appropriateness before antipsychotic medication can be involuntarily administered.[FN87]

FN85. 494 U.S. at 223, n. 8.

FN86. *Id.* at 223.

FN87. *Id.* at 223, n. 8. *See also id.* at 227 (holding that the Due Process Clause permits the State to treat a prison inmate "who *has a serious mental illness* with antipsychotic drugs against his will, if the inmate is dangerous to himself or others *and the treatment is in the inmate's medical interest."*) (emphasis added). "[W]e hold that the regulation before us is permissible under the Constitution. It is an accommodation between an inmate's liberty interest ... and the State's interests in providing *appropriate* medical treatment...." *Id.* at 236 (emphasis added). The dissent in *Harper* explains the majority's decision as follows: "[A]lthough the Court does not find, as Harper urges, an absolute liberty interest of a competent person to refuse psychotropic drugs, it does recognize that *the substantive protections of the Due Process Clause limit the forced administration of psychotropic drugs to all but those inmates whose medical interests would be advanced* by such treatment." *Id.* at 243 (Stevens, J., dissenting).

The rule of *Harper* was reiterated in *Riggins* where a state involuntary medication procedure was found inadequate.[FN88] "Under *Harper*, forcing antipsychotic

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drugs on a convicted prisoner is impermissible absent a finding of overriding justification and a *determination of medical appropriateness."* FN89 The *Riggins* Court noted that a pretrial detainee-the petitioner in *Riggins*-enjoyed as much constitutional protection as the convicted prisoner at issue in *Harper.* FN90

FN88. 504 U.S. 127 (1992).

FN89. *Id.* at 135 (emphasis added) (internal quotations and citations omitted).

FN90. *Id., citing Bell v. Wolfish*, 441 U.S. 520, 545 (1979).

Applying the rule of *Harper* to the procedures employed by the State, the *Riggins* Court held that the State "certainly would have satisfied due process if the prosecution had demonstrated, and the District Court had found, that treatment with antipsychotic medication was *medically appropriate* and, considering less intrusive alternatives, essential for the sake of Riggins' own safety or the safety of others." FN91 Alternatively, the State "might have been able to justify *medically appropriate*, involuntary treatment with the drug by establishing that it could not obtain an adjudication of Riggins' guilt or innocence by using less intrusive means." FN92

FN91. *Id.* (emphasis added).

FN92. *Id.* (emphasis added).

The rule of *Harper* was reaffirmed again in *United States v. Sell.* FN93 There, the Supreme Court addressed whether a State may forcibly administer antipsychotic drugs to a criminal defendant in order to render him competent to stand trial.FN94 The Court held a four-part test must be met to involuntarily medicate a criminal defendant: 1) important governmental interests are at stake; FN95 2) involuntary medication will significantly further those interests; FN96 3) involuntary medication is necessary to further those interests; FN97 and 4) "administration of the drugs is *medically appropriate*, i.e., in the patient's best medical interest in light of his medical condition." FN98

FN93. 539 U.S. 166 (2003).

FN94. *Id.* at 177.

FN95. *Id.* at 180.

FN96. *Id.* at 181. "[T]he court must conclude that involuntary medication will *significantly further* those concomitant state interests. It must find that administration of the drugs is substantially likely to render the defendant competent to stand trial. At the same time, it must find that administration of the drugs is substantially unlikely to have side effects that will interfere significantly with the defendant's ability to assist counsel in conducting a trial defense, thereby rendering the trial unfair." *Id., citing Riggins*, 504 U.S. 142-45 (emphasis in original).

FN97. *Id.* ("[t]he court must find that any alternative, less intrusive treatments are unlikely to achieve substantially the same results. And the court must consider less intrusive means for administering the drugs.").

FN98. *Id.*

The State argues that *Harper* and *Riggins* are not on point because both cases addressed situations in which a formal objection was made to the medication.FN99 The argument is inapposite. The Court in both *Harper* and *Riggins* assumed the medication was medically appropriate.FN100 Thus, assuming the medication is medically appropriate, the issue in both cases became what procedures must the State go through in order to medicate an inmate against his will. In this case, on this record, no such assumption can be made. Indeed, the record does not support that assumption, and the state court found that in fact the medication was not medically appropriate. *Harper* followed by *Riggins* and *Sell* make clear that medical appropriateness is always a condition precedent to the involuntary administration of antipsychotic drugs to inmates.

FN99. The State's motion for summary judgment was written before the Supreme Court's decision in *Sell*, 539 U.S. 166.

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FN100. *Harper,* 494 U.S. at 223, n. 8 ("... we will not assume that physicians will prescribe these drugs for reasons unrelated to the medical needs of the patients; indeed, the ethics of the medical profession are to the contrary."); *Riggins,* 504 U.S. at 133 (" ... we presume that administration of [antipsychotic drugs] was medically appropriate.").

***16** Because Supreme Court precedents are unequivocal that antipsychotic medication administered by the State must be medically appropriate, the CCA's rejection of Willis's due process claim, when the record is clear that Willis was medicated with no medical need, is contrary to clearly established federal law.[FN101]

FN101. *See* 28 U.S.C. § 2254(d).

B. Whether a Showing of Involuntariness Requires an Objection

The Court now addresses whether the CCA's holding that an objection is a necessary condition for a finding of involuntariness is contrary to, or an unreasonable application of, clearly established federal law. The state trial court made a factual finding that Willis did not consent to the medication.[FN102] This finding was not rejected by the Court of Criminal Appeals. Instead, the CCA stated that because there was no objection on the record, Willis could not make a legal showing of involuntariness.

FN102. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 9.

The State argues that the medication administered in both *Harper* and *Riggins* was determined involuntary because the inmate had objected to it on the record. But in neither of those cases did the Court require a recorded objection as a necessary element to a showing of involuntariness. The State also cites *Richardson v. Johnson,*[FN103] and *Adanandus v. Johnson,*[FN104] but neither of those cases included a finding of non-consent. Furtermore, in *Adanandus*, there was no finding that the petitioner had actually been medicated.[FN105] Thus, neither case is instructive.

FN103. 256 F.3d 257, 259 (5th Cir.2001).

FN104. 947 F.Supp. 1021, 1084 (W.D.Tex.1996).

FN105. *Id.*

In all the cases uncovered by the Court in which antipsychotic medication was found to be voluntary, there was evidence in the record that the recipient knew of the medication and often requested it.[FN106] There is no such evidence in the record for Willis's case. Also, the antipsychotic medication was given without medical need, strongly indicating that it was not just given involuntarily but also given without Willis's knowledge. The Court finds it unlikely that a reasonable and competent person would voluntarily take high doses of unnecessary antipsychotic drugs without evident medical need.[FN107]

FN106. *See e.g., Ex Parte Thomas,* 906 S.W.2d 22; *Fearance v. Scott,* 56 F.3d 633 (5th Cir.1995), *cert. denied,* 515 U.S. 1153 (1995); *Adanandus v. Johnson,* 947 F.Supp. 1021 (W.D.Tex.1996).

FN107. In stating that a showing of involuntariness can only be made through an objection, the CCA cited only one case, its own decision in *Ex Parte Thomas.* There, the defendant initially requested the medication and later claimed to object to it. Defense counsel in that case was aware of the medication. Thus, the facts surrounding the voluntariness of the medication in *Ex Parte Thomas* are quite different than the facts surrounding involuntariness in the instant case.

Though not specifically found by the state trial court in post-conviction findings, there is evidence in the record that Willis was not aware he was taking antipsychotic medication.[FN108] Willis was receiving several medications each day for back pain. The State notes that when Willis was given the medication, he placed his initials on the medication log sheet. The record though does not demonstrate that Willis knew the ini-

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tials indicated anything other than receipt of his back pain medication, and because he expected to receive the back medication, Willis would not have had reason to question the medication. Because the State medicated Willis with antipsychotic drugs in the absence of any medical need,[FN109] Willis would have had no reason to suspect the drugs were antipsychotics. The initials do not suggest Willis understood what medication he was receiving.[FN110]

FN108. *See* Pet. at 78-81.

FN109. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 11-12.

FN110. Also, Willis's Pecos County Jail medical records did not meet statutory requirements. *See* Pet. at 81, n. 37; 37 TEX. ADMIN. CODE § 273.4. *See also* Lipman Dep. at 38, ll. 16-39, l. 3 ("I can find no pharmacologically appropriate basis for [the] prescription" of the antipsychotic medication to Willis in the Pecos County Jail records or other supporting documents.).

***17** While the Supreme Court has not discussed the standard for involuntariness specifically in the context of involuntary medication, the Court has developed a standard for involuntariness used generally in a number of other contexts. In the context of right to counsel, the Supreme Court held that "[p]resuming waiver from a silent record is impermissible. The record must show, or there must be an allegation and evidence which show, that an accused was offered counsel but intelligently and understandably rejected the offer. Anything less is not waiver."[FN111] The Supreme Court applied this standard for waiver to the guilty plea context.[FN112] Also, the Supreme Court rejected state laws that denied the application of the right to speedy trial unless the defendant demanded trial,[FN113] and instead the Court applied the same standard articulate above to the analysis of a waiver of the right to a speedy trial.[FN114]

FN111. *Carnely v. Cochran*, 369 U.S. 506, 516 (1962).

FN112. *Boykin v. Alabama*, 395 U.S. 238, 242 (1969) (the Court noted that several constitutional rights are involved in a waiver that accompanies a guilty plea).

FN113. *Barker v. Wingo*, 407 U.S. 514, 524 (1972).

FN114. *Id.* at 526 (applying the standard used in *Carnely*, 369 U.S. at 516 and *Boykin*, 395 U.S. at 242).

Thus, the ordinary rule is that a court cannot infer a waiver of a constitutional right from the failure to object.[FN115] In light of the constitutional rights implicated when a defendant is medicated with antipsychotic drugs,[FN116] there is no reason to deviate from this established standard for waiver, nor is any such explanation given by the CCA. Because the CCA impermissibly deemed the medication voluntary from a silent record,[FN117] a determination that Willis's medication was voluntary is an unreasonable application of clearly established Supreme Court precedents on waivers of constitutional rights.[FN118]

FN115. *Id.* at 525 ("... presuming waiver of a fundamental right from inaction, is inconsistent with this Court's pronouncements on waiver of constitutional rights.").

FN116. *See Riggins*, 504 U.S. at 142 (Kennedy, J. concurring) (noting that side effects of antipsychotic drugs can compromise the right of a criminal defendant to receive a fair trial. "The drugs can prejudice the accused in two principal ways: (1) by altering his demeanor in a manner that will prejudice his reactions and presentation in the courtroom, and (2) by rendering him unable or unwilling to assist counsel." *Id.* Justice Kennedy also stated that medication with antipsychotic drugs can effect a defendant's constitutional rights, his right to testify on his own behalf and his right to counsel. *Id.* at 142, 144.).

FN117. The trial court determined that the fail-

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ure to object did not constitute consent.

FN118. 28 U.S.C. § 2254(d).

The State then argues that even if the medication were involuntarily administered, Willis has not shown he was prejudiced because he has not demonstrated he was harmed in any manner. However, in *Riggins*, the Supreme Court held that once it has been established that a defendant was involuntarily medicated during a criminal trial without the proper due process considerations, because of the "substantial probability of trial prejudice," FN119 prejudice is presumed.FN120 Additionally, the Supreme Court's decisions in both *Riggins* and *Harper* recognized the severe effects of antipsychotic medications and the potentially debilitating effects of such medication on an accused's constitutional trial rights.FN121 The Supreme Court noted that it is possible for side effects to impact outward appearance, the content of testimony, the ability to follow the proceedings, the substance of communication with counsel, and comprehension at trial.FN122 Nevertheless, it is clear from the state trial court's findings of fact that Willis was actually prejudiced, both because of the effect of the medication on Willis's demeanor and because the prosecution used Willis's demeanor as evidence of guilt and future dangerousness.FN123 As to the effect on Willis's demeanor, the state court found Willis exhibited flat or little facial expression, inexpressiveness, rigidity of the facial muscles, a fixed gaze, drowsiness, confusion and diminished ability to communicate. Willis's demeanor was "markedly different" at the post-conviction hearing, when the antipsychotic drugs were no longer being given.FN124 As to the the prosecution's use of Willis's demeanor as evidence of guilt and future dangerousness, the trial court found the State asked the jury to infer guilt and propensity for future dangerousness from Willis's lack of feeling or emotion.FN125 Therefore, the Court finds that Willis was actually prejudiced by the State's administration of the antipsychotic drugs.

FN119. *Riggins*, 504 U.S. at 138. *See also Sell*, 539 U.S. at 189 (Scalia, J. dissenting) ("the *Riggins* Court held that forced medication of a criminal defendant that fails to comply with *Harper* creates an unacceptable risk of trial error and entitles the defendant to automatic vacatur of his conviction.").

FN120. *Riggins*, 504 U.S. at 138. The State argues that the *Riggins* presumption of prejudice only applies on direct review, not in post-conviction proceedings. The State provides no authority to support this argument. Furthermore, presumptions of prejudice have been used in other post-conviction contexts. *See Burdine v. Johnson*, 262 F.3d 336, 348-50 (5th Cir.2001) (en banc), *cert. denied*, *Cockrell v. Burdine*, 535 U.S. 1120 (2002). Also, this part of the State's argument seems to challenge the state trial court's findings of fact regarding the effects of the medication on Willis. However, the State does not mention that the state trial court made findings of fact regarding this issue, nor argue that those findings are unreasonable in light of the evidence presented. *See* 28 U.S.C. § 2254(e)(1).

FN121. *Harper*, 494 U.S. at 229-30 (identifying the "serious, even fatal, side effects" of antipsychotic drugs). *See also Riggins*, 504 U.S. at 134; *Sell*, 539 U.S. at 185-86 (Whether a particular drug will tend to sedate a defendant, interfere with communication with counsel, prevent rapid reaction to trial developments, or diminish the ability to express emotions are matters important to determinating the permissibility of medication).

FN122. *Riggins*, 504 U.S. at 137.

FN123. *Ex parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10-11.

FN124. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10.

FN125. *Id.* at 11.

***18** The State also argues that even if the medication were involuntary and harmful, it was medically necessary. As discussed above, the state trial court made

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detailed findings of fact that the medication of Willis was without medical need and those findings are properly before this Court. To the extent that the State challenges the finding that the administration of medication lacked necessity, the State fails to engage in the requisite analysis outlined in the AEDPA.[FN126] The State has not rebutted the presumption of correctness afforded to state court factual findings by clear and convincing evidence, and a review of the record reveals that the factual findings of the state court are reasonable in light of the evidence presented.[FN127]

FN126. *See* 28 U.S.C. § 2254(e)(1).

FN127. *See* 28 U.S.C. § 2254(d)(2).

For the reasons provided above, the medication of Willis during trial violated his right to due process, both because it was without medical need and also because it was involuntary. Willis is entitled to relief on the claim because the CCA's denial of the claim was contrary to, and an unreasonable application of, clearly established federal law.[FN128]

FN128. Willis argues that the State's administration of the medication violated a number of other constitutional rights: right to confront witnesses, remain free from self-incrimination, effective assistance of counsel, and an individualized sentencing determination. These arguments were raised to the state trial court and to the CCA. The trial court found that the administration of medication violated all these rights. The CCA did not address any of these additional constitutional claims. Because this Court has granted relief on due process grounds, the Court declines to address the other bases for relief.

V. Prosecutorial Suppression of Evidence

Prosecutorial suppression of evidence that is favorable to an accused "violates due process where the evidence is material either to guilt or punishment, irrespective of the good faith or bad faith of the prosecution."[FN129] A defendant need not request such evidence to trigger the prosecutor's duty to disclose.[FN130] To establish a *Brady* claim, a petitioner must demonstrate that 1) the prosecution suppressed or withheld evidence 2) favorable to the defense and 3) material to guilt or punishment.[FN131]

FN129. *Brady v. Maryland*, 373 U.S. 83, 87 (1963).

FN130. *United States v. Bagley*, 473 U.S. 667, 682 (1985).

FN131. *East v. Johnson*, 123 F.3d 235, 237 (5th Cir.1997).

Evidence is material if "there is a reasonable probability that, had the evidence been disclosed to the defense, the result of the proceeding would have been different."[FN132] Four aspects of materiality govern the inquiry.[FN133] First, a petitioner need not prove by a preponderance that disclosure of the suppressed evidence would have resulted ultimately in a sentence less than death.[FN134] "The question is not whether the defendant would more likely than not have received a different verdict with the evidence, but whether in its absence he received a fair trial, understood as a trial resulting in a verdict worthy of confidence. A reasonable probability of a different result is accordingly shown when the government's evidentiary suppression undermines confidence in the outcome of the trial."[FN135]

FN132. *Kyles v. Whitley*, 514 U.S. 419, 433 (1995).

FN133. *See id.* at 434.

FN134. *Id.*

FN135. *Id.* (internal citations and quotations omitted).

Second, the materiality analysis is not a sufficiency of the evidence test.[FN136]

FN136. *Id.*

A defendant need not demonstrate that after discounting the inculpatory evidence in light of the undisclosed evidence, there would not have been enough

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left to convict....One does not show a *Brady* violation by demonstrating that some of the inculpatory evidence should have been excluded, but by showing that the favorable evidence could reasonably be taken to put the whole case in such a different light as to undermine confidence in the verdict.[FN137]

FN137. *Id.* at 435.

***19** Third, harmless error analysis does not apply.[FN138] And, fourth, materiality is assessed in terms of all suppressed evidence considered collectively, not item by item.[FN139]

FN138. *Id.*

FN139. *Id.* at 436.

Judge Jones found that the State violated *Brady* by affirmatively or negligently failing to turn over the Wright report to the defense. The CCA overturned Judge Jones, stating that the Wright report was not favorable or material. The CCA did not question the trial court's determination that the Wright report had been suppressed, nor did it reject the trial court's findings of fact. The CCA based its ruling on a determination that the facts, as found by the trial court, did not meet the standard of favorability or materiality. Because the CCA's overruling of the trial court was not inconsistent with the trial court's factual findings, this Court must defer to those trial court findings of fact.[FN140]

FN140. *See Craker*, 756 F.2d at 1213-14; *Westley*, 83 F.3d at 721 n. 2.

The CCA determined the Wright report was not favorable for two reasons: first, because at the evidentiary hearing Wright testified that he was unable to gather sufficient information during the examination of Willis to make a future dangerousness determination, and second, because the conclusions in the report were "hypotheticals." Dr. Wright's report states that "the data I was able to collect concerning Willis was [sic] insufficient for determining whether he would pose a continuing threat to society."[FN141] The CCA offered no authority for the proposition that a report with a conditional conclusion fails the *Brady* standard for determining whether evidence is favorable.

FN141. *Ex Parte Willis*, No. 27, 787-01, Order at 4.

Willis argues that the CCA unreasonably applied *Brady* in finding the Wright report was not favorable. The Wright report contained two hypothetical scenarios, differing on the issue of the nature of the evidence produced at trial. One of the scenarios was favorable and one was not. The favorable scenario was: if sworn evidence indicates that his behavior until the time of the current alleged offense was no worse than previous behaviors, we could probably say with safety that the current alleged behavior was an isolated event which he probably will not repeat.[FN142] The other scenario was as follows:

FN142. Wright Report at 6. *See* Pet. at 166.

Recent years may have seen more and more irresponsibility or increasingly violent behaviors toward others. If testimony reflects this to a significant degree, we would certainly seem correct in assessing that he has passed through a behavioral door and that he will continue to commit vicious, violent type behaviors. A deterioration over the years would certainly seem to suggest that he would represent a continued threat to society.[FN143]

FN143. *Id.*

The State presented no evidence during the penalty phase of the trial that would have triggered the second scenario. The only prior criminal history presented a trial involved non-violent offenses.[FN144]

FN144. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 6.

In support of his argument that the CCA erred in holding the Wright report to be not favorable, Willis relies upon a Fifth Circuit case, holding that evidence meets the *Brady* standard of materiality, if it is both inculpatory and exculpatory.[FN145] Willis also argues that the CCA's determination on favorability was unreasonable because it ignores the ongoing nature of the

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State's obligations under *Brady*. The State's obligation to produce *Brady* material continues throughout trial. FN146 Willis argues that the Wright report was clearly favorable and should have been disclosed because the hypothetical scenarios in the report were conditioned on the evidence presented at trial and that evidence did not ultimately include other violent behaviors. FN147

FN145. *See Sellers v. Estelle*, 651 F.2d 1074, 1077 (5th Cir.1981), *cert. denied*, 455 U.S. 927 (1982).

FN146. *Jackson v. Johnson*, 194 F.3d 641, 649 n. 18 (5th Cir.1999), *cert. denied*, 529 U.S. 1027 (2000), *citing United States v. Miranne*, 688 F.2d 980 (5th Cir.1982), *cert. denied*, 459 U.S. 1109 (1983).

FN147. *See Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4; *Ex Parte Willis*, No. 27, 787-01 Order at 4 (stating that the testimony presented during the penalty phase was "relatively brief with two law enforcement officers providing reputation testimony.").

***20** Willis also suggests the Wright report was favorable because, even if the report itself were inconclusive, disclosure of the report would have led the defense to Dr. Wright, whose testimony would have been favorable. In determining whether evidence is material under *Brady*, the effect of the suppression of the evidence on the preparation or presentation of the defense case is relevant. FN148 The suppression of inadmissible evidence is material if the disclosure of the inadmissible evidence might have led defense counsel to admissible evidence. FN149

FN148. *Bagley*, 473 U.S. at 683.

FN149. *Sellers*, 651 F.2d at 1077 n. 6; *Spence v. Johnson*, 80 F.3d 989, 1005 n. 14 (5th Cir.1996), *cert. denied*, 519 U.S. 1012 (1996).

With these guidelines in mind, the Court finds that Wright's testimony would have been favorable and the prosecution's failure to disclose the Wright report violated Willis's due process right. As offered by the State in its Motion for Summary Judgment, Dr. Wright was "committed to his opinion that Willis would not pose a future danger when he testified during the state hearing in 1998." FN150 Furthermore, Dr. Wright visited with the District Attorney about his examiniation of Willis and said: "I didn't think this was a good death penalty case." FN151 Dr. Wright reiterated his belief that Willis's case was not a good death penalty case at the state habeas hearing. FN152

FN150. Resp.'s Mot. Summ. J. at 76.

FN151. *Id.* at 77.

FN152. *Id.* (noting that Dr. Wright answered "yes" at the state habeas hearing when asked whether this was not a good death penalty case).

The State responds that the Wright report was not favorable because it contained negative information about Willis's drinking habits and convictions for obscene phone calls and drunk driving. The report contained information that Willis admitted to drinking after age seventeen, that Willis was accused of indecent exposure at age seventeen and several times later, that Willis was convicted twice for obscene phone calls, and that Willis was convicted four or five times for driving while intoxicated. Willis's convictions for driving while intoxicated and a felony conviction for "immoral conduct" were already before the jury. FN153 Thus, the only additional negative information contained in the report was the indecent exposure accusations. Considering that the report led to the highly favorable testimony of a state-sanctioned medical expert, who determined that Willis was not a future danger, the Court finds the overall character of the report is favorable, even though it also contained unfavorable information. The jury had to answer a specific question on future dangerousness to impose the death penalty, and the report would have favorably addressed this issue. The Wright report's overall character is favorable.

FN153. *See Willis*, 785 S.W.2d at 387.

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The CCA also found that, even if the report were favorable, it was not material because no expert testimony was presented during the penalty phase on the issue of future dangerousness and because the penalty phase was relatively brief, with two law enforcement officers providing reputation testimony. Because a challenge to the sufficiency of the evidence on future dangerousness was raised and rejected on direct appeal, the CCA found that "in view of the evidence presented at trial, it is exceedingly difficult to conclude applicant has demonstrated that there is a reasonable probability the jury would have returned a negative answer on the future dangerousness finding if they had been aware of Wright's report." FN154 The CCA found Dr. Wright's report "inconclusive" FN155 and found that Willis had made no showing that the "verdict is unworthy of confidence." FN156

FN154. *Ex Parte Willis*, No. 27, 787-01 Order at 4.

FN155. *Id.*

FN156. *Id., citing Kyles*, 514 U.S. at 433-35.

***21** Willis argues that the CCA's conclusion on materiality should be rejected because it was "contrary to clearly established law." This Court agrees. The CCA's finding that the Wright report failed to meet the materiality standard was erroneous because it took into account the sufficiency of the evidence, in direct contrast to *Kyles v. Whitley*. FN157 There, the Supreme Court explicitly stated that the materiality analysis under *Brady* is not a sufficiency of the evidence test. FN158

FN157. 514 U.S. at 434-45.

FN158. *Id. See also Williams*, 529 U.S. at 414 (O'Connor, J., concurring) (recognizing that the Virginia Supreme Court also applied the appropriate *Strickland* standard); *East*, 123 F.3d at 239 ("The Supreme Court has warned that the *Brady* materiality analysis is not a sufficiency of evidence test.").

Willis also argues that the CCA's use of the sufficiency of the evidence test to reject the materiality of the Wright report is contrary to clearly established federal law, even if the CCA did not exclusively rely on that test. In *Williams v. Taylor*, the Supreme Court held that, because it was impossible to tell how much the state court's use of the wrong standard affected its final determination, the state's determination was contrary to law. FN159

FN159. *Williams*, 529 U.S. at 414. The State argued in *Williams* that even though the Virginia Supreme Court relied on the incorrect standard, the analysis was not contrary to law because the Virginia court had also cited *Strickland*. Brief of Resp. in *Williams v. Taylor*, N 98-8384, 1999 WL 642451 at *37-38.

Similarly, the CCA's use of the incorrect legal standard is particularly problematic in this case because the two other factors the CCA used to judge materiality were also questionably applied. In holding that the report was not material, the other factors considered by the CCA were 1) no expert testimony was presented at trial on the issue of future dangerousness and 2) the punishment phase was "relatively brief with two law enforcement officers providing reputation testimony." FN160 The materiality standard depends "almost entirely on the value of the evidence relative to the other evidence mustered by the State." FN161 Thus, the fact that the evidence admitted at the penalty phase was limited-devoid of any expert testimony and consisting solely of two witnesses, two Pecos County law enforcement officers who provided conclusory and unsubstantiated descriptions of Willis's reputation in unspecified communities-supports, rather than undermines, a finding of materiality.

FN160. *Ex Parte Willis*, No. 27, 787-01 Order at 4.

FN161. *Spence*, 80 F.3d at 995. *See also United States v. Agurs*, 427 U.S. 97, 112 (1976).

The State argues that the report was not suppressed because defense counsel should have obtained it themselves and did not exercise due diligence in attempting

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to acquire the report. To establish a *Brady* violation, a petitioner must show that the information allegedly withheld was not available through due diligence.[FN162] In support of its argument on this point, the State argues facts expressly rejected by the state trial court. Under section 2254(e)(1), state court findings of fact are presumed to be correct, and the party rebutting the presumption of correctness must do so by clear and convincing evidence.[FN163] The State does not claim the state trial court's factual findings should not be presumed correct. Moreover, the state trial court's finding that the report had been suppressed under *Brady* was not rejected by the CCA.

FN162. *United States v. Mmahat*, 106 F.3d 89, 94 (5th Cir.1997).

FN163. *Pondexter*, 346 F.3d at 146. *See also Burden v. Zant*, 498 U.S. 433, 436 (1991) (per curiam) (finding that presumption of correctness of state court fact findings applies when factual determination supports petitioner as well as when factual determination supports the State); *Valdez v. Cockrell*, 274 F.3d 941, 947 (5th Cir.2001).

Nonetheless, for the following reasons, this Court finds that the state trial court's findings of fact are supported by the record. First, prior to trial, defense counsel successfully moved for disclosure of all evidence relevant to mitigation or exoneration of Willis.[FN164] Second, although defense counsel was aware of psychological evaluation for the purpose of determining competency, counsel was not told and the prosecution did not reveal that an assessment of Willis's future dangerousness had also been conducted.[FN165] Defense counsel must have actual notice that a psychological examination will encompass the issue of future dangerousness.[FN166] Considering that the State was obliged to inform defense counsel of the scope of the evaluation, defense counsel did not fail to meet the standard of due diligence by relying on the State's representations regarding the scope of the examination.[FN167] Furthermore, contrary to the State's assertion, the record supports the trial court's finding that Attorney DeHart did not receive the Wright report.[FN168] Thus, the Wright report was not available through due diligence of defense counsel.

FN164. Pet.'s Reply at 58, *citing* Blank Aff., Ex. 8, 9.

FN165. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4.

FN166. *Powell v. Texas*, 492 U.S. 680, 685 (1989); *Satterwhite v. Texas*, 486 U.S. 249, 255-56 (1988).

FN167. *Strickler v. Greene*, 527 U.S. 263, 283-84, 288 (1993); *Banks v. Dretke*, 124 S.Ct. 1256, 1273 (2004) (petitioner cannot be faulted for relying on State's representations).

FN168. Defense Attorney Woolard testified that DeHart did not receive the report. Dr. Wright was not contacted by DeHart. Dr. Wright did not forward a copy of the report to DeHart. The testimony eliminates the possibility that the State gave DeHart a copy of the report because Prosecutor Johnson claims he did not know the Wright report existed.

***22** The Court finds that the Wright report was suppressed and was both favorable and material under clearly established law. Moreover, the disclosure of the report would have led defense counsel to Dr. Wright's favorable testimony. That additional benefit to defense counsel further supports a finding that the report is both favorable and material.[FN169] The Wright report presented an opinion by a qualified mental health expert, approved and hired by the State,[FN170] who believed Willis was not a good candidate for the death penalty and who would have testified that Willis was not a future danger. Considering the lean evidence the State presented at the penalty phase, had the jury been aware of Dr. Wright's conclusions, there is a reasonable probability that at least one juror would have answered "no" to the question on future dangerousness,[FN171] and Willis would not have been sentenced to death. Absent Dr. Wright's report and testimony, the Court does not have confidence in the outcome of the penalty phase.

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FN169. *Cf. East*, 55 F.3d at 1003 (Prosecution had a duty to disclose a punishment phase witness' rap-sheet because if the prosecution had revealed it, defense counsel would have investigated the witness' criminal history and eventually uncovered the witness' mental records in the files of the Bexar County Court.).

FN170. During a deposition before the state habeas hearing, the lead trial prosecutor, J.W. Johnson denied that he had ever met or heard of Dr. Wright at the time of Willis's trial. Evidence produced during the state habeas hearing showed that Johnson had worked with Dr. Wright on two other cases before Willis's trial. Johnson could not explain why, if Dr. Wright was not conducting the examination at the request of the State, Willis was given *Miranda* warnings before the examination.

FN171. *See Kirkpatrick v. Whitley*, 992 F.2d 491, 497 (5th Cir.1993).

Because of the numerous errors the CCA made in addressing this claim: applying the sufficiency of the evidence test for materiality; erroneously stating that the brief nature of the evidence presented at the penalty phase undermined, rather than supported, a finding of materiality; and failing to consider that disclosure of the report would have led to the favorable testimony of Dr. Wright, the CCA's finding that the Wright report was not favorable was contrary to and an unreasonable application of clearly established federal law. FN172

FN172. *See* 28 U.S.C. § 2254(d).

VI. Ineffective Assistance of Counsel

The constitutional standard for determining whether a criminal defendant has been denied the effective assistance of counsel was announced by the Supreme Court in *Strickland v. Washington*. FN173 "The benchmark for judging any claim of ineffectiveness must be whether counsel's conduct so undermined the proper functioning of the adversarial process that the trial cannot be relied on as having produced a just result." FN174 A two-prong test guides the inquiry:

FN173. 466 U.S. 668 (1984).

FN174. *Id.* at 686. *See also Nealy v. Cabana*, 764, F.2d 1173, 1177 (5th Cir.1985).

First, the defendant must show that counsel's performance was deficient. This requires showing that counsel made errors so serious that counsel was not functioning as the "counsel" guaranteed the defendant by the Sixth Amendment. Second, the defendant must show that the deficient performance prejudiced the defense. This requires showing that counsel's errors were so serious as to deprive the defendant of a fair trial, a trial whose result is reliable. FN175

FN175. *Strickland*, 466 U.S. at 687.

Courts are extremely deferential in scrutinizing the performance of counsel and make every effort to eliminate the distorting effects of hindsight. FN176 It is strongly presumed that counsel rendered adequate assistance and made all significant decisions in the exercise of reasonable professional judgment. FN177 An attorney's strategic choices informed by a thorough investigation of relevant facts and law are virtually unchallengeable. FN178 Thus, Willis must overcome a strong presumption that the conduct of his trial counsel falls within a wide range of reasonable professional assistance. FN179

FN176. *See Lockhart v. Fretwell*, 506 U.S. 364, 372 (1993); *Burger v. Kemp*, 483 U.S. 776, 789 (1987); *Strickland*, 466 U.S. at 689; *Green v. Johnson*, 116 F.3d 1115, 1122 (5th Cir.1997).

FN177. *See Strickland*, 466 U.S. at 690; *Duff-Smith v. Collins*, 973 F.2d 1175, 1182 (5th Cir.1992).

FN178. *See Boyle v. Johnson*, 93 F.3d 180, 187-88 (5th Cir.1996).

FN179. *See Strickland*, 466 U.S. at 687-91; *Belyeu v. Scott*, 67 F.3d 535, 538 (5th Cir.1995).

***23** To establish he has sustained prejudice, Willis

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"must show that there is a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different. A reasonable probability is a probability sufficient to undermine confidence in the outcome." FN180

FN180. *Strickland*, 466 U.S. at 694; *Cantu v. Collins*, 967 F.2d 1006, 1016 (5th Cir.1992).

A. The Texas CCA's Analysis

The state trial court held that Willis was entitled to relief under *Strickland*. The CCA overruled the trial court's recommendation of relief on this basis. The CCA divided the analysis of ineffective assistance for Willis's two trial attorneys: Attorney DeHart and Attorney Woolard. However, the CCA cited no federal authority requiring a petitioner to show that each attorney's conduct separately meets the *Strickland* standard as opposed to the defense representation as a whole. Citing its own case, the CCA stated that "[i]n view of the multiple counsel representation of applicant, it was incumbent upon applicant to prove deficient performance by all counsel." FN181 The CCA also stated that the record did not reflect the two defense attorneys' respective duties, responsibilities and division of labor.

FN181. *Ex Parte Willis*, No. 27, 787-01, Order at 5 (citing *McFarland v. State*, 928 S.W.2d 482 (Tex.Crim.App.1995)).

For Attorney DeHart, the CCA conducted an overview of DeHart's background. The CCA mentioned that Woolard had faith in DeHart's ability, that he had been licensed for twenty-one years at the time of Willis's trial, that he had previously been employed as an Assistant District Attorney for four years, that he was then the Presiding Judge of the 384th District Court in Alpine, and that he was considered a "seasoned veteran," due to his criminal law experience. Thus, the CCA held that on the record before it, Willis could not overcome the presumption that DeHart provided effective assistance of counsel.

For Attorney Woolard, the CCA noted that Woolard had been licensed to practice law for four years, and that Willis's case was his first capital trial. The CCA also stated that Woolard was surprised Willis was found guilty, and that Woolard had "loaded his guns" for the guilt-innocence phase and decided not to present mitigation evidence. The CCA mentioned that Woolard spoke with a number of Willis's friends and relatives and that Investigator Caspari also spoke with friends and relatives. Then the CCA found that Woolard made all significant decisions in the exercise of reasonable professional judgment. FN182 Thus the CCA held that Willis did not overcome the presumption that Woolard provided effective assistance of counsel. FN183

FN182. *Id.* at 6.

FN183. *Id.* at 5.

The CCA's overruling of the trial court was consistent with the trial court's factual findings. The CCA relied on the record from the post-conviction trial court but attached a different legal significance to facts found by that court. For example, both the CCA and the trial court noted that defense counsel spoke with a number of friends and relatives of Willis in preparation for the penalty phase. FN184 The CCA also found that facts that were not relied upon by the trial court, such as defense counsel's experience, were legally significant. Furthermore, the CCA based its decision in part on its legal determination that Willis was required to show that each defense counsel individually met the standard for ineffectiveness. Because the CCA's resolution of the claim is not directly contrary to the trial court's factual findings, this Court must, as detailed above, defer to the state trial court's findings of fact.

FN184. *See id.* at 6; *Ex Parte Willis*, No. 27, 787-01, Find. of Fact and Conc. of Law at 20.

***24** Before addressing Willis's specific allegations of ineffectiveness, the Court finds that the CCA violated clearly established federal law in holding that Willis had to show each attorney's performance, as opposed to the defense representation as a whole, met the *Strickland* standard. *Strickland* does not require that the applicable analysis be conducted separately for each attorney. FN185 Furthermore, later Supreme Court opinions

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applying *Strickland*, in which the petitioner was represented by more than one attorney at trial, conduct one *Strickland* analysis for the performance of defense counsel as a whole.[FN186] There is no support for the CCA's holding that Willis must prevail on separate analyses of deficient performance and prejudice for each attorney. The CCA's ruling in this regard was therefore contrary to clearly established law.[FN187]

FN185. *Strickland*, 466 U.S. at 687.

FN186. *See Williams*, 529 U.S. at 370 (alleging "trial attorneys had been ineffective during sentencing"); *Wiggins v. Smith*, 539 U.S. 510 (2003) (engaging in one *Strickland* analysis for petitioner's two defense attorneys, two public defenders in the same office).

FN187. Respondent's Motion for Summary Judgment states that Willis cannot prevail on his ineffective assistance of counsel claim because he did not present any testimony from Attorney DeHart at the state habeas hearing. There is no post-*Strickland* case requiring the testimony of both trial counsel as a prerequisite to an ineffectiveness claim. On the contrary, federal law requires that the analysis for an ineffectiveness claim is conducted as to defense counsel performance as a whole, not separately for each attorney. Thus, Respondent's argument in this regard fails.

B. Ineffective Assistance of Counsel At the Guilt-Innocence Phase

First, the Court considers Willis's allegations that defense counsel's performance was deficient on various grounds during the guilt-innocence phase of trial. The Court then separately considers the issue of prejudice as required by *Strickland.*

1. Failure to Investigate Demeanor & Failure to Discover Unnecessary Medication

The CCA overruled the trial court without addressing Willis's substantive allegation of ineffectiveness based upon defense counsel's failure to investigate the jail records or discover the unjustified use of anti-psychotic medications. As stated above, the CCA based its overruling of the trial court on defense counsel's legal experience and its legal determination that Willis was required to show that each attorney met the standard for ineffectiveness.[FN188]

FN188. The other factors mentioned by the CCA are relevant to defense counsel's performance during the penalty phase.

After the habeas hearing, the state trial court found that defense counsel recognized a problem with Willis's demeanor and suspected the problem could be related to medication. Despite counsel's awareness and suspicion, Judge Jones found defense counsel made no effort or inquiry to determine the cause of Willis's appearance or demeanor, even though defense counsel had the right to access Willis's medical records and it is "rudimentary" and "basic" for counsel to gather records.[FN189] Willis now claims this failure to investigate constituted deficient performance and ineffective assistance of counsel.

FN189. *Ex Parte Willis*, No. 27, 787-01, Find. of Fact and Conc. of Law at 17.

In response, the State first argues counsel was not unreasonable to believe that Willis's flat affect and lack of emotion was caused by medications for his back pain. The State points to the Pecos County Jail medical log, which reflects Willis took a number of medications for back pain. The medical log does not support the State's argument as to defense counsel's belief because defense counsel did not obtain Willis's Pecos County Jail medical records.[FN190] Defense counsel could not have known what medications Willis was taking, for back pain or otherwise. Nor could defense counsel have known the effect or potential effect of those medications. Therefore, counsel could neither have based an understanding of Willis's manner on that information, nor have made strategic trial decisions based thereon.

FN190. *Id.* at 16-17.

***25** The critical failing of counsel with respect to Willis's demeanor was the failure to pursue or in any manner respond to counsel's admitted concern over Wil-

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lis's demeanor, whether by gathering Willis's jail medical records or speaking with an expert.[FN191] *Strickland* requires that the Court defer to counsel's decisions when those decisions are both fully informed and strategic, in the sense that it is expected, on the basis of sound legal reasoning, to yield some benefit or avoid some harm to the defense.[FN192] Defense counsel cannot make informed or strategic decisions in the absence of a reasonable investigation and thus *Strickland* does not require deference to decisions that are not informed by an adequate investigation into the controlling facts and law.[FN193] Interpreting *Strickland*, the Supreme Court stressed that a decision based on less than a complete investigation is reasonable only to the extent that the limits on the investigation were reasonable.[FN194]

FN191. *Cf.*, *Roberts v. Dretke*, 356 F.3d 632, 639 (5th Cir.2004). "Where, as here, counsel is aware of the client's history of mental problems, the reasonableness of a decision made by counsel not to investigate that history is suspect." *Id.*

FN192. *Moore v. Johnson*, 194 F.3d 586, 615 (5th Cir.1999).

FN193. *Id. See also Andrews v. Collins*, 21 F.3d 612, 623 (5th Cir.1994) (counsel's strategic decision entitled to deference because supported by an adequate investigation which included contact with at least twenty-seven people); *Drew v. Collins*, 964 F.2d 411, 423 (5th Cir.1992) (counsel's strategic decision entitled to deference because counsel made "reasonable inquiries" into defendant's mental state); *Bouchillon v. Collins*, 907 F.2d 589, 597 (5th Cir.1990) ("Tactical decisions must be made in the context of a reasonable amount of investigation, not a vacuum."); *Wiggins*, 539 U.S. at 533 (" 'strategic choices made after less than complete investigation are reasonable' only to the extent that 'reasonable professional judgments support the limitations on investigation." ') (citation omitted).

FN194. *Wiggins*, 539 U.S. at 533.

Neither the State, Willis, the state trial court, nor the CCA articulated any benefit to the defense case from Willis's being medicated with unnecessary antipsychotic drugs. To the contrary, the harm to Willis is well-documented, as discussed previously. Defense counsel could not have made a decision about the benefits or risks of Willis's medication because counsel did not go to the minimal effort required to investigate Willis's demeanor, that is, to gather Willis's jail medical records and discover he was being unnecessarily medicated. In this case, the limits on investigation-the failure to gather the jail medical records-are not merely unreasonable. Considering counsel's admitted concern for Willis's demeanor, the limits on investigation here are beyond explanation. Counsel's failure to address or rectify Willis's demeanor is thus not entitled to a presumption of reasonableness because it was neither informed by a reasonable investigation nor supported by any logical position that such failure would benefit Willis's defense, and thus cannot possibly be construed as strategic.[FN195]

FN195. *See Moore*, 194 F.3d at 616.

The Court finds that defense counsel's failure to investigate Willis's demeanor was deficient performance under *Strickland.* Counsel's failure to investigate Willis's demeanor was objectively unreasonable because: 1) counsel was concerned with Willis's demeanor; 2) counsel could have addressed that concern by obtaining Willis's jail medical records but did not do so, even in light the standard that gathering medical records is a "basic" part of defense counsel's duties in a capital case; and 3) no strategic decision supported the failure to gather the medical records.

The Court also finds that the CCA's rejection of this claim was an unreasonable application of *Strickland.*[FN196] In addition to errors made by the CCA already discussed, the CCA's determination that counsel made all significant decisions in the exercise of reasonable professional judgment is unreasonable. The CCA did not assess whether the failure to gather the jail medical records actually demonstrated reasonable professional judgment.[FN197] Courts may not defer to decisions by counsel that are not strategic or are not informed by a

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reasonable investigation or reasonable limits on investigation.[FN198] The CCA's assumption that the failure to investigate was adequate was thus an unreasonable application of clearly established federal law.[FN199]

FN196. *Strickland* is clearly established federal law within the meaning of 28 U.S.C. § 2254. *See Wiggins*, 539 U.S. at 522 (referring to the " 'clearly established' precedent of *Strickland.*"); *Dowthitt*, 230 F.3d at 743 ("the merits of an ineffective assistance of counsel claim are governed by the well-established rule of *Strickland v. Washington.*").

FN197. *See Wiggins*, 539 U.S. at 527.

FN198. *See Strickland*, 466 U.S. at 690-91; *Wiggins*, 539 U.S. at 528; *Moore*, 194 F.3d at 615.

FN199. *See Wiggins*, 539 U.S. at 528.

2. Failure to Object to Prosecution's Use of Willis's Demeanor at Guilt-Innocence Phase

***26** Willis also contends trial counsel violated his right to effective assistance of counsel by failing to object to the prosecutor's reference to his trial demeanor during closing arguments. Willis raises four statements by the prosecution as the basis for his claim: 1) reference to Willis's "dead pan, insensitive, expressionless face;" [FN200] 2) description of Willis's "cold fish eyes on everybody and everything that has come in here, and he just merely stared and watched very impassively, very cold heartedly, much like he probably did that morning outside the fire when he watched and listened;" [FN201] 3) commenting that "[t]his guy has been able to sit in here and observe everyone that took the stand, look at all of you throughout this proceeding;" [FN202] and 4) stating that "[y]ou know, it's hard for us to even imagine the perverted thoughts and the fascination this Defendant must have had standing out there ... observing and knowing what was going on inside ... What kind of thoughts go through somebody's mind like that? You know, what he was thinking when he is watching this satanic deed that he did? People burning up in there ... That's what he was doing, listening and watching ... And he showed no mercy or remorse afterwards." [FN203]

FN200. Vol. 28 at 83, ll. 1-3.

FN201. Vol. 28 at 83, ll. 8-12.

FN202. Vol. 28 at 65, ll. 14-16.

FN203. Vol. 28 at 82, ll. 4-24.

Before addressing the substance of Willis's arguments relative to these remarks, the Court finds two unworthy of review. Willis challenged the third remark on direct appeal. The CCA found the third remark was not a comment on Willis's demeanor but juxtaposed Willis's presence at trial with the absence of the deceased victim.[FN204] The Court likewise finds that this prosecutorial remark was not a comment on Willis's trial demeanor, and therefore, should not be included in this analysis.

FN204. *See* Vol. 28 at 64, ll. 13-21 ("My clients aren't in the courtroom today. They are dead. Understand the distinction....").

Next, the State argues Willis is barred from presenting the fourth remark because he did not cite the remark during the state habeas process. Although the Court will not consider the fourth remark for reasons explained below, the remark is not barred, under the Texas abuse-of-writ doctrine, as the State argues. The State relies upon two cases, both of which are properly distinguished from the instant case, to support its argument.

In *Anderson v. Harless*, the Supreme Court held that a claim was not exhausted when it was raised as a state law issue to the state courts, and thus the corresponding federal constitutional claim had not been presented to the state courts.[FN205] Willis's case is distinguished from *Anderson* because Willis presents a federal claim relying on federal law. Therefore, the Court will not eschew consideration of the fourth remark based upon *Anderson.* In *Nobles v. Johnson*, the petitioner presented in the state courts a Sixth Amendment claim that he had been denied the effective assist-

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ance of a competent court-appointed psychiatrist.[FN206] In federal court, the petitioner raised a claim of ineffective assistance of counsel based on failure to present mitigating evidence.[FN207] Nobles argued the "gist" of the claims was the same and he should therefore be able to present the federal court with the "re-postured" claim.[FN208] The Court rejected Nobles's argument, and held that when the two claims required "wholly different inquiries," the petitioner had not provided the state court with the requisite "fair opportunity to apply controlling legal principles to the facts bearing upon his constitutional claim."[FN209] However, such is not the case for Willis's claim. Here, the state court was given the opportunity to consider precisely the same legal claim with the same facts. In Willis's case, the difference in the federal petition is the addition of supplemental factual examples of prosecutorial comments.[FN210] Including new facts in a federal habeas petition does not render the federal claim based upon those facts unexhausted unless the facts materially alter the legal claim presented to the state courts.[FN211] The facts must be material and must put the claim in a significantly different and stronger evidentiary posture than it was when presented to the state courts.[FN212]

FN205. *Anderson v. Harless,* 459 U.S. 4, 6 (1982).

FN206. *Nobles v. Johnson,* 127 F.3d 409 (5th Cir.1997).

FN207. *Id.* at 420.

FN208. *Id.*

FN209. *Id.* (internal citations omitted).

FN210. The additional facts are not new facts in the sense that the examples were part of the trial record that was presented to the trial court during the post-conviction hearing.

FN211. *Vasquez v. Hillery,* 474 U.S. 254, 260 (1986).

FN212. *Dowthitt,* 230 F.3d at 745-46 (finding a petitioner's claim exhausted despite the presentation of two additional expert psychological reports that were not presented to the state courts).

***27** Willis exhausted his claim with regard to the fourth remark because its addition does not materially alter the legal claim presented to the state court, but the addition of the fourth remark does not place Willis's federal claim in a stronger evidentiary posture. It is a less dramatic example of prosecutorial comment on non-testimonial demeanor than either the first or second remarks. Consequently, the Court finds that the fourth remark is not material and does not make Willis's claim significantly stronger or different.

Because the fourth remark does not add to the claim, the Court will not consider the remark in determining the merits of Willis's claim. The merits of the claim will therefore be determined on the basis of the first and second remarks only.

To begin, Willis must demonstrate that counsel's performance fell below an objective standard of reasonableness.[FN213] Willis argues that under Texas or federal law, the prosecutor's remarks constituted error, and thus, a reasonable defense attorney would have objected. Under state law, Willis argues that the CCA found error when the prosecution commented on the defendant's non-testimonial demeanor by describing the defendant as "cold, unnerved, uncaring ... [and] unsympathetic."[FN214] Willis argues that defense counsel's failure to object was objectively unreasonable because, under this precedent, the trial court would have committed reversible error by refusing to sustain an objection.[FN215]

FN213. *See Strickland,* 466 U.S. at 687.

FN214. *Good v. State,* 723 S.W.2d 734, 736 (Tex.Crim.App.1986).

FN215. *See Vaughn v. State,* 931 S.W.2d 564, 567 (Tex.Crim.App.1996).

The State responds that prosecutorial comment on a defendant's non-testimonial demeanor is not error according to the Supreme Court .[FN216] The State con-

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fuses the legal standard for reviewing a state court's determination of a claim under 28 U.S.C. § 2254(d), which requires a showing that the state court unreasonably applied clearly established federal law, with the standard for ineffective assistance of counsel.[FN217] The proper inquiry is whether a reasonably effective attorney would have objected to the prosecutor's statements, not whether the prosecutorial statements themselves violated clearly established federal law.

FN216. *See Bishop v. Wainwright*, 511 F.2d 664, 667 (5th Cir.1975) (prosecutor's comments about defendant's courtroom demeanor raise no habeas corpus issue).

FN217. *See Strickland*, 466 U.S. at 668.

On Willis's direct criminal appeal, the CCA held that the comments were improper under state law.[FN218] On habeas review, the state trial court found that the prosecution commented on Willis's non-testimonial demeanor, that the prosecution urged jurors to infer lack of remorse from the non-testimonial demeanor and that defense counsel failed to object.[FN219] Willis argues defense counsel's performance was deficient under the first prong of *Strickland* because a reasonable attorney would have objected to the comments as improper 1) under state law, given the CCA's determination on direct appeal that the prosecutor's comments violated state law, and 2) under federal law, as a violation of Willis's fundamental right against self-incrimination protected by the Fifth Amendment.

FN218. *Willis*, 785 S.W.2d at 386 n. 8.

FN219. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 17.

To the extent that the State argues that the failure to object was not deficient performance because the objection would have been futile or without merit,[FN220] the Court disagrees. The objection would have been neither futile nor meritless. To the contrary, the CCA determined on direct appeal that the prosecutor's comments violated state law,[FN221] and therefore defense counsel's objection would have been objectively reasonable. An objectively reasonable attorney would have objected to the prosecutorial comments as improper under state law. Moreover, because of the CCA's determination on direct appeal, a determination that defense counsel's failure to object was sufficient performance would have been unreasonable under *Strickland*, had the CCA applied federal law to this particular allegation of ineffectiveness. Because a reasonable attorney would have objected to the comments as improper under state law, it is not necessary for the Court to decide whether a reasonable attorney would have objected under federal law. The Court holds that defense counsel performed deficiently under the first prong of *Strickland*.

FN220. *See Morlett v. Lynaugh*, 851 F.2d 1521, 1525 (5th Cir.1988), *cert. denied*, 489 U.S. 1086 (1989).

FN221. *Willis*, 785 S.W.2d at 386 n. 8.

3. Prejudice at the Guilt-Innocence Phase

***28** The Court now considers whether Willis was prejudiced by his trial counsel's deficient performance during the guilt-innocence phase. The Court views together all instance of deficient performance by defense counsel during the guilt-innocence phase to determine whether Willis was prejudiced.[FN222] To establish prejudice, Willis must show a reasonable probability exists that, but for counsel's unprofessional errors, the result of the proceeding would have been different.[FN223]

FN222. *See Williams*, 529 U.S. at 399, 416 (holding that the state trial court was correct in determining prejudice based on "the entire post-conviction record, viewed as a whole and cumulative of mitigation evidence presented originally, and faulting the Virginia Supreme Court for its piecemeal approach to the ineffectiveness claim."); *Moore*, 194 F.3d at 619 (considering the cumulative errors of counsel and finding prejudice).

FN223. *See Kimmelman v. Morrison*, 477 U.S. 365, 375 (1986); *Darden v. Wainwright*, 477 U.S. 168, 184 (1986); *United States v. Conley*, 349 F.3d 837, 841-42 (5th Cir.2003); *Williams*

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v. Collins, 16 F.3d 626, 631 (5th Cir.1994); and *United States v. Bounds*, 943 F.2d 541, 544 (5th Cir.1991).

Had defense counsel conducted a reasonable investigation into Willis's demeanor, or at the least gathered his jail medical records, counsel would have learned that Willis was being medicated, absent medical need, with inappropriately high doses of antipsychotic drugs. And, as stated in the section addressing Willis's involuntary medication claim, Willis was severely prejudiced by the administration of the unnecessary antipsychotic medications. The Supreme Court has recognized the harm that can arise from a defendant being medicated with antipsychotic drugs during trial.[FN224]

FN224. *See Riggins*, 504 U.S. at 142 (Kennedy, J., concurring). "It is a fundamental assumption of the adversary system that the trier of fact observes the accused throughout the trial, while the accused is either on the stand or sitting at the defense table.... At all stages of the proceedings, the defendant's behavior, manner, facial expressions, and emotional responses, or their absence, combine to make an overall impression on the trier of fact, an impression that can have a powerful influence on the outcome of the trial.... The side effects of antipsychotic drugs may alter demeanor in a way that will prejudice all facets of the defense.... As any trial attorney will attest, serious prejudice could result if medication inhibits the defendant's capacity to react and respond to the proceedings and to demonstrate remorse or compassion."); *Coy*, 487 U.S. at 1016-20 (emphasizing the importance of the face-to-face encounter between the accused and the accuser).

In addition, here the State used Willis's demeanor and flat affect as an argument in support of his guilt. The state trial court found that the State referred to Willis's demeanor during trial as evidence of guilt and future dangerousness and that the State urged jurors to infer a lack of remorse based on Willis's demeanor. These factual findings, to which this Court must defer, further support that Willis was prejudiced by the deficient performance of counsel in failing to investigate Willis's demeanor or determine the medication that cause the demeanor.

The State also argues that Willis cannot prevail on his ineffective assistance claim grounded on counsel's failure to investigate Willis's demeanor and failure to detect the antipsychotic medications because he has not shown that had counsel investigated Willis's demeanor, counsel would have found an expert available to testify at that time regarding the alleged impropriety of antipsychotic medications. Testimony presented at Willis's post-conviction hearing demonstrated that, based on 1987 standards, the medication given to Willis was medically inappropriate, and Judge Jones found as much in fact.[FN225] The Court finds that a reasonably qualified expert in 1987 would have testified to such and reasonably effective defense counsel would have obtained one.

FN225. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 16-17; Lipman Dep. at 33, ll. 11-17; 52, ll. 3-53; 37, ll. 21-38, ll. 14-54; Tr. at 252, ll. 20-24; Tr. at 268, ll. 1-5.

Therefore, the Court finds that Willis was prejudiced by defense counsel's failure to investigate his demeanor. The CCA's determination that Willis was not prejudiced is objectively unreasonable considering the clarity of the Supreme Court's jurisprudence on the potential harm of medicating criminal defendants with antipsychotic drugs,[FN226] as well as the evidence in the record regarding the harm to Willis.[FN227] The deficiencies in counsel's performance during the guilt-innocence phase rendered the proceeding fundamentally unfair and the result of the proceeding unreliable.[FN228] Willis received ineffective assistance of counsel during the guilt-innocence phase because Willis's trial counsel were deficient-by failing to investigate his demeanor and by failing to object to the prosecution's reference to his demeanor to establish guilt and future dangerousness-and because Willis was prejudiced by these deficiencies.

FN226. *See Riggins*, 504 U.S. at 127; *Harper*,

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494 U.S. at 210; *Sell*, 539 U.S. at 176-77.

FN227. The CCA found that Willis did not demonstrate deficient performance of counsel, and thus, the CCA did not substantively analyze the prejudice requirement of *Strickland* beyond simply stating that Willis had failed to show prejudice. *See Ex Parte Willis*, No. 27, 787-01, Order at 5.

FN228. *See Soffar v. Dretke*, 368 F.3d 441, 471 (5th Cir.2004), *citing Lockhart*, 506 U.S. at 372 .

C. Ineffective Assistance at the Sentencing Phase

***29** The Court turns now to Willis's claims of ineffective assistance of counsel at the sentencing phase.

1. Failure to Investigate and Discover the Wright Report

Willis argues counsel was ineffective for failing to investigate and discover the report of Dr. Wright, the psychologist who examined Willis before trial at the request of the prosecution. As detailed above, the Wright report indicated that Willis was not a future danger. For the reasons outlined in the following section addressing claims of prosecutorial suppression, the Court holds that the prosecution suppressed the Wright report. And therefore, defense counsel's performance was not deficient, nor counsel ineffective, for failing to investigate that which the State bore a duty to disclose and that which was hidden from the defense.

2. Failure to Object to the State's Descriptions of Willis as an Animal

Willis argues that counsel's failure to object to prosecutorial comments characterizing Willis as an animal constituted ineffective assistance of counsel. The state trial court found that the prosecution characterized Willis as a “pit bull,” and “animal,” and a “rat,” during voir dire, closing arguments and at the penalty phase. During voir dire the following exchange took place between Prosecutor Johnson and one juror.[FN229] Defense counsel did not object.

FN229. Vol. 5 at 15, ll. 4, 13-16.

Q: Okay. Well, let me give you a hypothetical here now. You are aware of that case out in San Diego where that old boy went to a McDonald's and killed 16 people in about 30 minutes.

A: Right.

Q: Did they ever develop a motive for that man going berserk?

A: No. I don't believe?

Q: Okay. There can be a lot of speculation.

A: Right.

Q: But unless that person tells you, you don't know.

A: That's right.

Q: And that's what I need to know from you. Are you going to require yourself to know why they did something?

A: No. I don't believe so. As long as they did it, I believe I would go ahead and vote for it.

Q: We get back to the premise that actions speak louder than words.

A: Right.

Q: Okay. Because these-you have been reading about these pit bull attacks?

A: Right.

Q: You know, we don't need-you can't talk to the dog and find out why it wanted to eat the little four year old baby, can you?

A: Right.

Q: You know it's a mean, vicious dog, and it's capable of hurting, crippling, and killing people?

A: Right, sir.

Q: And once it shows it has that propensity to do that to a human being, you want to find out why the dog

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went off its rocker and started doing that or you take action?

A: I think I would take action on that.

Q: Okay. I think most of us will, but I want to make sure that you understand that the motive of this Defendant in doing this act and premeditation are not elements that the State is required to prove in this courtroom to gain a guilty conviction and to gain a death sentence.

A: Right, sir.

***30** Q: Okay?

A: Okay.

Prosecutor Johnson had the following exchange with another juror.[FN230] Defense counsel did not object.

FN230. Vol. 4 at 76, ll. 13-77, 15.

Q: Okay. But when it comes to proof, now, his motive isn't one of them. That's not going to bother you?

A: I don't think so, if I have enough, like I said, enough proof to know that he did it.

Q: Okay. Because there are lots of times people do things and they don't tell you why they did it. Even though you want to know, they ain't going to tell you why they did it.

A: Yeah, I understand that. I'm that way to sometimes. I do things.

Q: But when that happens-and we don't know why it happened, and they won't tell us, or it is an animal and it hurt somebody, and it can't tell us either.

A: Right.

Q: But when that happens and we don't know what the motive was, we just say the actions of that person or animal speak loud and clear, don't they?

A: Right.

Q: That's when we go by the actions rather than you are going to explain it or say about it or whatever the words may be.

A: Uh-huh.

Q: Okay. That's all we are coming in here and doing is showing you this Defendant's actions on June 11, 1986, that resulted in the death of this woman. That's going to be all right?

A: Okay?

Q: Okay. Because we can't get into his mind.

A: Right.

Q: And, of course, he doesn't have to take the stand either and tell you why he did it because he has a right to remain silent. Can you go along with that?

A: Yeah.

Prosecutor Johnson also questioned another juror as follows.[FN231] Defense counsel objected to this statement.

FN231. Vol. 11 at 64, ll. 13-24.

Q: ... You have two children, eight and twelve. If they were playing out in the front yard and some person you had never seen before was walking a pit bull dog and that pit bull dog breaks his leash and attacks your eight your [sic] old and gets him down, hurts him real bad, you come running out of the house here and hearing all the commotion, you are not going to stop and find out the reasons why that dog is attacking your child, are you?

A: Well, no.

Q: You are just going to react.

A: Right.

Q: You are going to take care of that dog.

Finally, the State made the following statement during closing argument of the guilt-innocence phase:

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> [L]adies and gentlemen, this is an animal sitting right down here at the end of the table, just like one of them pit bull dogs in the back of the Robinson's [sic] yard. They attack and destroy stuff and you don't know why. You can't get in their mind....You don't need to know the motive. Actions speak loud enough. This is an animal.[FN232]

FN232. Vol. 28 at 70, ll. 3-10.

The statement during closing argument was objected to and thus was not an instance of deficient performance on the part of trial counsel.[FN233]

FN233. This prosecutorial comment was not raised as a point of error on direct appeal. Willis does not argue that direct appeal counsel was ineffective for failing to raise it.

In a footnote, Willis raises additional comments by the prosecutor, to which defense counsel did not object, that are also part of Willis's claim of ineffective assistance of counsel.[FN234] The comments fall into three categories: comments about Willis's exercise of his due process rights, [FN235] inflammatory arguments,[FN236] and arguments justifying the death penalty based on its deterrent effect.[FN237] None of these specific comments were raised in the state courts. The State argues the statements are therefore not exhausted. Because this Court finds that Willis's claim is rejected on the merits, it is unnecessary for the Court to decide whether the additional remarks are exhausted.

FN234. *See* Pet. at 112, n. 43.

FN235. For example, the prosecutor stated:

> "If it was what was fair and what was right, I submit to you back in the old days, our grandparents might have taken him out there and put him in the house, boarded it up, and set it on fire. That would have been justice. That would have been an eye for an eye, but today in our civilized society, even out here in West Texas where we are hard people, we have to live by the laws of our Constitution and our country, which many of us go to war for and defend for something like this to come in here and have his due process." Vol. 29 at 43, ll. 11-20.
>
> "[H]e wanted his due process. He wanted his trial by 12 people. That's the type they are. They will be the judge and the jury and the executioner but when it comes to their turn, no, no, no. They want to run behind the Constitution, and then they want to run behind their rights, which they don't give to no one [sic] else." Vol. 29 at 46, ll. 18-23.
>
> "Out here in West Texas, I have always taken great pride in the fact that we are pretty hard people.... And just two generations ago, ladies and gentlemen, our grandparents lived out here under the laws of Judge Roy Bean, who was a very famous jurist, and the law was swift and certain back in those days." Vol. 29 at 39, ll. 8-14.
>
> "I'm sorry this proceeding has taken this long, ladies and gentlemen, but, once again, it's due process." Vol. 29 at 48, ll. 12-13.

FN236. The prosecution referred to Willis as: a "satanic demon," (Vol. 29 at 41, ll. 13-19); a "monster from a horror film," (Vol. 29 at 44, ll. 11-14); a "thing," (Vol. 29 at 47, ll. 12-13); and, the "most cowardly, most despicable thing that exists in our society," (Vol. 29 at 45, ll. 19-22).

> The prosecution also made the following comments:
>
> "I'm here to tell you ... when they snap, they snap, and they are not human beings anymore. They have no utility to us. None. What he did was a cold, calculating, heartless act with methodical premeditated deliberation when you are doing something on the floor." Vol. 29 at 44, ll. 15-18.
>
> "[I]t's hard for you to recognize those qualit-

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ies that exist in a person that turns them into something other than a human being, but they have no compassion, no forgiveness in their hearts." Vol. 29 at 40, ll. 1-5.

"And forevermore, once a person reaches that snapping point in their brain where they don't have the ability to discipline themselves from doing violent acts like this, they forever, then, have the capability of hurting and killing us forever, because once you pass that line, you have committed your soul to the Devil." Vol. 29 at 41, ll. 13-19.

FN237. "... I want you to consider the deterrent effect when you come back with your answer to these special issues, because there are people out here who have no compassion for their fellow man, who are cold-hearted, bloody killers....Let him and all other people that are like him that exist out here in our communities or around us or want them to be transients that come into our communities know that we believe in social vengeance.... We want them answered "Yes".... And anyone else like him that wants to come out here.... I want them to know that our juries out here will give it to them. Vol. 29 at 39, ll. 16, 20-47.

***31** As to the merits of the remark, the State argues that the remarks were not improper and thus defense counsel was not deficient for failing to object to them. FN238 The State claims that the prosecution simply used animal imagery to ascertain whether any of the prospective jurors would hold the State to proving motive. Willis argues that the animal imagery was used to dehumanize him. Willis points to comments throughout trial describing Willis as a "rat," FN239 and "animal," FN240 a "satanic demon," FN241 a "monster from a horror film," FN242 a "thing," FN243 and someone who had "committed his soul to the devil." FN244 Willis argued defense counsel should have objected under and *Lockett v. Ohio,* FN245 and *Eddings v. Oklahoma.* FN246 Both cases discuss the fundamental respect for humanity underlying the Eighth Amendment, and both cases concern the right of the defendant to present mitigating evidence. FN247

FN238. The State argues that these comments cannot form the basis of a claim of ineffectiveness at the penalty phase because they were made during voir dire or at closing arguments for the guilt-innocence phase. However, under Texas law, capital jury sentencing deliberations include evidence and arguments presented during both the guilt-innocence and penalty phases. *See Banda v. State,* 890 S.W.2d 42, 51 (Tex.Crim.App.1994).

FN239. Vol. 11 at 68, ll. 18-21.

FN240. Vol. 28 at 70, ll. 3-10.

FN241. Vol. 29 at 41, ll. 13-19.

FN242. Vol. 29 at 44, ll. 11-14.

FN243. Vol. 29 at 47, ll. 12-13.

FN244. Vol. 29 at 41, ll. 13-19.

FN245. 438 U.S. 586, 604 (1978).

FN246. 455 U.S. 104, 113-14 (1982).

FN247. *See id.* at 113-14; *Lockett,* 438 U.S. at 604.

Comments, such as those made by the prosecutor here, do not violate *Eddings* or *Lockett.* While the Court finds the comments beyond poor taste and shameful, the Court must only decide whether the CCA's determination that the failure to object was not deficient performance is an unreasonable application of *Strickland* . FN248 Willis has not cited, nor has the Court found on independent review, persuasive authority that the comments would have been error had defense counsel objected. It does not follow that, because the comments are distasteful and shameful, the CCA's determination that counsel was not deficient is unreasonable application of federal law. Our present rules are thus. Hence, as to this particular claim of ineffectiveness, the Court cannot say that defense counsel's performance was deficient. The Court need not reach the issue, then, of

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whether Willis was prejudiced by his counsel's failure to object to the State's descriptions of him as an animal.

FN248. *See* 28 U.S.C. § 2254(d).

3. Failure to Cross Examine and Present Mitigating Evidence

Willis argues that defense counsel was ineffective for failing to cross-examine the State's witnesses who provided testimony on aggravating factors and that defense counsel was ineffective for failing to present mitigating evidence. As stated above, the CCA addressed the claim of ineffectiveness as a whole and did not address the specific claim of ineffectiveness at the penalty phase of the trial, but a portion of the CCA's analysis refers to the penalty phase. The CCA stated that defense counsel was surprised Willis was found guilty and that defense attorney Woolard had "loaded his guns" for the guilt-innocence phase. The CCA mentioned that Woolard spoke with a number of Willis's friends and relatives and that Investigator Caspari also spoke with friends and relatives of Willis. The CCA stated that defense counsel decided not to present mitigation evidence. The CCA held that Willis did not overcome the presumption that defense counsel provided effective assistance of counsel.[FN249] Also, the CCA divided the analysis of ineffective assistance for Willis's two trial attorneys which, as explained above, is contrary to clearly established law.

FN249. *Ex Parte Willis*, No. 27, 787-01, Order at 5.

***32** The CCA's overruling of the trial court was not inconsistent with the trial court's factual findings.[FN250] The CCA based its decision on its determination that defense counsel was reasonable to focus on the guilt-innocence phase and that defense counsel's mitigation investigation was reasonable, as was the decision to not present mitigating evidence. The CCA held that the record before it did not meet the standard for deficient performance. Because the CCA's decision was not inconsistent with the trial court's findings, this Court must defer to the state trial court's findings of fact.[FN251]

FN250. The factual finding that could be perceived as inconsistent with the CCA's opinion is the trial court's determination that defense counsel did not prepare for the penalty phase. This could be construed as inconsistent with the CCA's statement that defense counsel Woolard and Investigator Caspari interviewed friends and relatives. However, the trial court also made a finding that defense counsel spoke with four or five people who knew Willis. Thus, the trial court determined that, despite interviewing some people, defense counsel was nonetheless unprepared for the penalty phase, and the CCA determined that the interviews conducted by defense counsel were sufficient to prevent a finding of deficient performance. Thus, the CCA's opinion is not inconsistent with the trial court's findings, but in fact relies upon them.

FN251. *See Craker*, 756 F.2d at 1213-14; *Westley*, 83 F.3d at 721 n. 2.

As to Willis's claim that defense counsel was ineffective for failing to cross-examine the State's witnesses, the Court agrees with the State. To the extent Willis argues defense counsel should have challenged the State's witnesses, Willis does not specify what evidence a cross-examination would have uncovered. Thus, Willis has not shown defense counsel was deficient in this regard.[FN252]

FN252. *See United States v. Green*, 882 F.2d 999, 1003 (5th Cir.1989).

As to the argument that defense counsel was ineffective for failing to present mitigating evidence, the Court finds counsel's performance was deficient. "Mitigating evidence concerning a particular defendant's character or background plays a constitutionally important role in producing an individualized sentencing determination that the death penalty is appropriate in a given case."[FN253] Defense counsel did not present any mitigating evidence during the punishment phase of the trial.

FN253. *Moore*, 194 F.3d at 612. *See also*

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Woodson v. North Carolina, 428 U.S. 280 (1976); *Eddings*, 455 U.S. 104.

In *Moore v. Johnson*, defense counsel failed to present any mitigating evidence because defense counsel felt that mitigating evidence was contrary to an alibi defense and that the case was a "guilt-innocence" case, rather than a "punishment" case.[FN254] The Fifth Circuit held that while "counsel's failure to develop or present mitigating background evidence is not per se deficient performance ... *Strickland* does not require deference to those decisions of counsel that, viewed in light of the facts known at the time of the purported decision, do not serve any conceivable strategic purpose."[FN255] The Fifth Circuit declined to defer to counsel's decision not to present mitigating evidence because the decision "was neither informed by a reasonable investigation nor supported by any logical position that such failure would benefit [the] defense."[FN256] "Given that counsel's failure to investigate was not supported by reasonably professional limits upon investigation, the Court finds that there is no decision entitled to a presumption of reasonableness under *Strickland.*"[FN257]

FN254. *Moore*, 194 F.3d at 614.

FN255. *Id.* at 615. *See Strickland*, 466 U.S. at 681 ("Counsel may not exclude certain lines of defense for other than strategic reasons."); *Boyle*, 93 F.3d 180 (explaining basis for counsel's strategic decision not to offer mitigating evidence identified by the defendant); *Loyd v. Whitley*, 977 F.2d 149, 158 (5th Cir.1992) ("Whether counsel's omission served a strategic purpose is a pivotal point in *Strickland* and its progeny. The crucial distinction between strategic judgment calls and just plain omissions has echoed in the judgments of this court.") (footnote omitted); *Profitt v. Waldron*, 831 F.2d 1245, 1249 (5th Cir.1987) (no required deference to decisions that do not yield any conceivable benefit to the defense); *Bell v. Lynaugh*, 828 F.2d 1085, 1090 (5th Cir.1987) (stating that when counsel makes an informed and considered decision not to present mitigating evidence, the issue becomes whether the decision was reasonable); *Wilson v. Butler*, 813 F.2d 664, 672 (5th Cir.1987) (remanding for evidentiary hearing because record did not reflect whether counsel made a sound strategic decision not to present mitigating evidence of troubled background and mental impairment); *Lyons v. McCotter*, 770 F.2d 529, 534-35 (5th Cir.1985) (finding deficient performance because there was no sound strategic basis for counsel's failure to object to evidence of prior offenses); *Mattheson v. King*, 751 F.2d 1432, 1439-40 (5th Cir.1985) (explaining strategic purpose motivating counsel's decision to exclude evidence of mental impairment from sentencing phase); *Moore v. Maggio*, 740 F.2d 308, 315-19 (5th Cir.1984) (explaining basis of counsel's considered decision to limit investigation by excluding implausible lines of mitigating evidence).

FN256. *Moore*, 194 F.3d at 616.

FN257. *Id.* at 617. *See also Wiggins*, 539 U.S. at 522 ("[O]ur principal concern in deciding whether [defense counsel] exercised 'reasonable professional judgment,' is not whether counsel should have presented a mitigation case. Rather, we focus on whether the investigation supporting counsel's decision not to introduce mitigating evidence of [defendant's] background *was itself reasonable.*" (internal citations omitted)).

As in *Moore*, defense counsel's decision in this case not to present any mitigating evidence was not motivated or justified by any strategic or tactical rationale.[FN258] Counsel's decision was instead borne out of poor planning and false hopes for the guilt-innocence phase of the trial. There was simply no "thorough investigation of the law and facts relevant to all plausible lines of defense,"[FN259] necessary to make a "strategic or tactical decision not to present mitigating evidence."[FN260] Here, as in *Moore*, counsel was unprepared and did not expect to proceed to the punishment phase of Willis's trial immediately after the guilty verdict was returned.[FN261] Also, counsel agreed to proceed rather

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than request a continuance, as was the case in *Moore.* FN262

FN258. *See Moore,* 194 F.3d at 615; *Whitley,* 977 F.2d at 158-59, nn. 21-22; *Profitt,* 831 F.2d at 1249; *Lyons,* 770 F.2d at 534-35 (*Strickland* does not require deference when there is no conceivable strategic purpose that would explain counsel's conduct).

FN259. *Moore,* 194 F.3d at 615.

FN260. *Id. See also McCoy v. Lynaugh,* 874 F.2d 954, 964 (5th Cir.1989) (counsel's decision not to present mitigating evidence is entitled to deference when based upon an informed and reasoned practical judgment); *Wilkerson v. Collins,* 950 F.2d 1054, 1064-65 (5th Cir.1992) (affording strategic decision deference where record established counsel retained an investigator to explore whether mitigating evidence relating to defendant's background or mental ability was available); *McCoy,* 874 F.2d at 964 (finding scope of investigation reasonable where counsel investigated possibility of mitigating evidence by interviewing everyone on a list provided by the capital defendant and determined none of them had anything good to say about the defendant); *Jones v. Thigpen,* 788 F.2d 1101, 1103 (5th Cir.1986) ("counsel either neglected or ignored critical matters of mitigation").

FN261. *See Moore,* 194 F.3d at 615. *See also Ex Parte Willis,* No. 27, 787-01 at 6.

FN262. *Moore,* 194 F.3d at 615, n. 9.

***33** In many situations, ineffective assistance claims are rejected "because the record established counsel conducted an adequate investigation, but made an informed trial decision not to use the potentially mitigating evidence because it could have a prejudicial backlash effect on the defense." FN263 This is not such a case. The mitigating evidence here-testimony of Willis's heroic acts and good behavior-could only have helped and could not have harmed the case. Thus, the decision to forego mitigation could not be expected to "yield some benefit or avoid some harm to the defense." FN264

FN263. *See id.* at 617. *See also Darden,* 477 U.S. 168 (counsel's failure to present mitigating evidence relating to defendant's character, psychiatric evaluation and history as a family man did not constitute deficient performance where such evidence would have opened the door to otherwise excluded evidence that defendant had prior criminal convictions, was diagnosed as a sociopathic personality, and had in fact abandoned his family); *Mattheson,* 751 F.2d 1439, 1440 (counsel made reasonable strategic decision to omit presentation of mitigating evidence of mental impairment where such evidence would have opened door to known evidence that defendant was a violent sociopath).

FN264. *Moore,* 194 F.3d at 615.

Finally, it is well established that the type of mitigating evidence that could have been presented in Willis's case is relevant to the sentencing determination. In *Skipper v. South Carolina,* the Supreme Court held that "evidence that the defendant would not pose a danger is spared (but incarcerated) must be considered potentially mitigating," and that a "jury could have drawn favorable inferences from ... testimony regarding [defendant's] character and his probable future conduct if sentenced to life in prison." FN265 The Court also stated that "a defendant's disposition to make a well-behaved and peaceful adjustment to life in prison is itself an aspect of his character that is by its nature relevant to the sentencing determination." FN266 Furthermore, information showing a defendant as a good family member is mitigating evidence. FN267

FN265. *Skipper v. South Carolina,* 476 U.S. 1, 4 (1986).

FN266. *Id.* at 7.

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FN267. *Hitchcock v. Dugger,* 481 U.S. 393, 397 (1987) (vacating death sentence for failure of trial judge to consider, in part, that petitioner had been a fond and affectionate uncle to the children of one of his brothers).

Defense counsel's decision to not present mitigating evidence was deficient performance, based on counsel's failure to investigate, failure to prepare, failure to follow-up and the fact that there could be no benefit, and thus no strategic reason, to not present mitigation. FN268

FN268. Willis also argues that defense counsel was ineffective for failing to make an individualized closing argument. Because this claim addresses the failure of defense counsel to acquire knowledge of Willis and present that knowledge at trail, the claim is incorporated into the claim of failure to investigate and present mitigating evidence.

The CCA's determination that counsel's failure to present mitigating evidence was not deficient performance is an unreasonable application of *Strickland.* The CCA based its decision, without discussion of federal authority, on the fact that counsel focused on the guilt-innocence phase of the trial instead of the punishment phase, that counsel spoke with some people who knew Willis, and on the fact that Willis failed to show each attorney separately met the *Strickland* standard.FN269

FN269. *See Ex Parte Willis,* No. 27, 787-01, Order at 6.

Clearly established federal law requires defense counsel to prepare for and investigate mitigating evidence.FN270 While the CCA correctly noted that defense counsel spoke with friends and relatives, the CCA did not determine whether the decision to limit the investigation at that point actually demonstrated reasonable professional judgment. The CCA did not address the trial court's factual finding that the limits on the investigation were due to a failure to follow-up and a lack of preparation.FN271

FN270. *See Williams,* 529 U.S. at 393 ("[It] is undisputed that Williams had a right-indeed, a constitutionally protected right-to provide the jury with the mitigating evidence that his trial counsel either failure to discover or failure to offer.") *Moore,* 194 F.3d at 615; *Stafford v. Saffle,* 34 F.3d 1557 (10th Cir.1994) (finding deficient performance and rejecting argument that an alibi defense during the guilt phase is per se inconsistent with mitigating evidence relating to the defendant's personal background); *Brewer v. Aiken,* 935 F.2d 850 (7th Cir.1991) (granting relief on claim that counsel failed to offer mitigating evidence during the sentencing phase in case involving an alibi defense at the guilt phase).

FN271. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Conc. of Law at 19-22. Willis's defense counsel failed to contact potential witnesses for the sentencing phase who ultimately spoke at the habeas evidentiary hearing. Some of the witnesses were present in the courtroom for Willis's trial. Some of the witnesses made it clear to defense counsel that they were able to testify on Willis's behalf. Defense counsel never followed up. *See* Pet. at 125.

Limits on investigation are reasonable only to the extent that reasonable professional judgments support the limitations.FN272 Because this principle constitutes clearly established federal law, the CCA's determination that defense counsel's investigation was adequate in this instance is an unreasonable application of clearly established federal law. While the CCA stated that defense counsel decided to forego mitigation and to "load guns" for the guilt-innocence phase, the CCA failed to address whether such a decision was reasonable considering the nature of the mitigating evidence available in this case. The available mitigation evidence included good acts by Willis and his good behavior while incarcerated. This is not a case in which mitigation would be inconsistent with the theory at the first phase of the trial or even a situation wherein mitigation would be damaging. Here, no reason exists to refrain from presenting evidence

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about the good deeds and nature of a defendant, particularly when the evidence includes testimony by law enforcement officers. Defense counsel's decisions to forego mitigation and focus on guilt was not strategic because it could not be expected to yield some benefit or avoid some harm to the defense.[FN273] Therefore, the CCA's deference to defense counsel's decision to not present mitigation is an unreasonable application of *Strickland.*[FN274]

FN272. *Strickland,* 466 U.S. at 690-91. *See also Wiggins,* 539 U.S. at 524-26; *Moore,* 194 F.3d at 615.

FN273. *See Moore,* 194 F.3d at 615.

FN274. *See* 28 U.S.C. § 2254(d).

4. Prejudice at the Sentencing Phase

***34** The testimony that could have been presented, but was not, at the penalty phase of Willis's trial pertained to Willis's propensity for future dangerousness.[FN275] Law enforcement officers, including Pecos County Sheriff Bruce Wilson, would have testified on Willis's behalf. Sheriff Wilson, the Chief Deputy Sheriff, and two Pecos County jailers would have testified to Willis's good behavior in jail and that Willis was not a danger or threat in jail.[FN276] In addition, defense counsel could have presented evidence that Willis surrendered himself to authorities when he learned of the charges against him;[FN277] testimony describing Willis as a non-violent person;[FN278] evidence of heroic acts by Willis;[FN279] and testimony describing Willis as a loving family man.[FN280]

FN275. During the sentencing phase of a Texas capital trial, the jury must answer two questions. The first concerns whether the crime was committed deliberately: Whether the conduct of the defendant that caused the death of the deceased was committed deliberately, and with the reasonable expectation that the death of the deceased or another would result. The second asks about the defendant's propensity for future dangerousness: Whether there is a probability that the defendant would commit criminal acts of violence that would constitute a continuing threat to society. TEX.CODE CRIM. P. art. 37.071 (Vernon 2004). *See also Flores v. Johnson,* 210 F.3d 456, 458 (5th Cir.2000) (Garza, J., specially concurring) (thoroughly discussing the future dangerousness question and the lack of scientifically reliable evidence to support such a determination under federal law). "Overall, the theory that scientific reliability underlies predictions of future dangerousness has been uniformly rejected by the scientific community absent those individuals who routinely testify to, and profit from, predictions of dangerousness .... what separates the executioner from the murderer is the legal process by which the state ascertains and condemns those guilty of heinous crimes. If that process is flawed because it allows evidence without any scientific validity to push the jury toward condemning the accused, the legitimacy of our legal process is threatened." *Id.* at 465, 469-70. Nearly twenty-five years earlier, the Supreme Court indicated its disagreement in *Jurek v. Texas,* 428 U.S. 262, 274-76 (1976), but the issue will continue to demand the consideration of the federal courts.

FN276. Tr. at 85, ll. 21-23 (Wilson); Tr. at 47, ll. 11-12 (Harris); Tr. at 111, ll. 3-12 (Pringle); Tr. at 113, ll. 14 (Pringle). *See also* Tr. at 97, ll. 23-98 (Wilson); Tr. at 106, ll. 1-18 (Archer); Tr. at 114, ll. 3-5 (Pringle); Tr. at 49, ll. 2-6 (Harris).

FN277. This information could have been elicited from Deputy Jackson, one of the two prosecution witnesses during the penalty phase. Deputy Jackson met Willis in Odessa after Willis voluntarily came forward upon learning of the charges against him. Jackson did not have to restrain Willis on the drive to Fort Stockton. In fact, Willis sat in the front seat next to Deputy Jackson during the drive. Tr. at 118, ll. 22-25; Tr. at 119, ll. 16-24.

FN278. *See e.g.,* Tr. at 54, ll. 23-55 (Officer

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Butts).

FN279. Several witnesses were available who could have testified to how Willis saved the life of a boy who was drowning by diving in and pulling the child out of a car which had accidentally backed into the lake. Tr. at 21, ll. 22-25; Tr. at 62, ll. 19-64; Tr. at 12, ll. 2-21. *See also* Tr. at 36, ll. 20-38; Tr. at 11, ll. 11-12, 21.

FN280. *See e.g.*, Tr. at 51, ll. 5-53 (Officer Butts).

Thus, the mitigation evidence that could have been presented goes directly to the issue of Willis's propensity for future dangerousness, one of the two questions jurors must answer during the sentencing phase.[FN281] Because of the extent of mitigating evidence concerning Willis's non-violent demeanor, the fact that law enforcement officers, including jailers, and the County Sheriff, [FN282] were willing to testify to Willis's good behavior in jail, there is reasonable probability that, absent the failure of defense counsel, the jury would have concluded death was not the appropriate punishment for Willis. [FN283] In addition, the State's aggravating evidence was less than substantial; prosecutors presented only two witnesses at the penalty phase, each testifying to Willis's "bad reputation" in the unspecified communities in which Willis lived.[FN284] In a case in which innocence is a close question and in which the State's evidence of future dangerousness is weak, it is more likely that defense counsel's errors contributed to the jury's affirmative findings on issues of punishment.[FN285] Here, Willis has shown that but for counsel's deficient performance, the result of the proceeding would have been different.

FN281. *See Franklin v. Lynaugh*, 487 U.S. 164, 177 (1988) (good conduct in prison is relevant to the special issue concerning future dangerousness under Texas capital sentencing scheme).

FN282. *See Skipper*, 476 U.S. at 8 (testimony of jailers would have likely been given great weight by the jury, since the jailers "would have had no particular reason to be favorably predisposed toward one of their charges").

FN283. *See Strickland*, 466 U.S. at 668.

FN284. *See Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 20.

FN285. *See Ex Parte Guzmon*, 730 S.W.2d 724, 735 (finding defense prejudiced by ineffective assistance of counsel at capital penalty phase where the "State's evidence to prove future dangerousness was extremely weak"). *See also Strickland*, 466 U.S. at 696; *Martinez-Macias*, 979 F.2d at 1067 ("We are left with the firm conviction that [petitioner] was denied his right to adequate counsel in a capital case in which actual innocence was a close question").

Furthermore, the CCA did not reach the prejudice prong of the *Strickland* analysis and thus this Court is not constrained by section 2254(d) in determining whether Willis was prejudiced.[FN286] However, because of the clarity of Supreme Court precedents holding that the type of mitigation evidence available in this case is relevant,[FN287] and for the reasons stated above, a determination that Willis was not prejudiced is an unreasonable application of federal law. The Court holds that Willis received ineffective assistance of counsel at the sentencing phase because counsel's performance was deficient and Willis was prejudiced by counsel's deficiency.

FN286. *Wiggins*, 539 U.S. at 534 (finding that the Court's "review is not circumscribed by a state court conclusion with respect to prejudice, as neither of the state courts below reached this prong of the *Strickland* analysis").

FN287. *See e.g.*, *Skipper*, 476 U.S. at 4, 7; *Hitchcock*, 481 U . S. at 397.

Finding reversible error at both the guilt-innocence phase and the sentencing phase, the Court need not address Willis's cumulative error claim.

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CONCLUSION

Convinced, as stated above, that Willis's conviction and sentence both were obtained in violation of the United States Constitution, the Court grants Willis's request for relief as follows:

***35** It is hereby ORDERED that the State's Motion for Summary Judgment is GRANTED IN PART and DENIED IN PART.

It is further ORDERED that Petitioner's Cross-Motion for Summary Judgment is GRANTED IN PART and DENIED IN PART.

It is further ORDERED that Willis's Petition for Writ of Habeas Corpus is GRANTED on the following grounds: 1) Petitioner's Due Process rights were violated by the State's administration of medically inappropriate antipsychotic drugs without Willis's consent; 2) the State suppressed evidence favorable and material to the sentencing determination; 3) Petitioner received ineffective assistance of counsel at the guilt-innocence phase; and 4) Petitioner received ineffective assistance of counsel at the sentencing phase.

W.D.Tex.,2004.
Willis v. Cockrell
Not Reported in F.Supp.2d, 2004 WL 1812698 (W.D.Tex.)

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Court of Criminal Appeals of Texas,
En Banc.

Ernest Ray WILLIS, Appellant,
v.
The STATE of Texas, Appellee.

No. 69936.
June 7, 1989.
Rehearing Denied Jan. 17, 1990.

Defendant was convicted in the 112th Judicial District Court, Pecos County, Brock Jones, J., of capital murder and sentenced to death. The Court of Criminal Appeals, Berchelman, J., held that: (1) evidence, which established that defendant's version of events did not conform to physical evidence relating to the fire, was sufficient to support determination that he started house fire which resulted in victim's death; (2) prosecutor's closing argument at punishment phase of murder trial did not constitute comment upon defendant's failure to testify; and (3) evidence was sufficient to support finding of future dangerousness.

Affirmed.

West Headnotes

[1] Homicide 203 ⚿1187

203 Homicide
203IX Evidence
203IX(G) Weight and Sufficiency
203k1176 Commission of or Participation in Act by Accused; Identity
203k1187 k. False and improbable statements. Most Cited Cases
(Formerly 203k234(11))

Evidence, which established that defendant's version of events did not conform to physical evidence relating to the fire, was sufficient to support determination that he started house fire which resulted in victim's death.

[2] Criminal Law 110 ⚿1169.3

110 Criminal Law
110XXIV Review
110XXIV(Q) Harmless and Reversible Error
110k1169 Admission of Evidence
110k1169.3 k. Curing error by facts admitted by defendant. Most Cited Cases

Any error in admission of defendant's first two statements given to deputy at scene of offense was cured by unobjected to admission of recorded third statement, which contained the same information as was contained in defendant's prior two statements.

[3] Criminal Law 110 ⚿2033

110 Criminal Law
110XXXI Counsel
110XXXI(D) Duties and Obligations of Prosecuting Attorneys
110XXXI(D)5 Presentation of Evidence
110k2032 Use of False or Perjured Testimony
110k2033 k. In general. Most Cited Cases
(Formerly 110k706(2))

State's cross-examination of defense witness, who was a court-appointed arson investigator, did not inject knowingly false testimony concerning witness' status as an engineer and therefore defendant failed to establish that State obtained capital murder conviction through use of perjured testimony.

[4] Criminal Law 110 ⚿1036.1(3.1)

110 Criminal Law
110XXIV Review
110XXIV(E) Presentation and Reservation in Lower Court of Grounds of Review
110XXIV(E)1 In General
110k1036 Evidence
110k1036.1 In General

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110k1036.1(3) Particular Evidence
110k1036.1(3.1) k. In general. Most Cited Cases
(Formerly 110k1036.1(3))

Any error in mere mention of polygraph examination was waived where defendant failed to register timely and specific objection to reference to polygraph examination.

[5] Criminal Law 110 2077

110 Criminal Law
110XXXI Counsel
110XXXI(F) Arguments and Statements by Counsel
110k2076 Statements as to Facts and Arguments
110k2077 k. In general. Most Cited Cases
(Formerly 110k713)

There are four permissible areas of jury argument: summation of evidence, reasonable deduction from evidence, answers to argument of opposing counsel, and pleas for law enforcement.

[6] Criminal Law 110 1037.1(1)

110 Criminal Law
110XXIV Review
110XXIV(E) Presentation and Reservation in Lower Court of Grounds of Review
110XXIV(E)1 In General
110k1037 Arguments and Conduct of Counsel
110k1037.1 In General
110k1037.1(1) k. Arguments and conduct in general. Most Cited Cases

Generally, failure to object to impermissible jury argument waives any error. Rules App.Proc., Rule 52(a).

[7] Criminal Law 110 1037.1(1)

110 Criminal Law
110XXIV Review
110XXIV(E) Presentation and Reservation in Lower Court of Grounds of Review
110XXIV(E)1 In General
110k1037 Arguments and Conduct of Counsel
110k1037.1 In General
110k1037.1(1) k. Arguments and conduct in general. Most Cited Cases

Jury argument error will not be waived for failure to object where argument is manifestly improper, or violates some mandatory statute, or injects some new fact harmful to defendant's case; in making determination of whether a statement is manifestly, improper, harmful and prejudicial, courts are to look at record as a whole.

[8] Criminal Law 110 2132(2)

110 Criminal Law
110XXXI Counsel
110XXXI(F) Arguments and Statements by Counsel
110k2129 Comments on Accused's Silence or Failure to Testify
110k2132 Comments on Failure of Accused to Testify
110k2132(2) k. In particular prosecutions. Most Cited Cases
(Formerly 110k721(3))

Prosecutor's closing argument at punishment phase of murder trial did not constitute comment upon defendant's failure to testify.

[9] Witnesses 410 37(4)

410 Witnesses
410II Competency
410II(A) Capacity and Qualifications in General
410k37 Knowledge or Means of Knowledge of Facts
410k37(4) k. Character or reputation. Most Cited Cases
(Formerly 110k37(4))

Testimony of a reputation witness must be based on discussion with others concerning defend-

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ant, or in hearing others discuss defendant's reputation, and not just on personal knowledge.

[10] Criminal Law 110 ⚿380

110 Criminal Law
110XVII Evidence
110XVII(G) Character of Accused
110k375 Character or Reputation of Accused
110k380 k. Particular acts. Most Cited Cases

Reputation testimony cannot be based solely upon offense for which defendant is on trial; it must include a discussion of matters other than instant offense.

[11] Sentencing and Punishment 350H ⚿1760

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1755 Admissibility
350Hk1760 k. Defendant's character and conduct. Most Cited Cases
(Formerly 203k358(1))

Testimony of reputation witnesses, who spoke with numerous individuals from variety of communities in which defendant had resided and whose testimony regarding defendant's reputation did not stem solely from instant offense, was admissible in capital murder trial at punishment phase.

[12] Sentencing and Punishment 350H ⚿1750

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1750 k. In general. Most Cited Cases
(Formerly 110k1208.1(6))

Evidence adduced at both guilt/innocence and punishment phases of trial can be used by jury when considering future dangerousness for purposes of capital sentencing proceeding. Vernon's Ann.Texas C.C.P. art. 37.071(b)(2).

[13] Sentencing and Punishment 350H ⚿1772

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(G) Proceedings
350HVIII(G)2 Evidence
350Hk1772 k. Sufficiency. Most Cited Cases
(Formerly 110k1208.1(5))

Circumstances of offense alone are enough to sustain an affirmative answer to special issue of future dangerousness. Vernon's Ann.Texas C.C.P. art. 37.071(b)(2).

[14] Sentencing and Punishment 350H ⚿1720

350H Sentencing and Punishment
350HVIII The Death Penalty
350HVIII(E) Factors Related to Offender
350Hk1720 k. Dangerousness. Most Cited Cases
(Formerly 203k357(6))

Facts of crime, which demonstrated an utter disregard for human life, defendant's prior criminal record, his reputation and age supported finding of future dangerousness in capital murder trial. Vernon's Ann.Texas C.C.P. art. 37.071(b)(2).

***379** Kenneth D. Dehart, Alpine, Steve Woolard, Fort Stockton, for appellant.

***380** J.W. Johnson, Dist. Atty., Fort Stockton, Jim W. James, Sp. Prosecutor, Bryan, Robert Huttash, State's Atty., Austin, for the State.

Before the court en banc.

OPINION

BERCHELMANN, Judge.

Appellant, Ernest Ray Willis, was convicted of capital murder for the death of Elizabeth Beleu, who died in an intentionally set house fire.

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Tex.Penal Code Ann. § 19.03. The jury returned affirmative findings to the special issues submitted pursuant to Tex.Code Crim.Proc.Ann. art. 37.071 (b). Appellant was thereafter sentenced to death.

Appellant raises six issues on appeal: 1) insufficiency of the evidence of appellant's guilt, 2) the admission of appellant's statements "which were neither the result of custodial interrogation, nor admissions by a party opponent," 3) prosecutorial misconduct, 4) improper testimony relating to a polygraph examination, 5) the State's closing argument which alluded to appellant's failure to testify, and 6) insufficiency of the evidence of appellant's future dangerousness. We will affirm.

Appellant's first point of error challenges the sufficiency of the evidence of his guilt. He does not dispute that there was a murder resulting from an arson. Instead, he limits his challenge to whether there is sufficient evidence that he started the fire. The standard of review for challenges to sufficiency claims is whether, viewed in the light most favorable to the judgment, any rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt. *Jackson v. Virginia,* 443 U.S. 307, 318-19, 99 S.Ct. 2781, 2788-89, 61 L.Ed.2d 560 (1979); *Carlsen v. State,* 654 S.W.2d 444, 448 (Tex.Cr.App.1983) (Opinion on Reh'g). The identical standard is applied to sufficiency challenges involving circumstantial evidence cases. *Carlsen,* 654 S.W.2d at 449. In assessing this standard, if there is a reasonable hypothesis other than guilt of the accused, then it cannot be said that the guilt has been shown beyond a reasonable doubt. *Butler v. State,* 769 S.W.2d 234 (Tex.Cr.App.1989) ; *Carlsen,* 654 S.W.2d at 450 (McCormick, J., concurring).

[1] The record reflects that in the early morning hours of June 11, 1986, a fire of incendiary nature destroyed a home in Iraan which was then occupied by four persons.[FN1] Two women, Elizabeth Beleu and Gail Allison, died in the blaze. Their charred remains were found in separate bedrooms of the three bedroom home. Appellant's cousin, Billy Willis, testified that he escaped the fire when he, completely naked, jumped out of a bedroom window. Willis landed head first, and suffered a gash to his nose, a knot on his head, injuries to his legs and groin area, and he inhaled so much smoke that he coughed up black, "soot-like" phlegm for hours. Several witnesses testified to seeing Willis outside the burning house crying and coughing up black phlegm, clothed in only what appeared to be a blanket. Appellant was the fourth occupant of the house. He claimed to have been sleeping on a living room sofa when the fire was set. Appellant suffered no injuries. Several witnesses testified that appellant stood outside the burning house barefoot, but otherwise fully dressed, smoked cigarettes without respiratory distress,[FN2] and demonstrated no agitation over the fire or deaths of the two young women.

FN1. The tenants of the house, Michael and Cheryl Robinson, were not present when the fire was set. After two severe arguments, both were arrested and subsequently spent the night in jail. The four occupants of the house were the Robinsons' guests. Appellant and his cousin were temporarily residing with the Robinsons. The deceased women were simply visiting the Robinsons for the day and drinking with the Robinsons prior to the Robinsons' arrest. Apparently, the women had never met either appellant or appellant's cousin prior to this visit.

FN2. Billy Willis testified that for several hours after the fire he tried to smoke cigarettes, but was unable to do so because of respiratory problems.

A variety of arson experts investigated the wreckage and testified at trial that the ***381** burn patterns and degree of burning indicated that a flammable liquid was poured on the floor of the house throughout the living and dining areas, in front of the bedroom door jams, around the front and back door entrances, and beneath and on top of

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a sofa in the living area. It was upon this sofa that appellant claimed to have been sleeping when the fire was set. The burn patterns and degree of burning indicated that the fire originated in the living area of the house and quickly, if not simultaneously, ignited the dining room and kitchen. Thereafter, the fire spread to the bedrooms. One certified arson investigator testified that if anyone was sleeping on the sofa in the living area, as appellant contended to have been, he would have been burned. Another arson investigator stated that if appellant had been on the sofa when the fire was set, appellant would have been burned, perhaps fatally so.

Appellant's version of the events do not conform to the physical evidence relating to the fire. Appellant gave the authorities three statements on the day of the fire. Originally he stated that both he and his cousin slept in the living area of the house while the women slept in separate bedrooms. Appellant supposedly awoke to the smell of fire and ran throughout the house, amidst the blaze, trying to alert the other occupants of the house. Appellant told the authorities that he was unable to enter the bedrooms due to the fire and smoke, and instead ran out the front door of the house and ran around the outside breaking windows in an attempt to secure an escape route for those still inside. However, no broken glass was found inside the house. Broken glass was found *outside* the house, consistent with breakage from the pressure created by the fire. Appellant later stated that his cousin was asleep in bed with Gail Allison, one of the women who failed to escape the fire.[FN3] In all other respects, appellant's later statements were consistent with the original statement. Appellant did not testify at trial.

> FN3. Willis, appellant's cousin, originally told the police that he and appellant were sleeping in the living room. However, Willis recanted this statement and testified that he was in bed with Allison. When questioned why he changed his story, Willis expressed concern about damaging Allson's reputation.

Deputy Sheriff Larry Jackson testified that he thoroughly examined appellant shortly after the fire and that appellant had no burn marks. Deputy Jackson smelt smoke on Billy Willis, appellant's cousin, but did not smell smoke on either appellant or appellant's clothing. Deputy Jackson purchased clothes for appellant and took appellant's clothing for evidence. An examination of appellant's clothing indicated no cinder marks, although there was a stain on the shoulder which was later identified as betadine, an antiseptic. Appellant told the authorities that he acquired the stain running through the burning house.

Approximately a day after the fire, Deputy Jackson was washing out the house with a garden hose found on the premises. The front portion of the hose had been cut off. Deputy Jackson learned from the tenant of the house that this was a newly purchased garden hose which was previously intact. Later, Deputy Jackson found a smaller portion of the garden hose which reeked with the smell of gasoline. A trace analysis of the smaller portion of the hose indicated the presence of gasoline. The Department of Public Safety crime lab detected unknown volatile components on appellant's pants through gas chromatograph testing. However, no known accelerant was positively identified on the pants.

Several witnesses testified that the day of the fire appellant had no burn marks, no singed clothing, and no singed hair. However, two days after the fire, appellant demonstrated for Sheriff Bruce Wilson a “very bad” burn mark on appellant's shoulder, which appellant claimed to have incurred in the fire. Several witnesses, including Sheriff Wilson, stated that appellant had no such injury the day of the arson. Specifically, Sheriff Wilson testified that he personally examined appellant the day of the fire and that there was “no way” he could have overlooked the burn mark on appellant's shoulder. Additionally, the doctor who examined appellant and ***382** appellant's cousin within hours of the fire testified that appellant had no respiratory

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problems and did not complain of any injuries.

Challenging the sufficiency of the evidence, appellant argues that the evidence raises reasonable hypotheses other than appellant's guilt, thus warranting an acquittal. See, for example, *Butler*, 769 S.W.2d at 237. He specifically contends that it is reasonable to conclude that either of the deceased women set the fire in order to commit suicide, or that appellant's cousin set the fire. However, appellant's version of events surrounding the arson is wholly incompatible with any of these theories. Because an accelerant was poured beneath and on top of the sofa upon which appellant claimed to have been sleeping, and because the fire was set in the room where the sofa was located, it is inconceivable that either of the other three occupants started the fire without seriously burning or killing appellant. Moreover, appellant's statement that he ran barefoot throughout the burning house is implausible. Several witnesses testified that appellant did not appear "tender footed" after the fire. It defies both logic and common sense that appellant could run barefoot throughout a house engulfed in flames and across floors doused with a flammable liquid and neither burn any portion of his clothes or body, nor suffer respiratory distress, nor singe his hair, nor smell of even the slightest hint of smoke. Likewise, appellant's claim that once outside he broke all the windows in order to assist those remaining inside is inconsistent with the fact that all the broken glass was found outside the house.

These facts, as viewed in the light most favorable to the verdict, are sufficient for a rational trier of fact to have concluded beyond a reasonable doubt that appellant is guilty of the instant offense. *Splawn v. State*, 162 Tex.Crim. 197, 283 S.W.2d 66 (1955); *Taylor v. State*, 735 S.W.2d 930 (Tex.App.-Dallas 1987). Therefore, appellant's first point of error is overruled.

[2] Appellant's second point of error alleges that "the trial court erred in admitting the verbal statements of appellant which were neither the result of custodial interrogation, nor admissions by a party opponent." Appellant complains of the admission of his three statements made the day of the fire. As set forth previously, appellant stated that he slept on the sofa, awoke to a house engulfed in flames, ran throughout but was unable to go to the bedrooms, eventually ran outside and broke the windows. With the one exception regarding where his cousin slept, appellant's three statements were consistent. Appellant's first two statements were given to Deputy Larry Jackson at the scene of the offense. Appellant's third statement, given after appellant received his *Miranda* [FN4] warnings, was tape recorded by Deputy Jackson several hours after the fire. To make the third statement, appellant voluntarily went to the Sheriff's Department. At trial appellant objected to the first two statements as containing hearsay and because they were custodial interrogations not being used for impeachment purposes. However, appellant's counsel specifically stated he had "no objection" to the admission of the recorded third statement. Ranger Roger Colemen also testified to appellant's statements made at the scene of the offense. Appellant objected to Ranger Coleman's testimony because the statements were not *res gestae* of the offense and because they constituted custodial interrogation not in compliance with Tex.Code Crim.Proc.Ann. art. 38.22 Sec. 3. [FN5]

FN4. *Miranda v. Arizona*, 384 U.S. 436, 86 S.Ct. 1602, 16 L.Ed.2d 694 (1966).

FN5. Art. 38.22 Sec. 3, Tex.Code.Crim.Proc.Ann. precludes admission of oral statements by an accused made as a result of custodial interrogation unless the statement is electronically recorded in compliance with specific guidelines.

In response, the State argues that appellant failed to preserve error because the objections at trial do not comport with the ground asserted on appeal. It is well established that a point of error on appeal must correspond to the precise objection made in the trial court. *Thomas v. State*, 723 S.W.2d 696, 700 (Tex.Cr.App.1986); ***383** *Hodge*

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v. State, 631 S.W.2d 754, 757 (Tex.Cr.App.1982); *Williams v. State,* 549 S.W.2d 183, 187 (Tex.Cr.App.1977). Appellant's complaint on appeal that the statements were not "admissions by a party opponent" sufficiently corresponds to his hearsay objection raised at trial.[FN6]

> FN6. The gist of appellant's argument is that appellant *intended* these statements to be exculpatory in nature; therefore, they should not fall into the category of "not hearsay" provided by Rule 801(e)(2)(A) Tex.R.Crim.Evid. The rule classifies admissions by a party-opponent as not hearsay where the statement is offered against a party and is his own statement in either his individual or representative capacity. Appellant acknowledges that he can find no case law from this Court to support his novel interpretation of Rule 801(e)(2)(A), nor does he cite this Court to case law so interpreting the predecessor common law rule.

However, as the State correctly notes, appellant failed to object to the introduction of the recorded third statement. Appellant readily admits that the third statement contains the same information as was contained in appellant's prior two statements. In *Brown v. State,* 757 S.W.2d 739, 741 (Tex.Cr.App.1988), this Court reiterated the rule regarding cumulative evidence.

> In *Anderson v. State,* 717 S.W.2d 622 (Tex.Cr.App.1986) the rule regarding such cumulative evidence was stated as follows: "Inadmissible evidence can be rendered harmless if other evidence at trial is admitted without objection and it proves the same fact that the inadmissible evidence sought to prove." *Id.* at 628. See also *East v. State,* 702 S.W.2d 606 (Tex.Cr.App.1985) and *Lichtenwalter v. State,* 554 S.W.2d 693 (Tex.Cr.App.1977).

Any conceivable error was cured by the unobjected to admission of the recorded third statement. Appellant's second point of error is overruled.

[3] Appellant's third point of error contends that his trial was fundamentally unfair based upon prosecutorial misconduct. Specifically, he complains of the State's cross-examination of defense witness D. Michael Smith. Smith was a court-appointed arson investigator for appellant. He was employed, among other things, as a consultant with an engineering consulting company, and he had previous experience with arson investigation. Smith initially testified that he had a degree in mechanical engineering, but later testified that he was an engineer. Upon cross-examination, Smith admitted that he was not a certified engineer. The prosecution pointed out to Smith that it was a violation of the Texas Engineering and Practices Act to call one's self an engineer without being licensed and registered pursuant to the provisions of the Act, art. 3271a § 1.2 V.A.C.S., and ultimately accused Smith of breaking the law by doing so. Appellant now argues that there is an exemption to the above-referenced requirement regarding registration and licensing, and that Smith may fall into the exemption where a person is an employee or a subordinate of a person holding a certificate of registration. Art. 3271a § 20(c).

With this, appellant concludes that his conviction was obtained through the use of false testimony. To support this assertion, appellant cites *Burkhalter v. State,* 493 S.W.2d 214 (Tex.Cr.App.1973) and *Losada v. State,* 721 S.W.2d 305 (Tex.Cr.App.1986). In *Burkhalter,* supra, we reversed a conviction where the jury was not permitted to hear evidence that an agreement existed between the State and the attorney of a crucial witness, a co-defendant, where the State promised not to prosecute the co-defendant if he would testify without claiming immunity. In *Losada,* supra, we rejected a defendant's contention that discrepancies in testimony were tantamount to the State's use of perjured testimony to acquire his conviction. Simply put, neither of these cases support appellant's assertion.

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It is true that the State may not obtain a conviction through the use of perjured testimony. *Napue v. Illinois*, 360 U.S. 264, 79 S.Ct. 1173, 3 L.Ed.2d 1217 (1959). However, we cannot characterize the prosecutor's cross-examination as injecting knowingly false testimony. Whether Smith, as senior vice-president of this consulting company, fell within the employee exception embodied within the Act is an item into ***384** which appellant was free to delve on re-direct, but did not do so. Smith testified at length regarding the arson investigation, and his qualifications as an arson investigator were never in question. Appellant fails to demonstrate that the State used false testimony to obtain its conviction.[FN7]

FN7. San Antonio attorney William A. Brant presented an amicus curiae brief on behalf of appellant which likewise challenges the impeachment of Smith. We have reviewed the brief and find the contentions raised therein to be without merit.

[4] In his fourth point of error, appellant complains of the testimony of Michael Robinson, one of the tenants of the house, because Robinson alluded to the fact that several people took a polygraph examination. Prior to trial, the court granted appellant's motion in limine to prevent mention of the polygraph examination and agreed with appellant that the prosecutors should inform the witnesses not to make reference to the polygraph exam. Specifically appellant urges that the State violated the court's order by failing to inform Robinson to not mention the examination. At trial, the following exchange took place between the prosecutor and Michael Robinson.

[THE PROSECUTOR] Q. Where did they go after that?

[ROBINSON] A. Took them back to Odessa.

Q. You did?

A. (Witness nods head in the affirmative.)

Q. In one of your vehicles?

A. Yeah. Well, let's see, now. I don't know. Everybody went down-took them down for that polygraph test deal. I'm not real clear on the times, I'm really not. I don't know how many days was in between or whatnot.

Q. Okay. But did you take them to Odessa at some point in time, or do you recall?

A. Yeah. I took-we drove down for the polygraph and whatnot.

Q. Is that the last time that you saw (the appellant), when you took him to Odessa?

A. Yeah. The best I remember. I think that was it.

There was no other reference to the examination; the jury was never informed of the results of the test.

Appellant did not object to the testimony until after the witness concluded testifying. In a bill of exception made pursuant to appellant's belated objection, Robinson testified that one of the prosecutors did not warn him about mentioning the polygraph examination. As the State correctly points out, Robinson was never questioned about whether the other prosecutor who tried the case, or any other representative of the District Attorney's Office, spoke with Robinson regarding the proscription against mentioning the examination.

Moreover, the record reflects that appellant failed to register a timely and specific objection to the reference of the polygraph examination. Therefore, any error in the mere mention of the examination is waived. *Armstrong v. State*, 718 S.W.2d 686, 699 (Tex.Cr.App.1985). See also Rule 52, Tex.R.App.Pro. The granting of a motion in limine will not preserve error. *Gonzales v. State*, 685 S.W.2d 47, 50 (Tex.Cr.App.1985). Appellant's fourth point of error is overruled.

[5] Appellant's fifth point of error alleges that

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the prosecutor's closing argument at the punishment phase of trial improperly commented on appellant's failure to testify. There are four permissible areas of jury argument: 1) summation of the evidence, 2) reasonable deduction from the evidence, 3) answers to argument of opposing counsel, and 4) pleas for law enforcement. *Alejandro v. State,* 493 S.W.2d 230 (Tex.Cr.App.1973).

Appellant complains of the following statements:

> My clients aren't in the courtroom today. They are dead. Understand that distinction. This guy has been able to sit in here and observe everyone that took the stand, look at all of you throughout this proceeding, and hear everything that has gone on. My clients are in their graves ***385** right now because of what this Defendant did ...
>
> * * * * * *
>
> He didn't even help his cousin when he hung up in that window coming out to stop from hitting head first on the ground, ladies and gentlemen. He did nothing. He didn't even raise his little finger. And he showed no mercy or no remorse afterwards.
>
> THE COURT: Mr. Johnson, your time is up.
>
> [THE PROSECUTOR]: If you observed, he sat right here through this entire trial with this dead pan, insensitive, expressionless face-
>
> [DEFENSE COUNSEL]: Your Honor, I'm going to object to the prosecutor continuing to argue after the Court has told him his time is up.
>
> THE COURT: I will ask you to close.
>
> [THE PROSECUTOR]: With his cold fish eyes on everybody and everything that has come in here, and he just merely stared and watched very impassively, very coldheartedly, much like he probably did that morning outside the fire when he watched and listened.

[6][7] Appellant failed to object to the statements now raised on appeal. It is generally presumed that a failure to object to impermissible jury argument waives any error. *Romo v. State,* 631 S.W.2d 504 (Tex.Cr.App.1982). See also Rule 52(a) Tex.R.App.Pro. However, this does not end our inquiry. This court has created an exception to the waiver rule for cases in which the prosecutor's argument is so egregious that no instruction to disregard could possibly cure the harm. *Romo,* 631 S.W.2d at 505. That is, jury argument error will not be waived for failure to object where the argument is manifestly improper, or violates some mandatory statute, or injects some new fact harmful to the defendant's case. *Mathews v. State,* 635 S.W.2d 532, 539 (Tex.Cr.App.1982); *Walthall v. State,* 594 S.W.2d 74 (Tex.Cr.App.1980). In making the determination of whether a statement is manifestly improper, harmful and prejudicial, courts are to look at the record as a whole. *Curtis v. State,* 640 S.W.2d 615 (Tex.Cr.App.1982); *Simpkins v. State,* 590 S.W.2d 129, 136 (Tex.Cr.App.1979).

[8] With respect to the first above-referenced remark, we cannot agree with appellant that the statement, "[t]his guy has been able to sit in here and observe everyone that took the stand, look at all of you throughout this proceeding, and hear everything that has gone on," constitutes a comment upon appellant's failure to testify. It is clear from the context that the prosecutor's remark was juxtaposing appellant's presence with the absence of the deceased women. Appellant fails to cite any cases in which we have characterized a similar statement as an indirect comment on a defendant's failure to testify.

Next we turn to the prosecutor's second remark: "he sat here right through this entire trial with this deadpan, insensitive, and expressionless face ... with his cold fish eyes on every body ... and he just merely stared and watched very impassively, very coldheartedly, much like he probably did that morning outside the fire ..." Again, appellant contends that this statement amounts to an in-

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direct comment upon his failure to testify.[FN8] See *Dickinson v. State,* 685 S.W.2d 320 (Tex.Cr.App.1984) (argument that "you haven't seen one iota of remorse, one iota of shame" characterized as an indirect comment), but cf. *Jones v. State,* 693 S.W.2d 406 (Tex.Cr.App.1985) (argument that "you haven't seen any remorse" *not* characterized as an indirect comment). Viewing the record as a whole, we hold that the statements were not so manifestly improper, harmful and unjust as to warrant a reversal. An instruction to disregard could have cured the harm. See ***386** *Bower v. State,* 769 S.W.2d 887 (Tex.Cr.App.1989) (instruction to disregard could cure harm where argument referred to defendant's lack of remorse and nontestimonial demeanor). As a result, appellant is not entitled to the *Romo* exception to the waiver rule. *Romo,* 631 S.W.2d at 505. Appellant's fifth point of error is overruled.

> FN8. The prosecutor's argument is actually an impermissible comment upon appellant's nontestimonial demeanor. See *Good v. State,* 723 S.W.2d 734, 737 (Tex.Cr.App.1986). However, unlike the fact scenario in *Good,* the improper comment in the case at bar was made during the punishment phase. Additionally, we held in *Good* that when the trial court overruled Good's timely and specific objection, the court thereby implicitly placed "its imprimatur on the State's argument." *Id.,* 723 S.W.2d at 738.

Last, appellant challenges the sufficiency of the evidence to support the jury's finding of future dangerousness. Tex.Code Crim.Proc.Ann. art. 37.071 (b)(2). In the process of doing so, appellant challenges the validity of the admission of reputation testimony during the punishment phase of the trial. Despite the multifarious nature of this point of error, given the severity of the sentence imposed, we will address both components of the issue.

Deputy Sheriff Jackson and Ranger Coleman were the only witnesses at the punishment phase. Both testified that they spoke with individuals in several communities in which appellant had resided and that appellant's reputation for being peaceful and law-abiding in those communities was bad.

[9][10] Hearsay is inherent in testimony regarding reputation. The testimony of a reputation witness must be based on discussion with others concerning the defendant, or on hearing others discuss the defendant's reputation, and not just on personal knowledge. *Jackson v. State,* 628 S.W.2d 446, 450 (Tex.Cr.App.1982). Additionally, reputation testimony cannot be based solely upon the offense for which the defendant is on trial; it must include a discussion of matters other than the instant offense. *Watson v. State,* 605 S.W.2d 877 (Tex.Cr.App.1979) (opinion on reh'g).

[11] Essentially, appellant complains that Jackson and Coleman did not *personally* know appellant or where appellant resided, and therefore should have been precluded from testifying about appellant's reputation. In *Hubbard v. State,* 496 S.W.2d 924, 925 (Tex.Cr.App.1973), this Court entertained a similar challenge and held that an officer's testimony regarding reputation is permissible where the officer based the opinion on discussions with fellow officers and persons who lived in appellant's neighborhood. See also *Castillo v. State,* 739 S.W.2d 280, 292 (Tex.Cr.App.1987). It is clear from the record that the witnesses spoke with numerous individuals from a variety of communities in which appellant had resided. Clearly, the testimony regarding appellant's reputation did not stem solely from the instant offense. There was no error in the admission of reputation testimony from either Deputy Sheriff Jackson or Ranger Coleman.

[12][13] Finally, we turn to appellant's contention that the evidence was insufficient to support a finding of future dangerousness. In making such an assessment, we must view the evidence in the light most favorable to the verdict to determine whether a rational trier of fact could have found the elements of Tex.Code Crim.Proc.Ann. art. 37.071 (b)(2) beyond a reasonable doubt. *Keeton v. State,*

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724 S.W.2d 58, 61 (Tex.Cr.App.1987). Evidence adduced at both the guilt/innocence and punishment phases of trial can be used by the jury when considering future dangerousness. *Mitchell v. State,* 650 S.W.2d 801, 812 (Tex.Cr.App.1983). Additionally, this Court has repeatedly stated that the circumstances of the offense alone are enough to sustain an affirmative answer to the second special issue. *James v. State,* 772 S.W.2d 84, 90 (Tex.Cr.App.1989); *Moreno v. State,* 721 S.W.2d 295, 302 (Tex.Cr.App.1986); *O'Bryan v. State,* 591 S.W.2d 464, 480 (Tex.Cr.App.1979).

[14] The facts of this crime demonstrate an utter disregard for human life; indeed, they depict a man so determined to murder the very people with whom he earlier socialized that he effectively sealed off their escape routes by pouring an accelerant on the door jams to their bedrooms and on the front and back doors to the house immediately before sending the house up in flames. Appellant succeeded in killing two women, and seriously endangered the life of his own cousin. When the fire fighters began to arrive, appellant did not volunteer ***387** the information that two women were trapped inside the smoldering house. Instead, he impassively smoked cigarettes while watching the fire fighters battle the blaze.

Appellant argues that the crime is not particularly heinous because, for example, there is no evidence that he sexually molested the women before they were burned beyond recognition. We do not find this argument persuasive. Obviously, the jury did not regard this double murder to be substantially less egregious simply because there is no evidence of sexual assault. Moreover, the jury can consider the number of people killed in determining the likelihood of future dangerousness. *Moreno v. State,* 721 S.W.2d 295 (Tex.Cr.App.1986). We conclude that the nature of the offense is so extreme that a rational trier of fact could have reasonably answered the second special issue in the affirmative based solely on the facts of the offense.

Additionally, a prior criminal record may be probative of future dangerousness. *Keeton,* 724 S.W.2d at 61. Appellant's tape recorded statement indicated that appellant was convicted of a felony involving "immoral conduct" and that appellant had several driving while intoxicated convictions. Appellant's prior convictions could have contributed to the jury's determination of future dangerousness. In the same respect, unadjudicated offenses may constitute a basis for finding a defendant to be a continuing threat to society. *Mitchell,* 650 S.W.2d at 812. In the case at bar, there was repeated evidence adduced at the guilt/innocence phase, without objection, that appellant abused prescription drugs and marijuana. This, too, could have been a factor in the jury's determination.

The testimony of a defendant's reputation is probative of a likelihood to commit future acts of violence. *Cockrum v. State,* 758 S.W.2d 577, 593 (Tex.Cr.App.1988); *Ex parte Alexander,* 608 S.W.2d 928, 930 (Tex.Cr.App.1980). Here, two witnesses testified that appellant's reputation for being peaceful and law-abiding was bad in several communities. The jury could have used this evidence in reaching the determination of future dangerousness.

Last, we turn to the age of the defendant. We have held that a defendant's youth may militate against a finding of future dangerousness. *Barney v. State,* 698 S.W.2d 114 (Tex.Cr.App.1985). In the case at bar, appellant was forty years old at the time of the offense. Appellant's age, especially when coupled with his prior offenses and bad reputation in the communities in which he resided, is a factor the jury may have taken into consideration when answering "yes" to the second special issue. Appellant's final point of error is overruled.

Finding no reversible error, we affirm the judgment of the trial court.

DAVIS, CLINTON and DUNCAN, JJ., concur in the result.

Tex.Cr.App.,1989.

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785 S.W.2d 378
(Cite as: 785 S.W.2d 378)

Willis v. State
785 S.W.2d 378

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Supreme Court of the United States
Ernest Ray WILLIS, petitioner
v.
TEXAS

No. 89-7782
October 9, 1990

Case ***908** below, 785 S.W.2d 378.

Petition for writ of certiorari to the Court of Criminal Appeals of Texas.

Denied.

Justice MARSHALL dissenting:

Adhering to my view that the death penalty is in all circumstances cruel and unusual punishment prohibited by the Eighth and Fourteenth Amendments, *Gregg v. Georgia*, 428 U.S. 153, 231, 96 S.Ct. 2909, 2973, 49 L.Ed.2d 859 (1976), I would grant certiorari and vacate the death sentence in this case.

Justice SOUTER took no part in the consideration or decision of this petition.

U.S.,1990
Willis v. Texas
498 U.S. 908, 111 S.Ct. 279, 112 L.Ed.2d 234

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Not Reported in F.Supp.2d, 2004 WL 1812698 (W.D.Tex.)
(Cite as: 2004 WL 1812698 (W.D.Tex.))

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Only the Westlaw citation is currently available.

No. P-01-CA-20.
Aug. 9, 2004.

United States District Court,
W.D. Texas, Pecos Division.
Ernest Ray **WILLIS**, Petitioner,
v.
Janie **COCKRELL**, Director, Texas Department of Criminal Justice, Institutional Division, Respondent.

AMENDED ORDER GRANTING PETITION FOR WRIT OF HABEAS CORPUS

FURGESON, J.

TABLE OF CONTENTS

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INTRODUCTION

***1** Ernest Willis brings this petition under 28 U.S.C. § 2254 for a writ of habeas corpus challenging his conviction and sentence of death in Texas state court for the murder of Elizabeth Grace Belue.[FN1] The parties filed cross motions for summary judgment.[FN2] After an extensive review of the state court determination, the parties' briefing and the applicable law, the Court finds that Willis's petition for writ of habeas corpus should be granted because both his conviction and sentence were obtained in violation of the United States Constitution. Specifically, the Court grants Willis's petition on the following grounds: 1) Willis's due process rights were violated by the State's administration of medically inappropriate antipsychotic drugs without Willis's consent; 2) the State suppressed evidence favorable and material to the sentencing determination; 3) Willis received ineffective assistance of counsel at the guilt-innocence phase; and 4) Willis received ineffective assistance of counsel at the sentencing phase. On all other grounds, Willis's petition is denied.

FN1. Petition, (Docket No. 13), filed Dec. 12, 2001 [hereinafter Pet .].

FN2. Respondent's answer and motion for summary judgment (Docket No. 19) and Petitioner's Reply (Docket No. 22). Petitioner's Reply indicates that Petitioner believes that the record before the Court is satisfactory and thus this petition is ripe for decision. *See* Pet.'s Reply, at 2.

FACTUAL AND PROCEDURAL BACKGROUND

In the early morning hours of June 11, 1986, a fire destroyed a home in Iraan, Texas. At the time, the house was occupied by four people: Elizabeth Belue, Gail Allison, Ernest Willis and Billy Willis. All were guests of the resident tenants of the house, Michael and Cheryl Robinson. The Robinsons were not home at the time. Two of the guests, Elizabeth Belue and Gail Allison, died in the fire due to smoke inhalation. Their remains were found in two of the bedrooms of the three bedroom house. The other two guests who survived the fire were Petitioner, Ernest Willis, and his cousin, Billy Willis. The Willis cousins did not know Belue or Allison prior to the day of the fire. Billy Willis escaped the fire when he jumped, naked, out of a bedroom window.

According to Ernest Willis, on the night of the fire he was sleeping on the sofa in the living room. Willis further claims that the smell of fire awakened him and that he ran through the house trying to awaken the occupants but could not enter the bedrooms due to the fire and smoke. Willis claims that when his attempts to reach the others failed, he ran out the front door and around the outside breaking windows in an attempt to secure an escape route for those still inside. The State of Texas disputes Willis's version of the events.

Willis was ultimately arrested and charged with the murder of Elizabeth Belue. The indictment charged Petitioner with intentionally and knowingly causing the death of Elizabeth Belue in the course of committing arson on a habitation. According to the State, Willis intentionally poured a flammable liquid accelerant on the floor of the house and set it afire.[FN3] But even if one relies exclusively upon the testimony of witnesses presented by the prosecution at trial, numerous discrepancies remain regarding the events leading up to the fatal fire. The State did not present at trial a theory of

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Willis's alleged motive.

FN3. Both of the individuals who survived the fire, Billy and Ernest Willis, were initially suspects.

***2** After a jury trial before the Honorable Brock Jones of the District Court of Pecos County, Texas, 112th Judicial District, Willis was convicted on August 4, 1987 of capital murder and sentenced to death for Belue's murder. Willis's sentencing phase was held on August 5, 1987. Willis's conviction was affirmed on direct appeal on June 7, 1989,[FN4] and on October 9, 1990, the United States Supreme Court denied certiorari.[FN5] Willis then filed for state post-conviction relief on October 8, 1991. On June 7, 2000, following five days of hearing, Judge Jones of the Texas trial court issued detailed findings of fact and conclusions of law and recommended granting relief to Willis.[FN6] On December 13, 2000, the Texas Court of Criminal Appeals ("CCA") denied Willis all relief.

FN4. *Willis v. State*, 785 S.W.2d 378, 387 (Tex.Crim.App.1989), *reh'g denied*, (Jan. 17, 1990), *cert. denied*, 498 U.S. 908 (1990).

FN5. *Willis v. Texas*, 498 U.S. 908 (1990).

FN6. Judge Jones was the judge for both Willis's trial and his state post-conviction hearing.

Willis then filed the instant petition alleging the following claims for relief: 1) Willis is innocent and thus the Eighth and Fourteenth Amendments require that his conviction and sentence be vacated; 2) the State's wrongful administration of antipsychotic medications to Willis violated his right to due process and other constitutional rights, including the right to counsel and the right to confront witnesses; 3) defense counsel rendered ineffective assistance at the guilt-innocence phase; 4) defense counsel rendered ineffective assistance at the sentencing phase; 5) the prosecution suppressed evidence material to the sentencing determination; and 6) the cumulative effect of error outlined in the above claims violated due process.

In support of his argument for habeas relief grounded in actual innocence, Willis relies upon evidence he introduced at the state post-conviction hearing supporting his account of the pertinent events. But, as will be detailed in Section IV addressing the innocence claim, Judge Jones rejected the innocence claim based upon insufficiency of the evidence Willis offered in support.

STANDARD OF REVIEW

The federal habeas statute, as amended by the Antiterrorism and Effective Death Penalty Act of 1996 (AEDPA), 28 U.S.C. § 2254, provides that:

> An application for a writ of habeas corpus on behalf of a person in custody pursuant to the judgment of a State court shall not be granted with respect to any claim that was adjudicated on the merits in State court proceedings unless the adjudication of the claim -
>
> (1) resulted in a decision that was contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States; or
>
> (2) resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented in the State court proceeding.[FN7]

FN7. 28 U.S.C. § 2254(d).

A state court's decision is deemed contrary to clearly established federal law if the state court arrives at a conclusion opposite to that reached by the Supreme Court on a question of law or if the state court decides a case differently than the Supreme Court on a set of materially indistinguishable facts.[FN8] Under the "unreasonable application" clause, a federal habeas court may grant the writ if the state court identifies the correct governing principle from the Supreme Court's decisions but unreasonably applies that principles to the facts of the prisoner's case.[FN9]

FN8. *Williams v. Taylor*, 529 U.S. 362 (2000).

FN9. *Id.*

***3** Pursuant to section 2254(e)(1), state court find-

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ings of fact are presumed to be correct, and the petitioner bears the burden of rebutting the presumption of correctness by clear and convincing evidence.[FN10] When the state habeas judge also served as the trial judge, as Judge Jones did in this case, the state judge's factual findings are entitled to particular deference.[FN11]

FN10. 28 U.S.C. § 2254(e). *See also Pondexter v. Dretke*, 346 F.3d 142, 146 (5th Cir.2003); *Valdez v. Cockrell*, 274 F.3d 941, 947 (5th Cir.2001).

FN11. *See Davis v. Blackburn*, 789 F.2d 350, 352 (5th Cir.1986); *Vuong v. Scott*, 62 F.3d 673, 684 (5th Cir.1995), *cert. denied*, 516 U.S. 1005 (1995).

LEGAL ANALYSIS

Before addressing each of Willis's claims, the determination must first be made whether the Texas trial court's post-conviction factual findings are properly before this Court in light of the CCA's denial of relief.

I. The State Trial Court's Post-Conviction Factual Findings are Properly Before the Court

At the outset, the Court notes that the posture of this dispute, cross-motions for summary judgment, indicates the parties' agreement that the state trial court's post-conviction findings of fact are properly before this Court on habeas review. Neither party requested an evidentiary hearing. Moreover, the Court, on independent review, finds the state trial court's factual findings are properly considered here, even in light of the Texas CCA's denial of relief.

According to *Craker v. Procunier*, the Fifth Circuit requires that deference is owed to the state court's post-conviction factual findings when denial by the Texas Court of Criminal Appeals was not inconsistent with those factual findings.[FN12] This must be the case because, for example, the appellate court might hold that the facts determined by the trial court did not warrant relief based on the appropriate legal standards, and such a holding would not be inconsistent with those factual findings.[FN13] Despite the deference typically afforded the state court's post-conviction factual findings, in some circumstances the state trial court's findings do not survive the CCA's denial of relief.[FN14] In *Micheaux v. Collins*, the Fifth Circuit held that the state trial court's findings did not survive the CCA's denial of relief where 1) the CCA denied relief without written order and 2) the factual findings were directly inconsistent with the CCA' peremptory denial of relief.[FN15]

FN12. *Craker v. Procunier*, 756 F.2d 1212, 1213-14 (5th Cir.1985). *See also Westley v. Johnson*, 83 F.3d 714, 721 n. 2 (5th Cir.1996).

FN13. *Westley*, 83 F.3d at 721 n. 2.

FN14. *Micheaux v. Collins*, 944 F.2d 231, 232 (5th Cir.1991) (en banc).

FN15. *Id. See also Singleton v. Johnson*, 178 F.3d 381, 384, 85 (5th Cir.1999). In *Walbey v. Dretke*, 2004 WL 909736 (5th Cir.2004) (per curiam) (unpublished), the Fifth Circuit applied *Micheaux* instead of *Craker* even though the CCA had issued a written order. However, the written order in *Walbey* was silent as to the state trial court's findings of fact and did not state whether the CCA accepted or rejected the factual findings of the trial court. In addition, the *Walbey* court stated that the facts found by the state trial court were directly inconsistent with the CCA's denial of habeas relief. In *Walbey*, the CCA's opinion contained no specific factual findings or reasoning to support its ultimate conclusion, and thus "the terse opinion of the ... CCA here is the functional equivalent of a denial without written order." *Id.* at *3. The Fifth Circuit remanded the case to the district court for an evidentiary hearing. Although unpublished because it provided no change or explanation of a generally established rule of law, *Walbey* is mentioned here because it demonstrates a helpful application of the distinction between *Micheaux* and *Craker*.

The CCA's order in the instant case more closely resembles *Craker* on the "*Craker/Micheaux* continuum."[FN16] This Court discusses the CCA's analysis

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of each of Petitioner's claims in the relevant section in this opinion. Generally though, for two of the claims before the Court-prosecutorial suppression of evidence and wrongful administration of antipsychotic drugs-the CCA identified a legal principle and found that the facts as found by the trial court did not meet the legal standard. For the other two claims-ineffective assistance of counsel at the guilt-innocence phase and at the sentencing phase-the CCA discussed facts from the record different than, but not inconsistent with, the facts relied upon by the trial court. Then, based on a determination of those different facts as legally significant, and on the basis of legal standards the CCA employed, the CCA denied relief. Because the CCA's opinion in this case included legal reasoning and discussion of the facts, it is not the functional equivalent of denial without written order. And for all four of the above claims, the CCA's opinion was based on the use of, in whole or in part, an erroneous legal standard irrespective of the relevant facts used in relation to that legal standard. Therefore, this Court must defer to the post-conviction factual findings of the state trial court.

FN16. *Walbey*, 2004 WL 909736 at *2.

II. The State Trial Court's Post-Conviction Findings of Fact

***4** Here, the Court provides a summary of the state trial court's post-conviction factual findings. The relevant facts will be reiterated or developed for the analysis of each of Petitioner's claims in the appropriate section, as well.

A. The State Unnecessarily Medicated Willis While Incarcerated and During Trial

Willis was arrested and incarcerated at Pecos County Jail on October 22, 1986. Willis was not taking any antipsychotic medications at the time of his arrest and initial incarceration in the Pecos County Jail. The State began administering Haldol (the brand name for the generic drug Haloperidol) to Willis on February 23, 1987. As of March 23, 1987, the State began administering 40 milligrams ("mg.") of Haldol per day to Willis; and on May 30, 1987, the State began administering between 8 mg. and 32 mg. of Perphenazine per day to Willis.

The State continued to daily administer these doses of Haldol and Perphenazine to Willis throughout the course of his trial, including the jury selection, guilt-innocence and penalty phases. These proceedings began on July 8, 1987 and concluded on August 5, 1987. Willis was formally sentenced on August 5, 1987. The State continued to administer Haldol and Perphenzine to Willis until August 27, 1987. The following day, Willis was transported from Pecos County to the Texas Department of Corrections ("TDC") in Huntsville. Willis has not been administered antipsychotic medication at any time since August 27, 1987-either during subsequent stays in the Pecos County Jail (pursuant to bench warrants) or while in the custody of TDC.[FN17]

FN17. This factual finding implies a lack of medication beyond the date of the trial court's post-conviction factual findings. While the record suggests that the finding remains true long after the trial court's hearing and until today, this Court makes no such finding and instead defers to the trial court's finding and that relevant period of time.

There are multiple reasons the medications administered to Willis were inappropriate according to Judge Jones. First, the dosages for Haldol (40 mg. per day) and Perphenazine (8 mg.-32 mg. per day) that the State gave to Willis during the course of the trial were high doses, even for acutely psychotic patients. The maximum dose of Haldol for a severely psychotic person is 15 mg. per day. Willis received more than twice that amount at 40 mg. per day. Second, Willis was administered two antipsychotic medications. Judge Jones found that the combination of two different antipsychotic drugs has more than an additive effect on a patient and that the administration of antipsychotic drugs to a non-psychotic individual increases the side-effects of the drugs.

Judge Jones also found that common side effects of antipsychotic medication include: flat or little facial expression, inexpressiveness, rigidity of the facial muscles, fixed gaze, drowsiness, confusion and diminished ability to communicate with others. Judge Jones stated that all of these side effects were exhibited by

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Willis during his trial, and Willis's demeanor at the evidentiary hearing on his habeas petition was markedly different from his demeanor at trial.[FN18] Judge Jones found that Willis's expression, from the moment he stepped into the courtroom for voir dire throughout the entire trial, reflected an apparent indifference to the proceedings. Judge Jones found that Willis's demeanor at trial was a direct result of the antipsychotic medications he was receiving, and was "absolutely typical" of known side effects of antipsychotic medications.[FN19] Finally, Judge Jones found that the prosecution seized upon Willis's demeanor in the guilt-innocence and punishment phases of the trial, asking the jury to draw inferences of guilt and future dangerousness from Willis's lack of apparent feeling or emotion.

FN18. Judge Jones also found that, while an individual's I.Q. is typically stable throughout one's life, Willis's intelligence test at the time of trial was significantly lower than at the time of the evidentiary hearing on the habeas petition. *Ex parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10.

FN19. *Id.*

***5** Judge Jones also made findings regarding the medical justifications for the antipsychotic medications. Judge Jones found that the State's administration of the drugs to Willis was without any medical need. Antipsychotic medications like Haldol and Perphenazine are not justified unless a patient is suffering "psychotic symptoms" as a result of a "lifelong" psychotic disorder.[FN20] " Psychosis is a very, very serious psychiatric condition ... manifest by symptoms such as schizophrenia, derangement, hallucinations, delusions, paranoia, and formal thought disorder."[FN21] Judge Jones found that nothing in any of Willis's records, or his social or medical history, indicates that he needed to take antipsychotic medications. Furthermore, the record does not show that the State established the requisite "overriding justification" and "medical appropriateness" findings before administering the mind-dulling or psychotropic drugs to Willis during his trial. Finally, the state court found that although Willis did not affirmatively object to the medication, his failure to object was not consent.[FN22]

FN20. *Id.* at 11.

FN21. *Id.*

FN22. As will be discussed later, although not so determined by Judge Jones, the evidence suggests that Willis was actually medicated without his knowledge for symptoms he did not manifest.

B. Findings of Ineffective Assistance of Counsel at the Guilt-Innocence and Sentencing Phases

Judge Jones found ineffective assistance of counsel at multiple stages in Willis's representation.

1. Failure to Investigate Willis's Demeanor and Discover the Administration of Antipsychotic Drugs

Judge Jones found that defense counsel took no steps to determine the cause of Willis's appearance or demeanor during the course of trial. As a result, defense counsel never learned that the State was administering high doses of antipsychotic medication to Willis during his incarceration at Pecos County Jail both before and during trial. Defense counsel did not speak with any person with medical training concerning Willis's physical and emotional appearance. Defense counsel did not attempt to review Willis's Pecos County Jail medical records.

Judge Jones found that Willis's defense counsel not only had the right to access those records, but that it was "rudimentary" and "basic" for counsel to gather such records. In addition, defense counsel recognized a problem with Willis's demeanor and suspected that the problem could be related to medication that Willis was taking but, nevertheless, failed to investigate Willis's demeanor and failed to gather medical records. Had defense counsel gathered Willis's Pecos County Jail records, counsel would have known Willis was unnecessarily receiving large doses of Perphenazine and Haldol prior to and during his trial.[FN23]

FN23. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 17.

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2. Failure to Object to the State's Use of Willis's Demeanor and the State's Descriptions of Willis as an Animal

Judge Jones found that the State referred to Willis's demeanor during trial as evidence of guilt and dangerousness and the State urged jurors to infer a lack of remorse based on Willis's demeanor. Defense counsel did not object to any of these references by the prosecution. FN24 The state trial court found that the prosecution characterized Willis as a "pit bull," an "animal," and a "rat," during voir dire, closing arguments and at the penalty phase. FN25

FN24. *Id.* The Court of Criminal Appeals, in its decision affirming Willis's conviction on direct appeal, held that failure to object to an impermissible jury argument generally waives any error. *See Willis,* 785 S.W.2d at 385.

FN25. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Cone. of Law at 18.

***6** Based upon these findings, Judge Jones concluded as a matter of law that defense counsel's failure to object to the State's use of Willis's demeanor contributed to defense counsel's failure to meet the standard of reasonableness required for effective assistance of counsel. The Court considers the legal conclusions related to the factual findings in the relevant section below.

3. Failure to Cross-Examine Aggravating Evidence and to Present Mitigating Evidence FN26

FN26. *Id.* at 19-22.

Judge Jones made the following findings of fact with respect to defense counsel's failure to cross-examine purported aggravating evidence and failure to present mitigating evidence on Willis's behalf. The penalty phase of Willis's trial lasted less than half a day. The transcript from the penalty phase consumes barely ten pages. The prosecution called two witnesses, both local law enforcement officers, who testified that Willis had a bad reputation in the unspecified communities in which he resided. On cross-examination, defense counsel asked these witnesses a total of two questions. Defense counsel knew in advance who the State's witnesses would be and what the subject matter of their testimony would be. Counsel did not investigate the veracity of the witnesses or otherwise develop evidence or arguments to respond to the government's penalty phase case.

Judge Jones also found that Willis's case was his counsel's first capital trial. The defense did not prepare for the penalty phase, did not meet with Willis in advance of the penalty phase, introduced no evidence, and presented no witnesses whatsoever on Willis's behalf. Despite being unprepared, defense counsel did not request a continuance or a recess to prepare for the penalty phase. In fact, defense counsel met with Willis less than three hours prior to July 1987, when jury selection commenced. Defense counsel spoke to four or five people who knew Willis but failed to follow-up on the limited information those individuals had pertaining to Willis.

Judge Jones found that defense counsel could have presented the following mitigating evidence but did not do so: testimony of at least five Pecos County Law Enforcement Officers that Willis was a respectful and well-behaved prisoner who was not the type to act violently or misbehave; testimony of other individuals that Willis was non-violent; testimony that Willis turned himself in when he learned of the outstanding indictment against him; testimony of heroic acts by Willis who, for example, saved the life of a drowning boy and assisted his infant niece who had been severely burned in a car fire; testimony of family and friends describing Willis as a caring family man and responsible individual. FN27 The state trial court found that the above mitigating evidence was readily accessible and available to defense counsel at little or no cost. Every character witness who testified at the post-conviction hearing stated that he or she would have been willing to testify on Willis's behalf at his trial.

FN27. Defense counsel contacted none of these witnesses. Some of the witnesses were present in the courtroom for portions of Willis's trial. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact

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and Conc. of Law at 21.

C. Prosecution's Failure to Disclose Pretrial Psychological Report

***7** At the post-conviction hearing in state court, Judge Jones heard evidence concerning a pretrial psychological report finding that Willis was not a future danger. The report was submitted to the prosecution and never turned over to the defense before or during trial. The findings of fact are summarized below. Based upon these findings of fact, Judge Jones held that the evidence suppressed by the prosecution was both favorable and material and that Willis was entitled to habeas relief for due process violations.[FN28]

FN28. *See Brady v. Maryland*, 373 U.S. 83, 87 (1963) (prosecutorial suppression of evidence that is favorable to an accused "violates due process where the evidence is material either to guilt or punishment, irrespective of the good faith or bad faith of the prosecution").

On December 2 and 3, 1997, before the post-conviction evidentiary hearing at the state trial court, Willis was interviewed by Dr. Mark Cunningham, a clinical and forensic psychologist. During this interview, Willis stated that he recalled having been examined by a psychologist while awaiting trial in the Pecos County Jail. No reference to a report of a pretrial psychological or psychiatric examination existed in the trial transcript, the trial exhibits, the case files of Willis's trial counsel, or the court's files. Consequently, an investigation was conducted to determine whether Willis's recollection was accurate.

As a result of the investigation, it was determined Dr. Jarvis Wright, a forensic psychologist, examined Willis on July 12, 1987 and prepared a written report memorializing his findings. Dr. Wright forwarded a copy of his report (the "Wright report") to Willis's post-conviction counsel in December 1997.

Dr. Wright conducted the examination and prepared the written report on behalf of the prosecution.[FN29] Before Willis's trial, the District Attorney's office contacted Dr. Wright and requested a psychological examination of Willis. On July 12, 1987, Dr. Wright examined Willis, who was then in the custody of the Pecos County Jail, to determine: 1) Willis's competency to stand trial; 2) Willis's sanity and the presence or absence of mental illness; and 3) the likelihood that Willis would present a future danger. Shortly after the examination, Dr. Wright orally reported his findings directly to J.W. Johnson in the District Attorney's office. Dr. Wright informed Johnson that, based on the evaluation of Willis, he "didn't think this was a good death penalty case," as he found no evidence to support a conclusion of future dangerousness for the purposes of the Texas capital sentencing statute.[FN30] Furthermore, Dr. Wright determined that Willis was competent to stand trial and did not exhibit any form of mental illness or mental retardation. At the time of Willis's trial, Dr. Wright did not discuss the psychological examination of Willis with anyone other than Johnson.

FN29. At the time Dr. Wright conducted the examination of Willis, there was a pending motion for a psychiatric evaluation. After the evaluation and report by Dr. Wright, the State withdrew its motion for a psychiatric evaluation and stated that no expert testimony of Willis's mental state would be offered at trial. Pet. at 156.

FN30. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 2.

On Monday, July 20, 1987, the first day of testimony in Willis's trial,[FN31] Dr. Wright sent, by Federal Express, a final copy of the Wright report and the Wright invoice from his office in San Angelo, Texas, to the District Attorney's office in Fort Stockton, Texas.[FN32] On Tuesday, July 21, 1987, at 2:41 p.m., the Federal Express package with the Wright report and the Wright invoice arrived at Johnson's office. Albert Valadez, the assistant prosecutor in Willis's trial, accepted and signed for this Federal Express package.[FN33]

FN31. Willis's trial lasted two and one-half weeks.

FN32. *Ex Parte Willis*, No. 27, 787-01 Find. of

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Fact and Conc. of Law at 3. Federal Express records, as well as Dr. Wright's records, are the source of all facts relating to the delivery and receipt of the Wright report.

FN33. During the state habeas hearing, the State repeatedly denied that the prosecution had any knowledge of the Wright report, a claim belied by the facts presented during hearing.

***8** Had Dr. Wright been called as a witness during the penalty phase of Willis's trial, he would have testified, based on his examination of Willis, that he "knew of no information" that would justify a conclusion that Willis would be dangerous in the future.[FN34] Furthermore, the Wright report stated that if "sworn testimony indicates that [Willis's] behavior until the time of the current alleged offense was no worse than his previous behaviors, we could probably say with safety that the current alleged behavior was an isolated event which he probably will not repeat."[FN35] Judge Jones found an abundance of available evidence, through the testimony of acquaintances of Willis and law enforcement officers, established that Willis had no history of violent behavior and that any prior episodes of misconduct were nonviolent.

FN34. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4, *citing* Dr. Wright's testimony at the state post-conviction hearing.

FN35. *Id.* at 2, *quoting* Def. E.H. Ex. 25, at 5-6.

Judge Jones therefore found that the prosecution failed to disclose the Wright report to the defense prior to or during Willis's trial. Although Willis's trial attorneys agreed to allow the prosecutors to conduct a pretrial psychological examination of Willis to ensure his competency to stand trial, the prosecution did not reveal that an assessment of future dangerousness had also been done.

D. Facts Related to Willis's Innocence Claim

The state trial court did not resolve substantial factual disputes related to Willis's claim that he is actually innocent. Willis's version of the incident leading to arrest and the events surrounding the incident differ from the State's theory of the case. Because the factual dispute was not resolved by Judge Jones's findings of fact, the parties' factual allegations and corresponding arguments are presented in the next section addressing the innocence claim.

III. Innocence Claim

Due to other relief given on different grounds, it is not necessary for this Court to resolve the parties' dispute regarding Willis's claim of innocence. But, to provide a background for the other substantive claims, the Court discusses in detail the facts Willis alleges. The factual allegations recited here are from Willis's petition and were not included in Judge Jones's factual findings. Although Willis's allegations of innocence and factual allegations supporting the claim were presented to the state trial court, the state trial court only made one factual finding concerning the innocence claim. The state trial court found that David Long, who had confessed to the crime for which Willis was convicted and sentenced to death, refused to testify at the state evidentiary hearing. The state trial court determined that Long's prior confession, which was tape recorded by law enforcement officers, was not sufficiently corroborated to be admissible.[FN36] Therefore, other than Long's confession, these facts related to Willis's innocence claim have been neither specifically rejected nor accepted by the state court, though the state court did say that the testimony was insufficient to support a finding that Willis is innocent.[FN37]

FN36. *Id.* at 25.

FN37. *Id.* at 33.

A. The State's Theory of the Fire

***9** At trial, the State's experts testified that the burn patterns and degree of burning indicated that a flammable liquid was poured on the floor of the house, throughout the living and dining areas, in front of the bedroom door jambs, around the front and back door entrances, and beneath and on top of the sofa in the living area. The State's experts also testified that the fire

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originated in the living area of the house and quickly, if not simultaneously, ignited the dining room and kitchen. Thereafter the fire spread to the bedrooms. The State's arson investigators testified that if Willis had been sleeping on the sofa he would have been burned.

The State asserted that Willis's version of events was incredible for two main reasons. First, while broken glass was found outside the house, none was found inside, and thus the State said that the evidence did not support Willis's claim that he ran around the outside of the house trying to break windows so that the people inside could escape. Second, Willis had no burn marks, no singed clothing, no singed hair, did not smell like smoke, and his clothing did not have cinder marks. FN38 Two days after the fire, Willis had a very bad burn mark on his shoulder which Willis claimed occurred in the fire but several witnesses, including Sheriff Wilson, stated Willis had no such injury the day of the fire.

FN38. A stain was found on the shirt, and the stain was identified as betadine, an antiseptic.

Other evidence included the fact that the day after the fire, Deputy Jackson, one of the investigators on the case, discovered that the front portion of the garden hose had been cut off. Jackson learned from the tenants that this was a new hose that had previously been intact. Later, Jackson found a smaller portion of the garden hose, a trace analysis of which indicated the presence of gasoline. No known accelerant was positively identified on Willis's pants.

B. Confession of David Martin Long FN39

FN39. While the state court found the corroboration of Long's confession insufficient, the corroborating witnesses were: David Paulk, Amelia Fuentes, Billy Willis, George Wheat, Michael and Cheryl Robinson and Marshall Smyth. *See* Pet. at 44-48.

Long was an inmate confined at the same facility with Willis. He was convicted of capital murder on an unrelated charge and has since been executed. While incarcerated, Long repeatedly told George Wheat, the supervisor of Psychiatric Services at Ellis One Unit, that he had set the Iraan fire. Initially, Long only told Wheat that there was an inmate on death row who Long knew was innocent because that inmate had been convicted of a crime Long had committed. Over time, Long identified Willis as the innocent inmate. FN40 Though Wheat was initially skeptical of Long's confession, Wheat became satisfied that the confession was truthful. Wheat decided the information had to be disclosed, and Long signed a consent form for disclosure. Wheat then informed the Warden, Pecos County law enforcement authorities, Willis and Willis's counsel at the time, of Long's confession. On September 11, 1990, Deputy Jackson, one of the primary investigators of the Iraan fire, conducted a nearly three-hour long videotaped interview of Long. FN41

FN40. Long and Willis first met during recreation time when Long asked Willis where he was from; Willis answered Pecos. Long said he knew Billy Willis from Pecos and Petitioner Willis said Billy Willis had testified at his trial. At this point, Long realized Petitioner Willis was convicted of the crime Long committed. Petitioner Willis was then transferred to a work program and so Willis and Long no longer communicated at recreation time. Long requested a legal visit with Willis but decided not to say anything until he saw how Willis's direct appeal resolved. Long contemplated not saying anything until the hour of his own execution. Long requested a second legal visit at which time Long asked about Willis's direct appeal. Willis said his conviction and sentence were affirmed. At this point, Long told Willis that he committed the Iraan fire.

FN41. Prior to the interview, Jackson read Long his *Miranda* rights.

The substance of Long's confession is as follows: Long set the fire because he wanted to hurt or kill Billy Willis, Petitioner's cousin. Billy and Long were longtime associates who participated in various criminal activities together, usually drug related. On June 10,

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1986, Long drove to Iraan from Round Rock, Texas, where Long lived, to purchase some drugs from Billy. In his pick-up truck, Long carried a half-gallon bottle of Wild Turkey alcohol mixed with Everclear grain alcohol and some methamphetamine. Long arrived in Iraan sometime between 2:00 a.m. and 4:00 a.m. He parked his truck about a block away from the Robinson house where Billy was staying. He sat in the truck for about twenty minutes drinking the Wild Turkey and Everclear mixture and injecting himself with methamphetamine. He then went into the house with the Wild Turkey and Everclear mixture.

***10** Long testified that as he was in the house he became overcome with anger,[FN42] and poured the Wild Turkey and Everclear mixture on the carpet around the dining room table and around the living room. Long did not pour any of the mixture on the couch where Willis was sleeping, because he did not want to wake him. Long then used his Bic lighter to ignite some clothing draped over a piece of furniture in the living room. After setting the fire, Long left the house, returned to his truck, and drove a couple of blocks down the street.[FN43] He then left Iraan. Long stated he used the same method to start the fire in Iraan as he did to start a fire in Bay City, Texas, that also killed someone.[FN44] Finally, during his confession, Long described the Robinson house in great detail.

FN42. Long stated that “the feeling started coming over me, the bitterness that I have toward Billy, which I had not ever went down into detail about, things that happened in the past. And when this happens to me, I kind of like get locked in my mind and things go black and white, and I started feeling an extreme bitterness toward him, because at one time I was going to shoot him ... because of some things that happened in the past....” Pet. at 22, *citing* Def. E.H. Ex. 4 at 14, ll. 17-24 (Long).

FN43. Mrs. Amelia Fuentes, who lived across the street from the Robinson house, saw a vehicle traveling slowly past her house on Fifth Street before any of the police or fire vehicles arrived. She had never seen the vehicle before. During the investigation of the fire, Mrs. Fuentes toldDeputy Jackson about the vehicle. He told her to forget about it. Pet. at 23, *citing*, Tr. at 146, ll. 19-23 (Fuentes), May 23, 1996.

FN44. The modus operandi of both fires was similar. Long set fire to the Bay City victim's trailer using liquor as an accelerant, as he claimed he did in the Iraan fire. The reason Long gave for killing the victim of the Bay City fire and for attempting to kill Billy Willis was the same, that he held a grudge against both and snapped in their presence. The Bay City fire confession was used by the State in Long's capital murder trial for a triple axe murder for which he was convicted and sentenced to death. Furthermore, in Long's direct appeal, the Court of Criminal Appeals upheld the admission of the Bay City confession and stated it was corroborated by other witness' testimony. *Long v. State*, 823 S.W.2d 259, 268 n. 12 (Tex.Crim.App.1991).

C. Willis's Evidence Contradicting the State's Theory of the Fire[FN45]

FN45. This opinion provides only a short summary of the evidence presented during the state post-conviction hearing that negates the State's theory of the fire. A full description of the evidence presented and a description of Mr. Smyth's qualifications and methodology can be found at Pet. at 25-36.

At the state post-conviction hearing, Marshall Smyth, a fire investigator, testified for Willis. Smyth's testimony corroborates Long's accounts, shows that the State's theory of the case was mistaken[FN46] and supports Willis's version of the events. The State had a “pour pattern” theory of the fire, meaning that in every area of the house where there was burn damage, an accelerant had been poured. Under this theory, Willis could not have run out of the house because the floor would have been in flames. According to the pour pattern theory, Willis would have had to spread accelerant in or near bedrooms and exits for the fire to burn as it

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did.

FN46. Deputy Jackson, one of the State's arson experts, admitted during his interview of Long that he is "not much of a[sic] arson investigator." Pet. at 26, *citing,* Def. E.H. Ex. 4 at 74, ll. 5-6.

Smyth testified that the pour pattern theory was physically impossible, and that the burn damage to the house could not have been caused by an accelerant such as gasoline. Instead, Smyth testified that the burn damage throughout the house was the result of "flashover" conditions throughout the house during various points in the fire.[FN47] Smyth also testified that, consistent with Long's account of the fire, the maximum "area of origin" of the fire was the living room and dining room.[FN48] Smyth's tests showed that it would have taken approximately ten to eleven minutes for the fire to spread from the chair where it was ignited, according to Long, to the surrounding carpeting soaked with the alcohol mixture. That period of time is consistent with Willis's description that, once awakened, he ran through the house and then exited through the front door without serious injury.

FN47. "Flashover is a transition point, actually, in the development of a fire inside a compartment or room. And it's the point at which the burning materials in this fire became so strong that they form a gas cloud under the ceiling of the room. And this gas cloud thickens up. And at some point temperatures on the floor are raised to their-the ignition point of the materials due to the radiation of the heat from the gas cloud. And, at that point, all the combustible materials in the room essentially simultaneously burst into flame. So it's that transition point in the buildup of a fire from something less than full room involvement to the point where all the materials in the room are involved in the flame." Pet. at 28, *citing* Tr. at 32, ll. 9-33 (Smyth), Jan. 12, 1998.

FN48. Pet. at 28, n. 12, *citing* Tr. at 112, ll. 7-14 (Smyth), Jan. 12, 1998.

Other evidence disputes the State's theory of the case. The clothes Willis wore on the night of the fire were submitted to the State's lab; no accelerant was found on the clothes. In addition, accelerant was not found on the carpet samples from the Robinson house that were submitted to the lab, and the State never produced any evidence regarding the type of accelerant used to start the fire, according to the State's theory. Finally, consistent with Willis's statement regarding his actions upon discovering the fire-that he awoke to the house already on fire and ran around trying to rouse others-Willis left in the house his boots, socks and pain medication.

***11** In addition, Willis argues that his post-fire demeanor, which the State used as evidence of guilt during Willis's trial, can be explained in a manner that also supports his innocence. At the time of the fire, Willis was receiving care for chronic back pain and had undergone four back surgeries as a result of injuries suffered in past years as an oil field worker. Willis's prior back surgeries resulted in a chronic condition called "arachnoiditis." As a result, at the time of the fire, Willis was taking prescription opiate drugs like Talwin and Percodan to make his back pain tolerable.[FN49] Two days before the fire, on June 9, Willis went to the emergency room because of excruciating back pain. He was given an injection of Butorphanal and some Phernergan. Later that day he took at least nine 50 mg. tablets of Talwin.

FN49. For exact quantities of the drugs taken, *see* Pet. at 39-40.

The next day, the day before the fire, at around 4:00 a.m., Willis again went to the emergency room, where he was given a dose of Demerol and some Emet-Con, a drug for treatment of nausea. He returned to the Robinson house at 7:00 a.m., took three tablets of Talwin and a muscle relaxant. Two hours later, he was still in pain, and he took another three tablets of Talwin. An hour later he went to see Dr. Edwin Franks, who gave him a steroid injection and a prescription for additional back pain medications. Throughout the rest of the day, Willis took at least six more Talwin tablets and one Percodan tablet. In addition, between 6:00 p.m. and midnight, Willis drank approximately six cans of beer, and took

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more Talwin and Percodan before going to sleep.[FN50]

FN50. Pet. at 40, *citing* Lipman Depo. at 17, ll. 18-19, Jun. 8, 1998. The levels of pain medication that Willis took on June 9-10, 1986 were not unusual for chronic back pain patients. *Id.* at 20, ll. 1-15.

Willis contends the drugs he took in the two days before the fire would have affected his outward appearance in the time period immediately after the fire. Specifically, he claims the drugs would make him appear unemotional and unexcited. Also, he claims the alcohol consumed would have contributed to his low affect and to the suppression of his coughing after the fire.[FN51]

FN51. *Id.* at 25, ll. 9-27.

The State asserted at trial that Willis's account of the fire was not believable because Willis was not injured. Two days after the fire, Willis did have a very bad burn on his shoulder, but the State claimed the burn was not present the day of the fire and thus was not caused by the fire. During the state post-conviction hearing, Willis put forth evidence that blistering does not necessarily occur immediately as a result of thermal burning and thus the appearance of the burn on Willis two days after the fire was not unusual.[FN52]

FN52. Pet. at 40, *citing* Lipman Depo. at 77, ll. 1-7, Jun. 8, 1998.

One of the state investigators, Deputy Jackson, testified at trial that Willis's account that he ran around the outside of the house breaking windows in an effort to help the people still inside could not be truthful because glass was found only on the outside of the house. Willis claims the windows to the Robinson house were a particular type that prevented the glass from falling into the house. Willis claims that the windows consisted of two panels, a lower portion and an upper. When opened, he claims, the lower portion slides above the upper portion, creating two layers of glass. Willis claims the windows were open the night of the fire and that when he broke the upper part of the window, the lower part, as a second layer, prevented the glass from falling inside the house.[FN53]

FN53. Pet. at 42, *citing* Trial Tr., vol. 19 at 140, ll. 8-13 (Deputy Jackson).

***12** Finally, Willis argues that there was no motive to support the State's theory of the fire and that Willis had no motive to set the fire. Willis argues that at no point in the investigation of the fire, the trial or the post-conviction proceedings did the State produce evidence of any motive. And Willis, who was forty-two years old at the time of the crime, had never before been charged with a violent crime.

D. Analysis of Willis's Innocence Claim

The state trial court rejected a finding of innocence in this case. The state trial court found that Willis "failed to produce sufficient evidence to corroborate the statement of Mr. Long,"[FN54] and thus found Mr. Long's confession inadmissible.[FN55] At post-conviction proceedings, the state trial court therefore held that "the testimony in the record does not support a finding that Willis is innocent."[FN56]

FN54. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 6.

FN55. The state trial court does not cite any authority requiring that or explaining why the confession must be corroborated to be admissible. However, under Texas law, an extrajudicial confession of wrongdoing, standing alone, is not sufficient to support a conviction; other evidence must exist, demonstrating that a crime has in fact been committed. *See Rocha v. State*, 16 S.W.3d 1, 4 (Tex.Crim.App.2000).

FN56. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 33.

In *Herrera v. Collins*, the Supreme Court held that "[c]laims of actual innocence based on newly discovered evidence have never been held to state a ground for federal habeas relief absent an independent constitutional violation occurring in the underlying state criminal proceeding."[FN57] In *Herrera*, the Court did assume "for the sake of argument ... that a truly persuasive

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demonstration of 'actual innocence' made after trial would render the execution of a defendant unconstitutional." FN58 Since *Herrera*, the lower courts dispute whether federal habeas relief is available based on a showing of innocence without a constitutional error at trial. While the Ninth and Seventh Circuits held that habeas relief is available based upon a post-conviction showing of innocence alone, FN59 the Fifth Circuit rejected this rule and holds that newly discovered evidence related to innocence is not sufficient grounds alone for habeas relief. FN60 Willis acknowledged that even if this Court found innocence, relief would nevertheless be unavailable to him under the law of this Circuit.

FN57. 506 U.S. 390, 400 (1993).

FN58. *Id.* at 417.

FN59. *See Jackson v. Calderon*, 211 F.3d 1148, 1164 (9th Cir.2000), *cert denied*, 531 U.S. 1072 (2001); *Carriger v. Stewart*, 132 F.3d 463, 476 (9th Cir.1997) (en banc), *cert denied*, 523 U.S. 1133 (1998); *Milone v. Camp*, 22 F.3d 693, 699 (7th Cir.1994), *cert denied*, 513 U.S. 1076 (1995).

FN60. *Lucas v. Johnson*, 132 F.3d 1069, 1074 (5th Cir.1998) (holding that "the existence merely of newly discovered evidence relevant to the guilt of a state prisoner is not a ground for relief on federal habeas corpus."). *See also Robinson v. Johnson*, 151 F.3d 256, 267 (5th Cir.1998), *cert denied*, 526 U.S. 1100 (1999). The Fourth Circuit has likewise refused to recognize an actual innocence claim alone. *See Royal v. Taylor*, 188 F.3d 239, 243 (4th Cir.1999).

The State did not address any of the factual allegations of innocence proffered by Willis. Instead, the State claims that because actual innocence is not a cognizable claim in habeas, Willis's innocence claim is barred by the nonretroactivity rule of *Teague v. Lane*. FN61 *Teague* prevents application of novel rules of law to petitioners whose convictions are final. FN62 There are two exceptions to the *Teague* rule. The first exception occurs when a new rule of law places "certain kinds of primary, private individual conduct beyond the power of the criminal law-making authority to proscribe." FN63 The second exception occurs when the new rule of law "requires the observance of those procedures that are implicit in the concept of ordered liberty." FN64

FN61. 489 U.S. 288 (1989).

FN62. *See Williams*, 529 U.S. at 380.

FN63. *Teague*, 489 U.S. at 307 (internal citations omitted).

FN64. *Id.*

If the Supreme Court were to find that an innocence claim were cognizable in habeas, this Court has no doubt that, for a petitioner who could make a showing of actual innocence, the first *Teague* exception would apply, and thus *Teague* would not bar relief. FN65 But under this Circuit's current jurisprudence, innocence alone is not a sufficient basis for federal habeas relief. FN66 While both parties' presentations to the Court in cross-motions for summary judgment raise strong reason to be concerned that Willis may be actually innocent, under *Herrera* and *Lucas*, innocence is not a cognizable claim in habeas; thus, it would be inappropriate for this Court to determine the issue. In any event, the determination is unnecessary because the Court must grant Willis's writ on other grounds.

FN65. The *Teague* exceptions are not part of section 2254(d)'s deference provisions. The Supreme Court has not yet resolved the tension between *Teague* and section 2254 in that regard.

FN66. *Herrera v. Collins*, 506 U.S. 390, 400 (1993); *Dowthitt v.. Johnson*, 230 F.3d 733, 741-42 (5th Cir.2000), *cert. denied*, 532 U.S. 915 (2001).

IV. Administration of Medically Inappropriate Antipsychotic Medications

***13** During the evidentiary hearing on Willis's state

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habeas petition, evidence and testimony were presented concerning his claim that the State's wrongful administration of antipsychotic drugs denied Willis of due process and other constitutional rights. At the conclusion of the hearing, Judge Jones entered detailed findings of fact regarding the administration of the medication by the State, the effect on Willis and the lack of any justification for the medication. These findings were summarized above. Judge Jones then entered conclusions of law recommending relief be granted on the claim.

Judge Jones held that the administration of antipsychotic medication to Willis during his trial denied him the ability to assist in his own defense in violation of his right to counsel,[FN67] and prejudicially affected his demeanor at trial in violation of substantive due process rights.[FN68] In addition, the trial court held that the State can only administer medication to a defendant involuntarily if the standard articulated by the Supreme Court in *Riggins* is met: 1) administration of the drugs was "medically appropriate and, considering less intrusive alternatives, essential for the sake of [the defendant's] own safety or the safety of others; 2) administration of the drugs was medically appropriate and that the prosecution could not "obtain an adjudication of [the defendant's] guilt or innocence by using less intrusive means;" or 3) that the administration of medication was "necessary to accomplish an essential state policy."[FN69]

FN67. *See Riggins v. Nevada*, 504 U.S. 127, 133, 142 (1992).

FN68. *See id.* at 131.

FN69. *Id.* at 135-36, 138. The state trial court based its analysis of this claim largely on *Riggins.* The CCA denied the claim based on a prior CCA opinion interpreting *Riggins.* In addition, both parties have extensively briefed *Riggins.* Though not raised by the state trial court, the CCA or either party, the Court notes that *Riggins* was decided in 1992, two years after Willis's conviction became final on direct appeal, on October 9, 1990. However, the Supreme Court's decision in *Washington v. Harper,* 494 U.S. 210, 222 (1990), was decided on February 27, 1990, before Willis's conviction became final. As explained in the text of this opinion, *Harper* explicitly states that State administered antipsychotic drugs must be medically appropriate. Furthermore, subsequent Supreme Court cases-namely *Riggins* and *United States v. Sell,* 539 U.S. 166 (2003)-state that the rule of law emanated from *Harper.* In *Penry v. Lynaugh,* 492 U .S. 302 (1989) (*Penry I*), the Supreme Court held that dicta in *Jurek v. Texas,* 428 U.S. 262 (1976), established law for *Teague* purposes. Thus, the statements in *Harper*-that due process requires that state administered antipsychotic drugs be medically appropriate-are sufficient for *Teague* purposes in Willis's case, even if they are dicta.

Judge Jones found that the administration of the drugs to Willis was not medically appropriate, not essential for the safety of Willis or others, and not necessary to accomplish an essential state policy. Furthermore, Judge Jones held a showing of prejudice was not required because under *Riggins,* there is a "strong possibility" that trial defense was impaired.[FN70]

FN70. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Conc. of Law at 13, *quoting Riggins,* 504 U.S. at 138.

Judge Jones also found that the administration of antipsychotic medications to Willis violated Willis's right to confront witnesses because a defendant's physical presence and demeanor in the courtroom are essential to the exercise of his confrontation rights.[FN71] The medication given to Willis left him unable to confer with counsel and unable to exhibit any emotive response to the testimony of adverse witnesses. Furthermore, Willis was prevented from reacting or responding to the proceedings and was not able to demonstrate sensitivity or compassion.[FN72]

FN71. *Id., citing Riggins,* 504 U.S. at 142. *See also Coy v. Iowa,* 487 U.S. 1012, 1020 (1988).

FN72. *Ex Parte Willis,* No. 27, 787-01 Find. of

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Fact and Conc. of Law at 13.

Judge Jones found the administration of the medication also violated a number of other constitutional rights. First, the medicine prevented Willis from assisting in his own defense and denied him his Sixth Amendment right to the effective assistance of counsel. Willis was unable to communicate with counsel or make tactical decisions during trial. Thus the administration of the medication was an actual or constructive denial of the right to counsel by the State and not subject to a prejudice showing. Second, the medication of Willis and his resulting demeanor effectively forced Willis to testify against himself in violation of the Fifth Amendment. This is especially so because the prosecution used Willis's demeanor as evidence of his guilt. Finally, Judge Jones found the administration of the medication violated Willis's right to an individualized capital sentencing determination.[FN73]

FN73. *Id.* at 14-16.

***14** The Court of Criminal Appeals overruled the trial court's recommended relief on this claim in one paragraph. Citing a Texas case, the CCA held that because there was no motion to terminate medication or an objection to the medication in the record, Willis "has not demonstrated his treatment was involuntary."[FN74] The CCA based its ruling on a legal determination that a showing of involuntariness requires an objection in the record. Because the CCA's overruling of the trial court was not inconsistent with the trial court's findings, but instead, a determination that the facts did not warrant relief under the legal standard, this Court must defer to the state trial court's findings of fact. Thus, the issues before this Court are: 1) whether the CCA's holding that an objection is a necessary condition for a finding of involuntariness is contrary to, or an unreasonable application of, clearly established federal law and 2) whether the CCA's implicit determination that the State can administer antipsychotic medication to pre-trial inmates with no established medical need is contrary to, or an unreasonable application of, clearly established federal law.[FN75]

FN74. *Ex Parte Willis*, No. 27, 787-01, Order at 2 (Tex.Crim.App.2000), *citing Ex Parte Thomas*, 906 S.W.2d 22 (Tex.Crim.App.1995).

FN75. Though the CCA addressed Willis's medication claim on the merits, the CCA did not address the lack of medical justification for the antipsychotic drugs the State administered to Willis. However, the state trial court made a finding of fact as to the lack of medical justification, and Willis raised the lack of medical justification on appeal to the CCA as part of his claim for relief. Thus, the CCA's rejection of Willis's medication claim is an implicit finding that the lack of medical justification is not a ground for relief.

As explained below, the CCA erred on both grounds. First, the State cannot administer antipsychotic drugs unless medically appropriate according to Supreme Court holdings, and thus the CCA's denial of relief when Willis was medicated with antipsychotic drugs without medical justification is contrary to clearly established federal law. Second, the CCA's determination that an objection is a necessary condition of involuntariness is contrary to clearly established federal law regarding waiver of constitutional rights. In this case, no evidence exists that either Willis or defense counsel knew of the existence or nature of the medication.

A. Administration of Medically Inappropriate Drugs

After the state habeas hearing, the trial court found the State administered the antipsychotic drugs to Willis without any medical need.[FN76] This determination is supported by the record. Three experts testified during the state habeas hearing that they were unable to find any evidence of psychosis or other mental disorder in Willis's medical or behavioral history.[FN77] Furthermore, none of the records from the Pecos County Jail indicate that Willis was suffering from a psychotic disorder or exhibiting symptoms of psychosis.[FN78] Numerous medical intake forms for Willis's admission to the Pecos County Jail state that Willis had never been treated for mental illness.[FN79] One of the forms was filled out after Willis received antipsychotic medication in the Pecos County Jail. Disciplinary records from the Pecos County Jail state that Willis is negative for a his-

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tory of mental illness.[FN80] The report of the psychological exam administered to Willis at the time of trial stated there was no evidence that Willis was psychotic.[FN81] Additionally, Willis's eleven-year records from TDC do not contain any evidence of a psychotic disorder.[FN82]

FN76. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 11.

FN77. *See e.g.*, Crowder Dep.; Lipman Dep.; Cunningham Dep.

FN78. *See e.g.*, Tr. at 267, ll. 1-14 (Cunningham).

FN79. Def. E.H. Ex. 30.

FN80. Def. E.H. Ex. 29 at 93, 117, 123, 129, 142; Crowder Dep., ll. 16-21.

FN81. Tr. at 177, ll. 2-14 (Wright).

FN82. Lipman Dep. at 44, ll. 16; Crowder Dep. at 42, ll. 18-23 ("We never see any psychosis appear in his extensive TDC records."); Crowder Dep. at 51, ll. 16-21.

***15** A significant liberty interest exists in avoiding unwanted administration of antipsychotic drugs under the Due Process Clause of the Fourteenth Amendment.[FN83] But, due process will allow "a mentally ill inmate to be treated involuntarily with antipsychotic drugs where there is a determination that ... the treatment is in the inmate's medical interest."[FN84]

FN83. *Harper*, 494 U.S. at 222; *Parham v. J.R.*, 442 U.S. 584, 600-601 (1979). *See also Youngberg v. Romeo*, 457 U.S. 307, 316 (1982) (core liberty protected by due process, freedom from bodily restraint, survives criminal conviction, incarceration and involuntary commitment).

FN84. *Riggins*, 504 U.S. at 135 (internal quotations and citations omitted) (stating the Supreme Court's holding in *Harper*, 494 U.S. at 227).

In upholding a state procedure for involuntary medication of antipsychotic drugs in *Washington v. Harper*, the Supreme Court was careful to recognize that the state procedure required that the administration of medication be medically appropriate.[FN85] Because the state procedure at issue in *Harper* recognized the petitioner's medical interests, it met the requirements of the Due Process Clause.[FN86] In a lengthy footnote, the Court detailed that it would not adopt the State's procedure if the procedure did not require a finding of medical appropriateness before antipsychotic medication can be involuntarily administered.[FN87]

FN85. 494 U.S. at 223, n. 8.

FN86. *Id.* at 223.

FN87. *Id.* at 223, n. 8. *See also id.* at 227 (holding that the Due Process Clause permits the State to treat a prison inmate "who *has a serious mental illness* with antipsychotic drugs against his will, if the inmate is dangerous to himself or others *and the treatment is in the inmate's medical interest."*) (emphasis added). "[W]e hold that the regulation before us is permissible under the Constitution. It is an accommodation between an inmate's liberty interest ... and the State's interests in providing *appropriate* medical treatment...." *Id.* at 236 (emphasis added). The dissent in *Harper* explains the majority's decision as follows: "[A]lthough the Court does not find, as Harper urges, an absolute liberty interest of a competent person to refuse psychotropic drugs, it does recognize that *the substantive protections of the Due Process Clause limit the forced administration of psychotropic drugs to all but those inmates whose medical interests would be advanced* by such treatment." *Id.* at 243 (Stevens, J., dissenting).

The rule of *Harper* was reiterated in *Riggins* where a state involuntary medication procedure was found inadequate.[FN88] "Under *Harper*, forcing antipsychotic

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drugs on a convicted prisoner is impermissible absent a finding of overriding justification and a *determination of medical appropriateness."* FN89 The *Riggins* Court noted that a pretrial detainee-the petitioner in *Riggins*-enjoyed as much constitutional protection as the convicted prisoner at issue in *Harper.* FN90

FN88. 504 U.S. 127 (1992).

FN89. *Id.* at 135 (emphasis added) (internal quotations and citations omitted).

FN90. *Id., citing Bell v. Wolfish*, 441 U.S. 520, 545 (1979).

Applying the rule of *Harper* to the procedures employed by the State, the *Riggins* Court held that the State "certainly would have satisfied due process if the prosecution had demonstrated, and the District Court had found, that treatment with antipsychotic medication was *medically appropriate* and, considering less intrusive alternatives, essential for the sake of Riggins' own safety or the safety of others." FN91 Alternatively, the State "might have been able to justify *medically appropriate*, involuntary treatment with the drug by establishing that it could not obtain an adjudication of Riggins' guilt or innocence by using less intrusive means." FN92

FN91. *Id.* (emphasis added).

FN92. *Id.* (emphasis added).

The rule of *Harper* was reaffirmed again in *United States v. Sell.* FN93 There, the Supreme Court addressed whether a State may forcibly administer antipsychotic drugs to a criminal defendant in order to render him competent to stand trial. FN94 The Court held a four-part test must be met to involuntarily medicate a criminal defendant: 1) important governmental interests are at stake; FN95 2) involuntary medication will significantly further those interests; FN96 3) involuntary medication is necessary to further those interests; FN97 and 4) "administration of the drugs is *medically appropriate*, i.e., in the patient's best medical interest in light of his medical condition." FN98

FN93. 539 U.S. 166 (2003).

FN94. *Id.* at 177.

FN95. *Id.* at 180.

FN96. *Id.* at 181. "[T]he court must conclude that involuntary medication will *significantly further* those concomitant state interests. It must find that administration of the drugs is substantially likely to render the defendant competent to stand trial. At the same time, it must find that administration of the drugs is substantially unlikely to have side effects that will interfere significantly with the defendant's ability to assist counsel in conducting a trial defense, thereby rendering the trial unfair." *Id., citing Riggins*, 504 U.S. 142-45 (emphasis in original).

FN97. *Id.* ("[t]he court must find that any alternative, less intrusive treatments are unlikely to achieve substantially the same results. And the court must consider less intrusive means for administering the drugs.").

FN98. *Id.*

The State argues that *Harper* and *Riggins* are not on point because both cases addressed situations in which a formal objection was made to the medication. FN99 The argument is inapposite. The Court in both *Harper* and *Riggins* assumed the medication was medically appropriate. FN100 Thus, assuming the medication is medically appropriate, the issue in both cases became what procedures must the State go through in order to medicate an inmate against his will. In this case, on this record, no such assumption can be made. Indeed, the record does not support that assumption, and the state court found that in fact the medication was not medically appropriate. *Harper* followed by *Riggins* and *Sell* make clear that medical appropriateness is always a condition precedent to the involuntary administration of antipsychotic drugs to inmates.

FN99. The State's motion for summary judgment was written before the Supreme Court's decision in *Sell*, 539 U.S. 166.

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FN100. *Harper,* 494 U.S. at 223, n. 8 ("... we will not assume that physicians will prescribe these drugs for reasons unrelated to the medical needs of the patients; indeed, the ethics of the medical profession are to the contrary."); *Riggins,* 504 U.S. at 133 (" ... we presume that administration of [antipsychotic drugs] was medically appropriate.").

***16** Because Supreme Court precedents are unequivocal that antipsychotic medication administered by the State must be medically appropriate, the CCA's rejection of Willis's due process claim, when the record is clear that Willis was medicated with no medical need, is contrary to clearly established federal law.[FN101]

FN101. *See* 28 U.S.C. § 2254(d).

B. Whether a Showing of Involuntariness Requires an Objection

The Court now addresses whether the CCA's holding that an objection is a necessary condition for a finding of involuntariness is contrary to, or an unreasonable application of, clearly established federal law. The state trial court made a factual finding that Willis did not consent to the medication.[FN102] This finding was not rejected by the Court of Criminal Appeals. Instead, the CCA stated that because there was no objection on the record, Willis could not make a legal showing of involuntariness.

FN102. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 9.

The State argues that the medication administered in both *Harper* and *Riggins* was determined involuntary because the inmate had objected to it on the record. But in neither of those cases did the Court require a recorded objection as a necessary element to a showing of involuntariness. The State also cites *Richardson v. Johnson,*[FN103] and *Adanandus v. Johnson,*[FN104] but neither of those cases included a finding of non-consent. Furtermore, in *Adanandus*, there was no finding that the petitioner had actually been medicated.[FN105] Thus, neither case is instructive.

FN103. 256 F.3d 257, 259 (5th Cir.2001).

FN104. 947 F.Supp. 1021, 1084 (W.D.Tex.1996).

FN105. *Id.*

In all the cases uncovered by the Court in which antipsychotic medication was found to be voluntary, there was evidence in the record that the recipient knew of the medication and often requested it.[FN106] There is no such evidence in the record for Willis's case. Also, the antipsychotic medication was given without medical need, strongly indicating that it was not just given involuntarily but also given without Willis's knowledge. The Court finds it unlikely that a reasonable and competent person would voluntarily take high doses of unnecessary antipsychotic drugs without evident medical need.[FN107]

FN106. *See e.g., Ex Parte Thomas,* 906 S.W.2d 22; *Fearance v. Scott,* 56 F.3d 633 (5th Cir.1995), *cert. denied,* 515 U.S. 1153 (1995); *Adanandus v. Johnson,* 947 F.Supp. 1021 (W.D.Tex.1996).

FN107. In stating that a showing of involuntariness can only be made through an objection, the CCA cited only one case, its own decision in *Ex Parte Thomas.* There, the defendant initially requested the medication and later claimed to object to it. Defense counsel in that case was aware of the medication. Thus, the facts surrounding the voluntariness of the medication in *Ex Parte Thomas* are quite different than the facts surrounding involuntariness in the instant case.

Though not specifically found by the state trial court in post-conviction findings, there is evidence in the record that Willis was not aware he was taking antipsychotic medication.[FN108] Willis was receiving several medications each day for back pain. The State notes that when Willis was given the medication, he placed his initials on the medication log sheet. The record though does not demonstrate that Willis knew the ini-

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tials indicated anything other than receipt of his back pain medication, and because he expected to receive the back medication, Willis would not have had reason to question the medication. Because the State medicated Willis with antipsychotic drugs in the absence of any medical need,[FN109] Willis would have had no reason to suspect the drugs were antipsychotics. The initials do not suggest Willis understood what medication he was receiving.[FN110]

FN108. *See* Pet. at 78-81.

FN109. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 11-12.

FN110. Also, Willis's Pecos County Jail medical records did not meet statutory requirements. *See* Pet. at 81, n. 37; 37 TEX. ADMIN. CODE § 273.4. *See also* Lipman Dep. at 38, ll. 16-39, l. 3 ("I can find no pharmacologically appropriate basis for [the] prescription" of the antipsychotic medication to Willis in the Pecos County Jail records or other supporting documents.).

***17** While the Supreme Court has not discussed the standard for involuntariness specifically in the context of involuntary medication, the Court has developed a standard for involuntariness used generally in a number of other contexts. In the context of right to counsel, the Supreme Court held that "[p]resuming waiver from a silent record is impermissible. The record must show, or there must be an allegation and evidence which show, that an accused was offered counsel but intelligently and understandably rejected the offer. Anything less is not waiver." [FN111] The Supreme Court applied this standard for waiver to the guilty plea context.[FN112] Also, the Supreme Court rejected state laws that denied the application of the right to speedy trial unless the defendant demanded trial,[FN113] and instead the Court applied the same standard articulate above to the analysis of a waiver of the right to a speedy trial.[FN114]

FN111. *Carnely v. Cochran*, 369 U.S. 506, 516 (1962).

FN112. *Boykin v. Alabama*, 395 U.S. 238, 242 (1969) (the Court noted that several constitutional rights are involved in a waiver that accompanies a guilty plea).

FN113. *Barker v. Wingo*, 407 U.S. 514, 524 (1972).

FN114. *Id.* at 526 (applying the standard used in *Carnely*, 369 U.S. at 516 and *Boykin*, 395 U.S. at 242).

Thus, the ordinary rule is that a court cannot infer a waiver of a constitutional right from the failure to object.[FN115] In light of the constitutional rights implicated when a defendant is medicated with antipsychotic drugs,[FN116] there is no reason to deviate from this established standard for waiver, nor is any such explanation given by the CCA. Because the CCA impermissibly deemed the medication voluntary from a silent record,[FN117] a determination that Willis's medication was voluntary is an unreasonable application of clearly established Supreme Court precedents on waivers of constitutional rights.[FN118]

FN115. *Id.* at 525 ("... presuming waiver of a fundamental right from inaction, is inconsistent with this Court's pronouncements on waiver of constitutional rights.").

FN116. *See Riggins*, 504 U.S. at 142 (Kennedy, J. concurring) (noting that side effects of antipsychotic drugs can compromise the right of a criminal defendant to receive a fair trial. "The drugs can prejudice the accused in two principal ways: (1) by altering his demeanor in a manner that will prejudice his reactions and presentation in the courtroom, and (2) by rendering him unable or unwilling to assist counsel." *Id.* Justice Kennedy also stated that medication with antipsychotic drugs can effect a defendant's constitutional rights, his right to testify on his own behalf and his right to counsel. *Id.* at 142, 144.).

FN117. The trial court determined that the fail-

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ure to object did not constitute consent.

FN118. 28 U.S.C. § 2254(d).

The State then argues that even if the medication were involuntarily administered, Willis has not shown he was prejudiced because he has not demonstrated he was harmed in any manner. However, in *Riggins*, the Supreme Court held that once it has been established that a defendant was involuntarily medicated during a criminal trial without the proper due process considerations, because of the "substantial probability of trial prejudice," FN119 prejudice is presumed.FN120 Additionally, the Supreme Court's decisions in both *Riggins* and *Harper* recognized the severe effects of antipsychotic medications and the potentially debilitating effects of such medication on an accused's constitutional trial rights.FN121 The Supreme Court noted that it is possible for side effects to impact outward appearance, the content of testimony, the ability to follow the proceedings, the substance of communication with counsel, and comprehension at trial.FN122 Nevertheless, it is clear from the state trial court's findings of fact that Willis was actually prejudiced, both because of the effect of the medication on Willis's demeanor and because the prosecution used Willis's demeanor as evidence of guilt and future dangerousness.FN123 As to the effect on Willis's demeanor, the state court found Willis exhibited flat or little facial expression, inexpressiveness, rigidity of the facial muscles, a fixed gaze, drowsiness, confusion and diminished ability to communicate. Willis's demeanor was "markedly different" at the post-conviction hearing, when the antipsychotic drugs were no longer being given.FN124 As to the the prosecution's use of Willis's demeanor as evidence of guilt and future dangerousness, the trial court found the State asked the jury to infer guilt and propensity for future dangerousness from Willis's lack of feeling or emotion.FN125 Therefore, the Court finds that Willis was actually prejudiced by the State's administration of the antipsychotic drugs.

FN119. *Riggins*, 504 U.S. at 138. *See also Sell*, 539 U.S. at 189 (Scalia, J. dissenting) ("the *Riggins* Court held that forced medication of a criminal defendant that fails to comply with *Harper* creates an unacceptable risk of trial error and entitles the defendant to automatic vacatur of his conviction.").

FN120. *Riggins*, 504 U.S. at 138. The State argues that the *Riggins* presumption of prejudice only applies on direct review, not in post-conviction proceedings. The State provides no authority to support this argument. Furthermore, presumptions of prejudice have been used in other post-conviction contexts. *See Burdine v. Johnson*, 262 F.3d 336, 348-50 (5th Cir.2001) (en banc), *cert. denied*, *Cockrell v. Burdine*, 535 U.S. 1120 (2002). Also, this part of the State's argument seems to challenge the state trial court's findings of fact regarding the effects of the medication on Willis. However, the State does not mention that the state trial court made findings of fact regarding this issue, nor argue that those findings are unreasonable in light of the evidence presented. *See* 28 U.S.C. § 2254(e)(1).

FN121. *Harper*, 494 U.S. at 229-30 (identifying the "serious, even fatal, side effects" of antipsychotic drugs). *See also Riggins*, 504 U.S. at 134; *Sell*, 539 U.S. at 185-86 (Whether a particular drug will tend to sedate a defendant, interfere with communication with counsel, prevent rapid reaction to trial developments, or diminish the ability to express emotions are matters important to determinating the permissibility of medication).

FN122. *Riggins*, 504 U.S. at 137.

FN123. *Ex parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10-11.

FN124. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 10.

FN125. *Id.* at 11.

***18** The State also argues that even if the medication were involuntary and harmful, it was medically necessary. As discussed above, the state trial court made

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detailed findings of fact that the medication of Willis was without medical need and those findings are properly before this Court. To the extent that the State challenges the finding that the administration of medication lacked necessity, the State fails to engage in the requisite analysis outlined in the AEDPA.[FN126] The State has not rebutted the presumption of correctness afforded to state court factual findings by clear and convincing evidence, and a review of the record reveals that the factual findings of the state court are reasonable in light of the evidence presented.[FN127]

FN126. *See* 28 U.S.C. § 2254(e)(1).

FN127. *See* 28 U.S.C. § 2254(d)(2).

For the reasons provided above, the medication of Willis during trial violated his right to due process, both because it was without medical need and also because it was involuntary. Willis is entitled to relief on the claim because the CCA's denial of the claim was contrary to, and an unreasonable application of, clearly established federal law.[FN128]

FN128. Willis argues that the State's administration of the medication violated a number of other constitutional rights: right to confront witnesses, remain free from self-incrimination, effective assistance of counsel, and an individualized sentencing determination. These arguments were raised to the state trial court and to the CCA. The trial court found that the administration of medication violated all these rights. The CCA did not address any of these additional constitutional claims. Because this Court has granted relief on due process grounds, the Court declines to address the other bases for relief.

V. Prosecutorial Suppression of Evidence

Prosecutorial suppression of evidence that is favorable to an accused "violates due process where the evidence is material either to guilt or punishment, irrespective of the good faith or bad faith of the prosecution."[FN129] A defendant need not request such evidence to trigger the prosecutor's duty to disclose.[FN130] To establish a *Brady* claim, a petitioner must demonstrate that 1) the prosecution suppressed or withheld evidence 2) favorable to the defense and 3) material to guilt or punishment.[FN131]

FN129. *Brady v. Maryland*, 373 U.S. 83, 87 (1963).

FN130. *United States v. Bagley*, 473 U.S. 667, 682 (1985).

FN131. *East v. Johnson*, 123 F.3d 235, 237 (5th Cir.1997).

Evidence is material if "there is a reasonable probability that, had the evidence been disclosed to the defense, the result of the proceeding would have been different."[FN132] Four aspects of materiality govern the inquiry.[FN133] First, a petitioner need not prove by a preponderance that disclosure of the suppressed evidence would have resulted ultimately in a sentence less than death.[FN134] "The question is not whether the defendant would more likely than not have received a different verdict with the evidence, but whether in its absence he received a fair trial, understood as a trial resulting in a verdict worthy of confidence. A reasonable probability of a different result is accordingly shown when the government's evidentiary suppression undermines confidence in the outcome of the trial."[FN135]

FN132. *Kyles v. Whitley*, 514 U.S. 419, 433 (1995).

FN133. *See id.* at 434.

FN134. *Id.*

FN135. *Id.* (internal citations and quotations omitted).

Second, the materiality analysis is not a sufficiency of the evidence test.[FN136]

FN136. *Id.*

A defendant need not demonstrate that after discounting the inculpatory evidence in light of the undisclosed evidence, there would not have been enough

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left to convict....One does not show a *Brady* violation by demonstrating that some of the inculpatory evidence should have been excluded, but by showing that the favorable evidence could reasonably be taken to put the whole case in such a different light as to undermine confidence in the verdict.[FN137]

FN137. *Id.* at 435.

***19** Third, harmless error analysis does not apply.[FN138] And, fourth, materiality is assessed in terms of all suppressed evidence considered collectively, not item by item.[FN139]

FN138. *Id.*

FN139. *Id.* at 436.

Judge Jones found that the State violated *Brady* by affirmatively or negligently failing to turn over the Wright report to the defense. The CCA overturned Judge Jones, stating that the Wright report was not favorable or material. The CCA did not question the trial court's determination that the Wright report had been suppressed, nor did it reject the trial court's findings of fact. The CCA based its ruling on a determination that the facts, as found by the trial court, did not meet the standard of favorability or materiality. Because the CCA's overruling of the trial court was not inconsistent with the trial court's factual findings, this Court must defer to those trial court findings of fact.[FN140]

FN140. *See Craker,* 756 F.2d at 1213-14; *Westley,* 83 F.3d at 721 n. 2.

The CCA determined the Wright report was not favorable for two reasons: first, because at the evidentiary hearing Wright testified that he was unable to gather sufficient information during the examination of Willis to make a future dangerousness determination, and second, because the conclusions in the report were "hypotheticals." Dr. Wright's report states that "the data I was able to collect concerning Willis was [sic] insufficient for determining whether he would pose a continuing threat to society."[FN141] The CCA offered no authority for the proposition that a report with a conditional conclusion fails the *Brady* standard for determining whether evidence is favorable.

FN141. *Ex Parte Willis,* No. 27, 787-01, Order at 4.

Willis argues that the CCA unreasonably applied *Brady* in finding the Wright report was not favorable. The Wright report contained two hypothetical scenarios, differing on the issue of the nature of the evidence produced at trial. One of the scenarios was favorable and one was not. The favorable scenario was: if sworn evidence indicates that his behavior until the time of the current alleged offense was no worse than previous behaviors, we could probably say with safety that the current alleged behavior was an isolated event which he probably will not repeat.[FN142] The other scenario was as follows:

FN142. Wright Report at 6. *See* Pet. at 166.

Recent years may have seen more and more irresponsibility or increasingly violent behaviors toward others. If testimony reflects this to a significant degree, we would certainly seem correct in assessing that he has passed through a behavioral door and that he will continue to commit vicious, violent type behaviors. A deterioration over the years would certainly seem to suggest that he would represent a continued threat to society.[FN143]

FN143. *Id.*

The State presented no evidence during the penalty phase of the trial that would have triggered the second scenario. The only prior criminal history presented a trial involved non-violent offenses.[FN144]

FN144. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Conc. of Law at 6.

In support of his argument that the CCA erred in holding the Wright report to be not favorable, Willis relies upon a Fifth Circuit case, holding that evidence meets the *Brady* standard of materiality, if it is both inculpatory and exculpatory.[FN145] Willis also argues that the CCA's determination on favorability was unreasonable because it ignores the ongoing nature of the

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State's obligations under *Brady*. The State's obligation to produce *Brady* material continues throughout trial. FN146 Willis argues that the Wright report was clearly favorable and should have been disclosed because the hypothetical scenarios in the report were conditioned on the evidence presented at trial and that evidence did not ultimately include other violent behaviors. FN147

FN145. *See Sellers v. Estelle*, 651 F.2d 1074, 1077 (5th Cir.1981), *cert. denied*, 455 U.S. 927 (1982).

FN146. *Jackson v. Johnson*, 194 F.3d 641, 649 n. 18 (5th Cir.1999), *cert. denied*, 529 U.S. 1027 (2000), *citing United States v. Miranne*, 688 F.2d 980 (5th Cir.1982), *cert. denied*, 459 U.S. 1109 (1983).

FN147. *See Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4; *Ex Parte Willis*, No. 27, 787-01 Order at 4 (stating that the testimony presented during the penalty phase was "relatively brief with two law enforcement officers providing reputation testimony.").

***20** Willis also suggests the Wright report was favorable because, even if the report itself were inconclusive, disclosure of the report would have led the defense to Dr. Wright, whose testimony would have been favorable. In determining whether evidence is material under *Brady*, the effect of the suppression of the evidence on the preparation or presentation of the defense case is relevant. FN148 The suppression of inadmissible evidence is material if the disclosure of the inadmissible evidence might have led defense counsel to admissible evidence. FN149

FN148. *Bagley*, 473 U.S. at 683.

FN149. *Sellers*, 651 F.2d at 1077 n. 6; *Spence v. Johnson*, 80 F.3d 989, 1005 n. 14 (5th Cir.1996), *cert. denied*, 519 U.S. 1012 (1996).

With these guidelines in mind, the Court finds that Wright's testimony would have been favorable and the prosecution's failure to disclose the Wright report violated Willis's due process right. As offered by the State in its Motion for Summary Judgment, Dr. Wright was "committed to his opinion that Willis would not pose a future danger when he testified during the state hearing in 1998." FN150 Furthermore, Dr. Wright visited with the District Attorney about his examiniation of Willis and said: "I didn't think this was a good death penalty case." FN151 Dr. Wright reiterated his belief that Willis's case was not a good death penalty case at the state habeas hearing. FN152

FN150. Resp.'s Mot. Summ. J. at 76.

FN151. *Id.* at 77.

FN152. *Id.* (noting that Dr. Wright answered "yes" at the state habeas hearing when asked whether this was not a good death penalty case).

The State responds that the Wright report was not favorable because it contained negative information about Willis's drinking habits and convictions for obscene phone calls and drunk driving. The report contained information that Willis admitted to drinking after age seventeen, that Willis was accused of indecent exposure at age seventeen and several times later, that Willis was convicted twice for obscene phone calls, and that Willis was convicted four or five times for driving while intoxicated. Willis's convictions for driving while intoxicated and a felony conviction for "immoral conduct" were already before the jury. FN153 Thus, the only additional negative information contained in the report was the indecent exposure accusations. Considering that the report led to the highly favorable testimony of a state-sanctioned medical expert, who determined that Willis was not a future danger, the Court finds the overall character of the report is favorable, even though it also contained unfavorable information. The jury had to answer a specific question on future dangerousness to impose the death penalty, and the report would have favorably addressed this issue. The Wright report's overall character is favorable.

FN153. *See Willis*, 785 S.W.2d at 387.

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The CCA also found that, even if the report were favorable, it was not material because no expert testimony was presented during the penalty phase on the issue of future dangerousness and because the penalty phase was relatively brief, with two law enforcement officers providing reputation testimony. Because a challenge to the sufficiency of the evidence on future dangerousness was raised and rejected on direct appeal, the CCA found that "in view of the evidence presented at trial, it is exceedingly difficult to conclude applicant has demonstrated that there is a reasonable probability the jury would have returned a negative answer on the future dangerousness finding if they had been aware of Wright's report." FN154 The CCA found Dr. Wright's report "inconclusive" FN155 and found that Willis had made no showing that the "verdict is unworthy of confidence." FN156

FN154. *Ex Parte Willis*, No. 27, 787-01 Order at 4.

FN155. *Id.*

FN156. *Id., citing Kyles*, 514 U.S. at 433-35.

***21** Willis argues that the CCA's conclusion on materiality should be rejected because it was "contrary to clearly established law." This Court agrees. The CCA's finding that the Wright report failed to meet the materiality standard was erroneous because it took into account the sufficiency of the evidence, in direct contrast to *Kyles v. Whitley*. FN157 There, the Supreme Court explicitly stated that the materiality analysis under *Brady* is not a sufficiency of the evidence test. FN158

FN157. 514 U.S. at 434-45.

FN158. *Id. See also Williams*, 529 U.S. at 414 (O'Connor, J., concurring) (recognizing that the Virginia Supreme Court also applied the appropriate *Strickland* standard); *East*, 123 F.3d at 239 ("The Supreme Court has warned that the *Brady* materiality analysis is not a sufficiency of evidence test.").

Willis also argues that the CCA's use of the sufficiency of the evidence test to reject the materiality of the Wright report is contrary to clearly established federal law, even if the CCA did not exclusively rely on that test. In *Williams v. Taylor*, the Supreme Court held that, because it was impossible to tell how much the state court's use of the wrong standard affected its final determination, the state's determination was contrary to law. FN159

FN159. *Williams*, 529 U.S. at 414. The State argued in *Williams* that even though the Virginia Supreme Court relied on the incorrect standard, the analysis was not contrary to law because the Virginia court had also cited *Strickland*. Brief of Resp. in *Williams v. Taylor*, N 98-8384, 1999 WL 642451 at *37-38.

Similarly, the CCA's use of the incorrect legal standard is particularly problematic in this case because the two other factors the CCA used to judge materiality were also questionably applied. In holding that the report was not material, the other factors considered by the CCA were 1) no expert testimony was presented at trial on the issue of future dangerousness and 2) the punishment phase was "relatively brief with two law enforcement officers providing reputation testimony." FN160 The materiality standard depends "almost entirely on the value of the evidence relative to the other evidence mustered by the State." FN161 Thus, the fact that the evidence admitted at the penalty phase was limited-devoid of any expert testimony and consisting solely of two witnesses, two Pecos County law enforcement officers who provided conclusory and unsubstantiated descriptions of Willis's reputation in unspecified communities-supports, rather than undermines, a finding of materiality.

FN160. *Ex Parte Willis*, No. 27, 787-01 Order at 4.

FN161. *Spence*, 80 F.3d at 995. *See also United States v. Agurs*, 427 U.S. 97, 112 (1976).

The State argues that the report was not suppressed because defense counsel should have obtained it themselves and did not exercise due diligence in attempting

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to acquire the report. To establish a *Brady* violation, a petitioner must show that the information allegedly withheld was not available through due diligence.[FN162] In support of its argument on this point, the State argues facts expressly rejected by the state trial court. Under section 2254(e)(1), state court findings of fact are presumed to be correct, and the party rebutting the presumption of correctness must do so by clear and convincing evidence.[FN163] The State does not claim the state trial court's factual findings should not be presumed correct. Moreover, the state trial court's finding that the report had been suppressed under *Brady* was not rejected by the CCA.

FN162. *United States v. Mmahat*, 106 F.3d 89, 94 (5th Cir.1997).

FN163. *Pondexter*, 346 F.3d at 146. *See also Burden v. Zant*, 498 U.S. 433, 436 (1991) (per curiam) (finding that presumption of correctness of state court fact findings applies when factual determination supports petitioner as well as when factual determination supports the State); *Valdez v. Cockrell*, 274 F.3d 941, 947 (5th Cir.2001).

Nonetheless, for the following reasons, this Court finds that the state trial court's findings of fact are supported by the record. First, prior to trial, defense counsel successfully moved for disclosure of all evidence relevant to mitigation or exoneration of Willis.[FN164] Second, although defense counsel was aware of psychological evaluation for the purpose of determining competency, counsel was not told and the prosecution did not reveal that an assessment of Willis's future dangerousness had also been conducted.[FN165] Defense counsel must have actual notice that a psychological examination will encompass the issue of future dangerousness.[FN166] Considering that the State was obliged to inform defense counsel of the scope of the evaluation, defense counsel did not fail to meet the standard of due diligence by relying on the State's representations regarding the scope of the examination.[FN167] Furthermore, contrary to the State's assertion, the record supports the trial court's finding that Attorney DeHart did not receive the Wright report.[FN168] Thus, the Wright report was not available through due diligence of defense counsel.

FN164. Pet.'s Reply at 58, *citing* Blank Aff., Ex. 8, 9.

FN165. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 4.

FN166. *Powell v. Texas*, 492 U.S. 680, 685 (1989); *Satterwhite v. Texas*, 486 U.S. 249, 255-56 (1988).

FN167. *Strickler v. Greene*, 527 U.S. 263, 283-84, 288 (1993); *Banks v. Dretke*, 124 S.Ct. 1256, 1273 (2004) (petitioner cannot be faulted for relying on State's representations).

FN168. Defense Attorney Woolard testified that DeHart did not receive the report. Dr. Wright was not contacted by DeHart. Dr. Wright did not forward a copy of the report to DeHart. The testimony eliminates the possibility that the State gave DeHart a copy of the report because Prosecutor Johnson claims he did not know the Wright report existed.

***22** The Court finds that the Wright report was suppressed and was both favorable and material under clearly established law. Moreover, the disclosure of the report would have led defense counsel to Dr. Wright's favorable testimony. That additional benefit to defense counsel further supports a finding that the report is both favorable and material.[FN169] The Wright report presented an opinion by a qualified mental health expert, approved and hired by the State,[FN170] who believed Willis was not a good candidate for the death penalty and who would have testified that Willis was not a future danger. Considering the lean evidence the State presented at the penalty phase, had the jury been aware of Dr. Wright's conclusions, there is a reasonable probability that at least one juror would have answered "no" to the question on future dangerousness,[FN171] and Willis would not have been sentenced to death. Absent Dr. Wright's report and testimony, the Court does not have confidence in the outcome of the penalty phase.

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FN169. *Cf. East*, 55 F.3d at 1003 (Prosecution had a duty to disclose a punishment phase witness' rap-sheet because if the prosecution had revealed it, defense counsel would have investigated the witness' criminal history and eventually uncovered the witness' mental records in the files of the Bexar County Court.).

FN170. During a deposition before the state habeas hearing, the lead trial prosecutor, J.W. Johnson denied that he had ever met or heard of Dr. Wright at the time of Willis's trial. Evidence produced during the state habeas hearing showed that Johnson had worked with Dr. Wright on two other cases before Willis's trial. Johnson could not explain why, if Dr. Wright was not conducting the examination at the request of the State, Willis was given *Miranda* warnings before the examination.

FN171. *See Kirkpatrick v. Whitley*, 992 F.2d 491, 497 (5th Cir.1993).

Because of the numerous errors the CCA made in addressing this claim: applying the sufficiency of the evidence test for materiality; erroneously stating that the brief nature of the evidence presented at the penalty phase undermined, rather than supported, a finding of materiality; and failing to consider that disclosure of the report would have led to the favorable testimony of Dr. Wright, the CCA's finding that the Wright report was not favorable was contrary to and an unreasonable application of clearly established federal law. FN172

FN172. *See* 28 U.S.C. § 2254(d).

VI. Ineffective Assistance of Counsel

The constitutional standard for determining whether a criminal defendant has been denied the effective assistance of counsel was announced by the Supreme Court in *Strickland v. Washington*. FN173 "The benchmark for judging any claim of ineffectiveness must be whether counsel's conduct so undermined the proper functioning of the adversarial process that the trial cannot be relied on as having produced a just result." FN174 A two-prong test guides the inquiry:

FN173. 466 U.S. 668 (1984).

FN174. *Id.* at 686. *See also Nealy v. Cabana*, 764, F.2d 1173, 1177 (5th Cir.1985).

First, the defendant must show that counsel's performance was deficient. This requires showing that counsel made errors so serious that counsel was not functioning as the "counsel" guaranteed the defendant by the Sixth Amendment. Second, the defendant must show that the deficient performance prejudiced the defense. This requires showing that counsel's errors were so serious as to deprive the defendant of a fair trial, a trial whose result is reliable. FN175

FN175. *Strickland*, 466 U.S. at 687.

Courts are extremely deferential in scrutinizing the performance of counsel and make every effort to eliminate the distorting effects of hindsight. FN176 It is strongly presumed that counsel rendered adequate assistance and made all significant decisions in the exercise of reasonable professional judgment. FN177 An attorney's strategic choices informed by a thorough investigation of relevant facts and law are virtually unchallengeable. FN178 Thus, Willis must overcome a strong presumption that the conduct of his trial counsel falls within a wide range of reasonable professional assistance. FN179

FN176. *See Lockhart v. Fretwell*, 506 U.S. 364, 372 (1993); *Burger v. Kemp*, 483 U.S. 776, 789 (1987); *Strickland*, 466 U.S. at 689; *Green v. Johnson*, 116 F.3d 1115, 1122 (5th Cir.1997).

FN177. *See Strickland*, 466 U.S. at 690; *Duff-Smith v. Collins*, 973 F.2d 1175, 1182 (5th Cir.1992).

FN178. *See Boyle v. Johnson*, 93 F.3d 180, 187-88 (5th Cir.1996).

FN179. *See Strickland*, 466 U.S. at 687-91; *Belyeu v. Scott*, 67 F.3d 535, 538 (5th Cir.1995).

***23** To establish he has sustained prejudice, Willis

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"must show that there is a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different. A reasonable probability is a probability sufficient to undermine confidence in the outcome." FN180

FN180. *Strickland*, 466 U.S. at 694; *Cantu v. Collins*, 967 F.2d 1006, 1016 (5th Cir.1992).

A. The Texas CCA's Analysis

The state trial court held that Willis was entitled to relief under *Strickland*. The CCA overruled the trial court's recommendation of relief on this basis. The CCA divided the analysis of ineffective assistance for Willis's two trial attorneys: Attorney DeHart and Attorney Woolard. However, the CCA cited no federal authority requiring a petitioner to show that each attorney's conduct separately meets the *Strickland* standard as opposed to the defense representation as a whole. Citing its own case, the CCA stated that "[i]n view of the multiple counsel representation of applicant, it was incumbent upon applicant to prove deficient performance by all counsel." FN181 The CCA also stated that the record did not reflect the two defense attorneys' respective duties, responsibilities and division of labor.

FN181. *Ex Parte Willis*, No. 27, 787-01, Order at 5 (citing *McFarland v. State*, 928 S.W.2d 482 (Tex.Crim.App.1995)).

For Attorney DeHart, the CCA conducted an overview of DeHart's background. The CCA mentioned that Woolard had faith in DeHart's ability, that he had been licensed for twenty-one years at the time of Willis's trial, that he had previously been employed as an Assistant District Attorney for four years, that he was then the Presiding Judge of the 384th District Court in Alpine, and that he was considered a "seasoned veteran," due to his criminal law experience. Thus, the CCA held that on the record before it, Willis could not overcome the presumption that DeHart provided effective assistance of counsel.

For Attorney Woolard, the CCA noted that Woolard had been licensed to practice law for four years, and that Willis's case was his first capital trial. The CCA also stated that Woolard was surprised Willis was found guilty, and that Woolard had "loaded his guns" for the guilt-innocence phase and decided not to present mitigation evidence. The CCA mentioned that Woolard spoke with a number of Willis's friends and relatives and that Investigator Caspari also spoke with friends and relatives. Then the CCA found that Woolard made all significant decisions in the exercise of reasonable professional judgment. FN182 Thus the CCA held that Willis did not overcome the presumption that Woolard provided effective assistance of counsel. FN183

FN182. *Id.* at 6.

FN183. *Id.* at 5.

The CCA's overruling of the trial court was consistent with the trial court's factual findings. The CCA relied on the record from the post-conviction trial court but attached a different legal significance to facts found by that court. For example, both the CCA and the trial court noted that defense counsel spoke with a number of friends and relatives of Willis in preparation for the penalty phase. FN184 The CCA also found that facts that were not relied upon by the trial court, such as defense counsel's experience, were legally significant. Furthermore, the CCA based its decision in part on its legal determination that Willis was required to show that each defense counsel individually met the standard for ineffectiveness. Because the CCA's resolution of the claim is not directly contrary to the trial court's factual findings, this Court must, as detailed above, defer to the state trial court's findings of fact.

FN184. *See id.* at 6; *Ex Parte Willis*, No. 27, 787-01, Find. of Fact and Conc. of Law at 20.

***24** Before addressing Willis's specific allegations of ineffectiveness, the Court finds that the CCA violated clearly established federal law in holding that Willis had to show each attorney's performance, as opposed to the defense representation as a whole, met the *Strickland* standard. *Strickland* does not require that the applicable analysis be conducted separately for each attorney. FN185 Furthermore, later Supreme Court opinions

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applying *Strickland*, in which the petitioner was represented by more than one attorney at trial, conduct one *Strickland* analysis for the performance of defense counsel as a whole.[FN186] There is no support for the CCA's holding that Willis must prevail on separate analyses of deficient performance and prejudice for each attorney. The CCA's ruling in this regard was therefore contrary to clearly established law.[FN187]

FN185. *Strickland*, 466 U.S. at 687.

FN186. *See Williams*, 529 U.S. at 370 (alleging "trial attorneys had been ineffective during sentencing"); *Wiggins v. Smith*, 539 U.S. 510 (2003) (engaging in one *Strickland* analysis for petitioner's two defense attorneys, two public defenders in the same office).

FN187. Respondent's Motion for Summary Judgment states that Willis cannot prevail on his ineffective assistance of counsel claim because he did not present any testimony from Attorney DeHart at the state habeas hearing. There is no post-*Strickland* case requiring the testimony of both trial counsel as a prerequisite to an ineffectiveness claim. On the contrary, federal law requires that the analysis for an ineffectiveness claim is conducted as to defense counsel performance as a whole, not separately for each attorney. Thus, Respondent's argument in this regard fails.

B. Ineffective Assistance of Counsel At the Guilt-Innocence Phase

First, the Court considers Willis's allegations that defense counsel's performance was deficient on various grounds during the guilt-innocence phase of trial. The Court then separately considers the issue of prejudice as required by *Strickland.*

1. Failure to Investigate Demeanor & Failure to Discover Unnecessary Medication

The CCA overruled the trial court without addressing Willis's substantive allegation of ineffectiveness based upon defense counsel's failure to investigate the jail records or discover the unjustified use of anti-psychotic medications. As stated above, the CCA based its overruling of the trial court on defense counsel's legal experience and its legal determination that Willis was required to show that each attorney met the standard for ineffectiveness.[FN188]

FN188. The other factors mentioned by the CCA are relevant to defense counsel's performance during the penalty phase.

After the habeas hearing, the state trial court found that defense counsel recognized a problem with Willis's demeanor and suspected the problem could be related to medication. Despite counsel's awareness and suspicion, Judge Jones found defense counsel made no effort or inquiry to determine the cause of Willis's appearance or demeanor, even though defense counsel had the right to access Willis's medical records and it is "rudimentary" and "basic" for counsel to gather records.[FN189] Willis now claims this failure to investigate constituted deficient performance and ineffective assistance of counsel.

FN189. *Ex Parte Willis*, No. 27, 787-01, Find. of Fact and Conc. of Law at 17.

In response, the State first argues counsel was not unreasonable to believe that Willis's flat affect and lack of emotion was caused by medications for his back pain. The State points to the Pecos County Jail medical log, which reflects Willis took a number of medications for back pain. The medical log does not support the State's argument as to defense counsel's belief because defense counsel did not obtain Willis's Pecos County Jail medical records.[FN190] Defense counsel could not have known what medications Willis was taking, for back pain or otherwise. Nor could defense counsel have known the effect or potential effect of those medications. Therefore, counsel could neither have based an understanding of Willis's manner on that information, nor have made strategic trial decisions based thereon.

FN190. *Id.* at 16-17.

***25** The critical failing of counsel with respect to Willis's demeanor was the failure to pursue or in any manner respond to counsel's admitted concern over Wil-

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lis's demeanor, whether by gathering Willis's jail medical records or speaking with an expert.[FN191] *Strickland* requires that the Court defer to counsel's decisions when those decisions are both fully informed and strategic, in the sense that it is expected, on the basis of sound legal reasoning, to yield some benefit or avoid some harm to the defense.[FN192] Defense counsel cannot make informed or strategic decisions in the absence of a reasonable investigation and thus *Strickland* does not require deference to decisions that are not informed by an adequate investigation into the controlling facts and law.[FN193] Interpreting *Strickland*, the Supreme Court stressed that a decision based on less than a complete investigation is reasonable only to the extent that the limits on the investigation were reasonable.[FN194]

FN191. *Cf.*, *Roberts v. Dretke*, 356 F.3d 632, 639 (5th Cir.2004). "Where, as here, counsel is aware of the client's history of mental problems, the reasonableness of a decision made by counsel not to investigate that history is suspect." *Id.*

FN192. *Moore v. Johnson*, 194 F.3d 586, 615 (5th Cir.1999).

FN193. *Id. See also Andrews v. Collins*, 21 F.3d 612, 623 (5th Cir.1994) (counsel's strategic decision entitled to deference because supported by an adequate investigation which included contact with at least twenty-seven people); *Drew v. Collins*, 964 F.2d 411, 423 (5th Cir.1992) (counsel's strategic decision entitled to deference because counsel made "reasonable inquiries" into defendant's mental state); *Bouchillon v. Collins*, 907 F.2d 589, 597 (5th Cir.1990) ("Tactical decisions must be made in the context of a reasonable amount of investigation, not a vacuum."); *Wiggins*, 539 U.S. at 533 (" 'strategic choices made after less than complete investigation are reasonable' only to the extent that 'reasonable professional judgments support the limitations on investigation.' ') (citation omitted).

FN194. *Wiggins*, 539 U.S. at 533.

Neither the State, Willis, the state trial court, nor the CCA articulated any benefit to the defense case from Willis's being medicated with unnecessary antipsychotic drugs. To the contrary, the harm to Willis is well-documented, as discussed previously. Defense counsel could not have made a decision about the benefits or risks of Willis's medication because counsel did not go to the minimal effort required to investigate Willis's demeanor, that is, to gather Willis's jail medical records and discover he was being unnecessarily medicated. In this case, the limits on investigation-the failure to gather the jail medical records-are not merely unreasonable. Considering counsel's admitted concern for Willis's demeanor, the limits on investigation here are beyond explanation. Counsel's failure to address or rectify Willis's demeanor is thus not entitled to a presumption of reasonableness because it was neither informed by a reasonable investigation nor supported by any logical position that such failure would benefit Willis's defense, and thus cannot possibly be construed as strategic.[FN195]

FN195. *See Moore*, 194 F.3d at 616.

The Court finds that defense counsel's failure to investigate Willis's demeanor was deficient performance under *Strickland.* Counsel's failure to investigate Willis's demeanor was objectively unreasonable because: 1) counsel was concerned with Willis's demeanor; 2) counsel could have addressed that concern by obtaining Willis's jail medical records but did not do so, even in light the standard that gathering medical records is a "basic" part of defense counsel's duties in a capital case; and 3) no strategic decision supported the failure to gather the medical records.

The Court also finds that the CCA's rejection of this claim was an unreasonable application of *Strickland.*[FN196] In addition to errors made by the CCA already discussed, the CCA's determination that counsel made all significant decisions in the exercise of reasonable professional judgment is unreasonable. The CCA did not assess whether the failure to gather the jail medical records actually demonstrated reasonable professional judgment.[FN197] Courts may not defer to decisions by counsel that are not strategic or are not informed by a

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reasonable investigation or reasonable limits on investigation.[FN198] The CCA's assumption that the failure to investigate was adequate was thus an unreasonable application of clearly established federal law.[FN199]

FN196. *Strickland* is clearly established federal law within the meaning of 28 U.S.C. § 2254. *See Wiggins*, 539 U.S. at 522 (referring to the " 'clearly established' precedent of *Strickland.*"); *Dowthitt*, 230 F.3d at 743 ("the merits of an ineffective assistance of counsel claim are governed by the well-established rule of *Strickland v. Washington.*").

FN197. *See Wiggins*, 539 U.S. at 527.

FN198. *See Strickland*, 466 U.S. at 690-91; *Wiggins*, 539 U.S. at 528; *Moore*, 194 F.3d at 615.

FN199. *See Wiggins*, 539 U.S. at 528.

2. Failure to Object to Prosecution's Use of Willis's Demeanor at Guilt-Innocence Phase

***26** Willis also contends trial counsel violated his right to effective assistance of counsel by failing to object to the prosecutor's reference to his trial demeanor during closing arguments. Willis raises four statements by the prosecution as the basis for his claim: 1) reference to Willis's "dead pan, insensitive, expressionless face;" [FN200] 2) description of Willis's "cold fish eyes on everybody and everything that has come in here, and he just merely stared and watched very impassively, very cold heartedly, much like he probably did that morning outside the fire when he watched and listened;" [FN201] 3) commenting that "[t]his guy has been able to sit in here and observe everyone that took the stand, look at all of you throughout this proceeding;" [FN202] and 4) stating that "[y]ou know, it's hard for us to even imagine the perverted thoughts and the fascination this Defendant must have had standing out there ... observing and knowing what was going on inside ... What kind of thoughts go through somebody's mind like that? You know, what he was thinking when he is watching this satanic deed that he did? People burning up in there ... That's what he was doing, listening and watching ... And he showed no mercy or remorse afterwards." [FN203]

FN200. Vol. 28 at 83, ll. 1-3.

FN201. Vol. 28 at 83, ll. 8-12.

FN202. Vol. 28 at 65, ll. 14-16.

FN203. Vol. 28 at 82, ll. 4-24.

Before addressing the substance of Willis's arguments relative to these remarks, the Court finds two unworthy of review. Willis challenged the third remark on direct appeal. The CCA found the third remark was not a comment on Willis's demeanor but juxtaposed Willis's presence at trial with the absence of the deceased victim.[FN204] The Court likewise finds that this prosecutorial remark was not a comment on Willis's trial demeanor, and therefore, should not be included in this analysis.

FN204. *See* Vol. 28 at 64, ll. 13-21 ("My clients aren't in the courtroom today. They are dead. Understand the distinction....").

Next, the State argues Willis is barred from presenting the fourth remark because he did not cite the remark during the state habeas process. Although the Court will not consider the fourth remark for reasons explained below, the remark is not barred, under the Texas abuse-of-writ doctrine, as the State argues. The State relies upon two cases, both of which are properly distinguished from the instant case, to support its argument.

In *Anderson v. Harless*, the Supreme Court held that a claim was not exhausted when it was raised as a state law issue to the state courts, and thus the corresponding federal constitutional claim had not been presented to the state courts.[FN205] Willis's case is distinguished from *Anderson* because Willis presents a federal claim relying on federal law. Therefore, the Court will not eschew consideration of the fourth remark based upon *Anderson.* In *Nobles v. Johnson*, the petitioner presented in the state courts a Sixth Amendment claim that he had been denied the effective assist-

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ance of a competent court-appointed psychiatrist.[FN206] In federal court, the petitioner raised a claim of ineffective assistance of counsel based on failure to present mitigating evidence.[FN207] Nobles argued the "gist" of the claims was the same and he should therefore be able to present the federal court with the "re-postured" claim.[FN208] The Court rejected Nobles's argument, and held that when the two claims required "wholly different inquiries," the petitioner had not provided the state court with the requisite "fair opportunity to apply controlling legal principles to the facts bearing upon his constitutional claim."[FN209] However, such is not the case for Willis's claim. Here, the state court was given the opportunity to consider precisely the same legal claim with the same facts. In Willis's case, the difference in the federal petition is the addition of supplemental factual examples of prosecutorial comments.[FN210] Including new facts in a federal habeas petition does not render the federal claim based upon those facts unexhausted unless the facts materially alter the legal claim presented to the state courts.[FN211] The facts must be material and must put the claim in a significantly different and stronger evidentiary posture than it was when presented to the state courts.[FN212]

FN205. *Anderson v. Harless,* 459 U.S. 4, 6 (1982).

FN206. *Nobles v. Johnson,* 127 F.3d 409 (5th Cir.1997).

FN207. *Id.* at 420.

FN208. *Id.*

FN209. *Id.* (internal citations omitted).

FN210. The additional facts are not new facts in the sense that the examples were part of the trial record that was presented to the trial court during the post-conviction hearing.

FN211. *Vasquez v. Hillery,* 474 U.S. 254, 260 (1986).

FN212. *Dowthitt,* 230 F.3d at 745-46 (finding a petitioner's claim exhausted despite the presentation of two additional expert psychological reports that were not presented to the state courts).

***27** Willis exhausted his claim with regard to the fourth remark because its addition does not materially alter the legal claim presented to the state court, but the addition of the fourth remark does not place Willis's federal claim in a stronger evidentiary posture. It is a less dramatic example of prosecutorial comment on non-testimonial demeanor than either the first or second remarks. Consequently, the Court finds that the fourth remark is not material and does not make Willis's claim significantly stronger or different.

Because the fourth remark does not add to the claim, the Court will not consider the remark in determining the merits of Willis's claim. The merits of the claim will therefore be determined on the basis of the first and second remarks only.

To begin, Willis must demonstrate that counsel's performance fell below an objective standard of reasonableness.[FN213] Willis argues that under Texas or federal law, the prosecutor's remarks constituted error, and thus, a reasonable defense attorney would have objected. Under state law, Willis argues that the CCA found error when the prosecution commented on the defendant's non-testimonial demeanor by describing the defendant as "cold, unnerved, uncaring ... [and] unsympathetic."[FN214] Willis argues that defense counsel's failure to object was objectively unreasonable because, under this precedent, the trial court would have committed reversible error by refusing to sustain an objection.[FN215]

FN213. *See Strickland,* 466 U.S. at 687.

FN214. *Good v. State,* 723 S.W.2d 734, 736 (Tex.Crim.App.1986).

FN215. *See Vaughn v. State,* 931 S.W.2d 564, 567 (Tex.Crim.App.1996).

The State responds that prosecutorial comment on a defendant's non-testimonial demeanor is not error according to the Supreme Court .[FN216] The State con-

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fuses the legal standard for reviewing a state court's determination of a claim under 28 U.S.C. § 2254(d), which requires a showing that the state court unreasonably applied clearly established federal law, with the standard for ineffective assistance of counsel.[FN217] The proper inquiry is whether a reasonably effective attorney would have objected to the prosecutor's statements, not whether the prosecutorial statements themselves violated clearly established federal law.

FN216. *See Bishop v. Wainwright*, 511 F.2d 664, 667 (5th Cir.1975) (prosecutor's comments about defendant's courtroom demeanor raise no habeas corpus issue).

FN217. *See Strickland*, 466 U.S. at 668.

On Willis's direct criminal appeal, the CCA held that the comments were improper under state law.[FN218] On habeas review, the state trial court found that the prosecution commented on Willis's non-testimonial demeanor, that the prosecution urged jurors to infer lack of remorse from the non-testimonial demeanor and that defense counsel failed to object.[FN219] Willis argues defense counsel's performance was deficient under the first prong of *Strickland* because a reasonable attorney would have objected to the comments as improper 1) under state law, given the CCA's determination on direct appeal that the prosecutor's comments violated state law, and 2) under federal law, as a violation of Willis's fundamental right against self-incrimination protected by the Fifth Amendment.

FN218. *Willis*, 785 S.W.2d at 386 n. 8.

FN219. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 17.

To the extent that the State argues that the failure to object was not deficient performance because the objection would have been futile or without merit,[FN220] the Court disagrees. The objection would have been neither futile nor meritless. To the contrary, the CCA determined on direct appeal that the prosecutor's comments violated state law,[FN221] and therefore defense counsel's objection would have been objectively reasonable. An objectively reasonable attorney would have objected to the prosecutorial comments as improper under state law. Moreover, because of the CCA's determination on direct appeal, a determination that defense counsel's failure to object was sufficient performance would have been unreasonable under *Strickland*, had the CCA applied federal law to this particular allegation of ineffectiveness. Because a reasonable attorney would have objected to the comments as improper under state law, it is not necessary for the Court to decide whether a reasonable attorney would have objected under federal law. The Court holds that defense counsel performed deficiently under the first prong of *Strickland*.

FN220. *See Morlett v. Lynaugh*, 851 F.2d 1521, 1525 (5th Cir.1988), *cert. denied*, 489 U.S. 1086 (1989).

FN221. *Willis*, 785 S.W.2d at 386 n. 8.

3. Prejudice at the Guilt-Innocence Phase

***28** The Court now considers whether Willis was prejudiced by his trial counsel's deficient performance during the guilt-innocence phase. The Court views together all instance of deficient performance by defense counsel during the guilt-innocence phase to determine whether Willis was prejudiced.[FN222] To establish prejudice, Willis must show a reasonable probability exists that, but for counsel's unprofessional errors, the result of the proceeding would have been different.[FN223]

FN222. *See Williams*, 529 U.S. at 399, 416 (holding that the state trial court was correct in determining prejudice based on "the entire post-conviction record, viewed as a whole and cumulative of mitigation evidence presented originally, and faulting the Virginia Supreme Court for its piecemeal approach to the ineffectiveness claim."); *Moore*, 194 F.3d at 619 (considering the cumulative errors of counsel and finding prejudice).

FN223. *See Kimmelman v. Morrison*, 477 U.S. 365, 375 (1986); *Darden v. Wainwright*, 477 U.S. 168, 184 (1986); *United States v. Conley*, 349 F.3d 837, 841-42 (5th Cir.2003); *Williams*

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v. Collins, 16 F.3d 626, 631 (5th Cir.1994); and *United States v. Bounds*, 943 F.2d 541, 544 (5th Cir.1991).

Had defense counsel conducted a reasonable investigation into Willis's demeanor, or at the least gathered his jail medical records, counsel would have learned that Willis was being medicated, absent medical need, with inappropriately high doses of antipsychotic drugs. And, as stated in the section addressing Willis's involuntary medication claim, Willis was severely prejudiced by the administration of the unnecessary antipsychotic medications. The Supreme Court has recognized the harm that can arise from a defendant being medicated with antipsychotic drugs during trial.[FN224]

FN224. *See Riggins*, 504 U.S. at 142 (Kennedy, J., concurring). "It is a fundamental assumption of the adversary system that the trier of fact observes the accused throughout the trial, while the accused is either on the stand or sitting at the defense table.... At all stages of the proceedings, the defendant's behavior, manner, facial expressions, and emotional responses, or their absence, combine to make an overall impression on the trier of fact, an impression that can have a powerful influence on the outcome of the trial.... The side effects of antipsychotic drugs may alter demeanor in a way that will prejudice all facets of the defense.... As any trial attorney will attest, serious prejudice could result if medication inhibits the defendant's capacity to react and respond to the proceedings and to demonstrate remorse or compassion."); *Coy*, 487 U.S. at 1016-20 (emphasizing the importance of the face-to-face encounter between the accused and the accuser).

In addition, here the State used Willis's demeanor and flat affect as an argument in support of his guilt. The state trial court found that the State referred to Willis's demeanor during trial as evidence of guilt and future dangerousness and that the State urged jurors to infer a lack of remorse based on Willis's demeanor. These factual findings, to which this Court must defer, further support that Willis was prejudiced by the deficient performance of counsel in failing to investigate Willis's demeanor or determine the medication that cause the demeanor.

The State also argues that Willis cannot prevail on his ineffective assistance claim grounded on counsel's failure to investigate Willis's demeanor and failure to detect the antipsychotic medications because he has not shown that had counsel investigated Willis's demeanor, counsel would have found an expert available to testify at that time regarding the alleged impropriety of antipsychotic medications. Testimony presented at Willis's post-conviction hearing demonstrated that, based on 1987 standards, the medication given to Willis was medically inappropriate, and Judge Jones found as much in fact.[FN225] The Court finds that a reasonably qualified expert in 1987 would have testified to such and reasonably effective defense counsel would have obtained one.

FN225. *Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 16-17; Lipman Dep. at 33, ll. 11-17; 52, ll. 3-53; 37, ll. 21-38, ll. 14-54; Tr. at 252, ll. 20-24; Tr. at 268, ll. 1-5.

Therefore, the Court finds that Willis was prejudiced by defense counsel's failure to investigate his demeanor. The CCA's determination that Willis was not prejudiced is objectively unreasonable considering the clarity of the Supreme Court's jurisprudence on the potential harm of medicating criminal defendants with antipsychotic drugs,[FN226] as well as the evidence in the record regarding the harm to Willis.[FN227] The deficiencies in counsel's performance during the guilt-innocence phase rendered the proceeding fundamentally unfair and the result of the proceeding unreliable.[FN228] Willis received ineffective assistance of counsel during the guilt-innocence phase because Willis's trial counsel were deficient-by failing to investigate his demeanor and by failing to object to the prosecution's reference to his demeanor to establish guilt and future dangerousness-and because Willis was prejudiced by these deficiencies.

FN226. *See Riggins*, 504 U.S. at 127; *Harper*,

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494 U.S. at 210; *Sell*, 539 U.S. at 176-77.

FN227. The CCA found that Willis did not demonstrate deficient performance of counsel, and thus, the CCA did not substantively analyze the prejudice requirement of *Strickland* beyond simply stating that Willis had failed to show prejudice. *See Ex Parte Willis*, No. 27, 787-01, Order at 5.

FN228. *See Soffar v. Dretke*, 368 F.3d 441, 471 (5th Cir.2004), *citing Lockhart*, 506 U.S. at 372 .

C. Ineffective Assistance at the Sentencing Phase

***29** The Court turns now to Willis's claims of ineffective assistance of counsel at the sentencing phase.

1. Failure to Investigate and Discover the Wright Report

Willis argues counsel was ineffective for failing to investigate and discover the report of Dr. Wright, the psychologist who examined Willis before trial at the request of the prosecution. As detailed above, the Wright report indicated that Willis was not a future danger. For the reasons outlined in the following section addressing claims of prosecutorial suppression, the Court holds that the prosecution suppressed the Wright report. And therefore, defense counsel's performance was not deficient, nor counsel ineffective, for failing to investigate that which the State bore a duty to disclose and that which was hidden from the defense.

2. Failure to Object to the State's Descriptions of Willis as an Animal

Willis argues that counsel's failure to object to prosecutorial comments characterizing Willis as an animal constituted ineffective assistance of counsel. The state trial court found that the prosecution characterized Willis as a “pit bull,” and “animal,” and a “rat,” during voir dire, closing arguments and at the penalty phase. During voir dire the following exchange took place between Prosecutor Johnson and one juror.[FN229] Defense counsel did not object.

FN229. Vol. 5 at 15, ll. 4, 13-16.

Q: Okay. Well, let me give you a hypothetical here now. You are aware of that case out in San Diego where that old boy went to a McDonald's and killed 16 people in about 30 minutes.

A: Right.

Q: Did they ever develop a motive for that man going berserk?

A: No. I don't believe?

Q: Okay. There can be a lot of speculation.

A: Right.

Q: But unless that person tells you, you don't know.

A: That's right.

Q: And that's what I need to know from you. Are you going to require yourself to know why they did something?

A: No. I don't believe so. As long as they did it, I believe I would go ahead and vote for it.

Q: We get back to the premise that actions speak louder than words.

A: Right.

Q: Okay. Because these-you have been reading about these pit bull attacks?

A: Right.

Q: You know, we don't need-you can't talk to the dog and find out why it wanted to eat the little four year old baby, can you?

A: Right.

Q: You know it's a mean, vicious dog, and it's capable of hurting, crippling, and killing people?

A: Right, sir.

Q: And once it shows it has that propensity to do that to a human being, you want to find out why the dog

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went off its rocker and started doing that or you take action?

A: I think I would take action on that.

Q: Okay. I think most of us will, but I want to make sure that you understand that the motive of this Defendant in doing this act and premeditation are not elements that the State is required to prove in this courtroom to gain a guilty conviction and to gain a death sentence.

A: Right, sir.

***30** Q: Okay?

A: Okay.

Prosecutor Johnson had the following exchange with another juror.[FN230] Defense counsel did not object.

FN230. Vol. 4 at 76, ll. 13-77, 15.

Q: Okay. But when it comes to proof, now, his motive isn't one of them. That's not going to bother you?

A: I don't think so, if I have enough, like I said, enough proof to know that he did it.

Q: Okay. Because there are lots of times people do things and they don't tell you why they did it. Even though you want to know, they ain't going to tell you why they did it.

A: Yeah, I understand that. I'm that way to sometimes. I do things.

Q: But when that happens-and we don't know why it happened, and they won't tell us, or it is an animal and it hurt somebody, and it can't tell us either.

A: Right.

Q: But when that happens and we don't know what the motive was, we just say the actions of that person or animal speak loud and clear, don't they?

A: Right.

Q: That's when we go by the actions rather than you are going to explain it or say about it or whatever the words may be.

A: Uh-huh.

Q: Okay. That's all we are coming in here and doing is showing you this Defendant's actions on June 11, 1986, that resulted in the death of this woman. That's going to be all right?

A: Okay?

Q: Okay. Because we can't get into his mind.

A: Right.

Q: And, of course, he doesn't have to take the stand either and tell you why he did it because he has a right to remain silent. Can you go along with that?

A: Yeah.

Prosecutor Johnson also questioned another juror as follows.[FN231] Defense counsel objected to this statement.

FN231. Vol. 11 at 64, ll. 13-24.

Q: ... You have two children, eight and twelve. If they were playing out in the front yard and some person you had never seen before was walking a pit bull dog and that pit bull dog breaks his leash and attacks your eight your [sic] old and gets him down, hurts him real bad, you come running out of the house here and hearing all the commotion, you are not going to stop and find out the reasons why that dog is attacking your child, are you?

A: Well, no.

Q: You are just going to react.

A: Right.

Q: You are going to take care of that dog.

Finally, the State made the following statement during closing argument of the guilt-innocence phase:

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> [L]adies and gentlemen, this is an animal sitting right down here at the end of the table, just like one of them pit bull dogs in the back of the Robinson's [sic] yard. They attack and destroy stuff and you don't know why. You can't get in their mind....You don't need to know the motive. Actions speak loud enough. This is an animal.[FN232]

FN232. Vol. 28 at 70, ll. 3-10.

The statement during closing argument was objected to and thus was not an instance of deficient performance on the part of trial counsel.[FN233]

FN233. This prosecutorial comment was not raised as a point of error on direct appeal. Willis does not argue that direct appeal counsel was ineffective for failing to raise it.

In a footnote, Willis raises additional comments by the prosecutor, to which defense counsel did not object, that are also part of Willis's claim of ineffective assistance of counsel.[FN234] The comments fall into three categories: comments about Willis's exercise of his due process rights, [FN235] inflammatory arguments,[FN236] and arguments justifying the death penalty based on its deterrent effect.[FN237] None of these specific comments were raised in the state courts. The State argues the statements are therefore not exhausted. Because this Court finds that Willis's claim is rejected on the merits, it is unnecessary for the Court to decide whether the additional remarks are exhausted.

FN234. *See* Pet. at 112, n. 43.

FN235. For example, the prosecutor stated:

> "If it was what was fair and what was right, I submit to you back in the old days, our grandparents might have taken him out there and put him in the house, boarded it up, and set it on fire. That would have been justice. That would have been an eye for an eye, but today in our civilized society, even out here in West Texas where we are hard people, we have to live by the laws of our Constitution and our country, which many of us go to war for and defend for something like this to come in here and have his due process." Vol. 29 at 43, ll. 11-20.
>
> "[H]e wanted his due process. He wanted his trial by 12 people. That's the type they are. They will be the judge and the jury and the executioner but when it comes to their turn, no, no, no. They want to run behind the Constitution, and then they want to run behind their rights, which they don't give to no one [sic] else." Vol. 29 at 46, ll. 18-23.
>
> "Out here in West Texas, I have always taken great pride in the fact that we are pretty hard people.... And just two generations ago, ladies and gentlemen, our grandparents lived out here under the laws of Judge Roy Bean, who was a very famous jurist, and the law was swift and certain back in those days." Vol. 29 at 39, ll. 8-14.
>
> "I'm sorry this proceeding has taken this long, ladies and gentlemen, but, once again, it's due process." Vol. 29 at 48, ll. 12-13.

FN236. The prosecution referred to Willis as: a "satanic demon," (Vol. 29 at 41, ll. 13-19); a "monster from a horror film," (Vol. 29 at 44, ll. 11-14); a "thing," (Vol. 29 at 47, ll. 12-13); and, the "most cowardly, most despicable thing that exists in our society," (Vol. 29 at 45, ll. 19-22).

> The prosecution also made the following comments:
>
> "I'm here to tell you ... when they snap, they snap, and they are not human beings anymore. They have no utility to us. None. What he did was a cold, calculating, heartless act with methodical premeditated deliberation when you are doing something on the floor." Vol. 29 at 44, ll. 15-18.
>
> "[I]t's hard for you to recognize those qualit-

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> ies that exist in a person that turns them into something other than a human being, but they have no compassion, no forgiveness in their hearts." Vol. 29 at 40, ll. 1-5.
>
> "And forevermore, once a person reaches that snapping point in their brain where they don't have the ability to discipline themselves from doing violent acts like this, they forever, then, have the capability of hurting and killing us forever, because once you pass that line, you have committed your soul to the Devil." Vol. 29 at 41, ll. 13-19.

FN237. "... I want you to consider the deterrent effect when you come back with your answer to these special issues, because there are people out here who have no compassion for their fellow man, who are cold-hearted, bloody killers....Let him and all other people that are like him that exist out here in our communities or around us or want them to be transients that come into our communities know that we believe in social vengeance.... We want them answered "Yes".... And anyone else like him that wants to come out here.... I want them to know that our juries out here will give it to them. Vol. 29 at 39, ll. 16, 20-47.

***31** As to the merits of the remark, the State argues that the remarks were not improper and thus defense counsel was not deficient for failing to object to them. FN238 The State claims that the prosecution simply used animal imagery to ascertain whether any of the prospective jurors would hold the State to proving motive. Willis argues that the animal imagery was used to dehumanize him. Willis points to comments throughout trial describing Willis as a "rat," FN239 and "animal," FN240 a "satanic demon," FN241 a "monster from a horror film," FN242 a "thing," FN243 and someone who had "committed his soul to the devil." FN244 Willis argued defense counsel should have objected under and *Lockett v. Ohio,* FN245 and *Eddings v. Oklahoma.* FN246 Both cases discuss the fundamental respect for humanity underlying the Eighth Amendment, and both cases concern the right of the defendant to present mitigating evidence. FN247

FN238. The State argues that these comments cannot form the basis of a claim of ineffectiveness at the penalty phase because they were made during voir dire or at closing arguments for the guilt-innocence phase. However, under Texas law, capital jury sentencing deliberations include evidence and arguments presented during both the guilt-innocence and penalty phases. *See Banda v. State,* 890 S.W.2d 42, 51 (Tex.Crim.App.1994).

FN239. Vol. 11 at 68, ll. 18-21.

FN240. Vol. 28 at 70, ll. 3-10.

FN241. Vol. 29 at 41, ll. 13-19.

FN242. Vol. 29 at 44, ll. 11-14.

FN243. Vol. 29 at 47, ll. 12-13.

FN244. Vol. 29 at 41, ll. 13-19.

FN245. 438 U.S. 586, 604 (1978).

FN246. 455 U.S. 104, 113-14 (1982).

FN247. *See id.* at 113-14; *Lockett,* 438 U.S. at 604.

Comments, such as those made by the prosecutor here, do not violate *Eddings* or *Lockett.* While the Court finds the comments beyond poor taste and shameful, the Court must only decide whether the CCA's determination that the failure to object was not deficient performance is an unreasonable application of *Strickland* . FN248 Willis has not cited, nor has the Court found on independent review, persuasive authority that the comments would have been error had defense counsel objected. It does not follow that, because the comments are distasteful and shameful, the CCA's determination that counsel was not deficient is unreasonable application of federal law. Our present rules are thus. Hence, as to this particular claim of ineffectiveness, the Court cannot say that defense counsel's performance was deficient. The Court need not reach the issue, then, of

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whether Willis was prejudiced by his counsel's failure to object to the State's descriptions of him as an animal.

FN248. *See* 28 U.S.C. § 2254(d).

3. Failure to Cross Examine and Present Mitigating Evidence

Willis argues that defense counsel was ineffective for failing to cross-examine the State's witnesses who provided testimony on aggravating factors and that defense counsel was ineffective for failing to present mitigating evidence. As stated above, the CCA addressed the claim of ineffectiveness as a whole and did not address the specific claim of ineffectiveness at the penalty phase of the trial, but a portion of the CCA's analysis refers to the penalty phase. The CCA stated that defense counsel was surprised Willis was found guilty and that defense attorney Woolard had "loaded his guns" for the guilt-innocence phase. The CCA mentioned that Woolard spoke with a number of Willis's friends and relatives and that Investigator Caspari also spoke with friends and relatives of Willis. The CCA stated that defense counsel decided not to present mitigation evidence. The CCA held that Willis did not overcome the presumption that defense counsel provided effective assistance of counsel.[FN249] Also, the CCA divided the analysis of ineffective assistance for Willis's two trial attorneys which, as explained above, is contrary to clearly established law.

FN249. *Ex Parte Willis*, No. 27, 787-01, Order at 5.

***32** The CCA's overruling of the trial court was not inconsistent with the trial court's factual findings.[FN250] The CCA based its decision on its determination that defense counsel was reasonable to focus on the guilt-innocence phase and that defense counsel's mitigation investigation was reasonable, as was the decision to not present mitigating evidence. The CCA held that the record before it did not meet the standard for deficient performance. Because the CCA's decision was not inconsistent with the trial court's findings, this Court must defer to the state trial court's findings of fact.[FN251]

FN250. The factual finding that could be perceived as inconsistent with the CCA's opinion is the trial court's determination that defense counsel did not prepare for the penalty phase. This could be construed as inconsistent with the CCA's statement that defense counsel Woolard and Investigator Caspari interviewed friends and relatives. However, the trial court also made a finding that defense counsel spoke with four or five people who knew Willis. Thus, the trial court determined that, despite interviewing some people, defense counsel was nonetheless unprepared for the penalty phase, and the CCA determined that the interviews conducted by defense counsel were sufficient to prevent a finding of deficient performance. Thus, the CCA's opinion is not inconsistent with the trial court's findings, but in fact relies upon them.

FN251. *See Craker*, 756 F.2d at 1213-14; *Westley*, 83 F.3d at 721 n. 2.

As to Willis's claim that defense counsel was ineffective for failing to cross-examine the State's witnesses, the Court agrees with the State. To the extent Willis argues defense counsel should have challenged the State's witnesses, Willis does not specify what evidence a cross-examination would have uncovered. Thus, Willis has not shown defense counsel was deficient in this regard.[FN252]

FN252. *See United States v. Green*, 882 F.2d 999, 1003 (5th Cir.1989).

As to the argument that defense counsel was ineffective for failing to present mitigating evidence, the Court finds counsel's performance was deficient. "Mitigating evidence concerning a particular defendant's character or background plays a constitutionally important role in producing an individualized sentencing determination that the death penalty is appropriate in a given case."[FN253] Defense counsel did not present any mitigating evidence during the punishment phase of the trial.

FN253. *Moore*, 194 F.3d at 612. *See also*

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Woodson v. North Carolina, 428 U.S. 280 (1976); *Eddings*, 455 U.S. 104.

In *Moore v. Johnson*, defense counsel failed to present any mitigating evidence because defense counsel felt that mitigating evidence was contrary to an alibi defense and that the case was a "guilt-innocence" case, rather than a "punishment" case.[FN254] The Fifth Circuit held that while "counsel's failure to develop or present mitigating background evidence is not per se deficient performance ... *Strickland* does not require deference to those decisions of counsel that, viewed in light of the facts known at the time of the purported decision, do not serve any conceivable strategic purpose."[FN255] The Fifth Circuit declined to defer to counsel's decision not to present mitigating evidence because the decision "was neither informed by a reasonable investigation nor supported by any logical position that such failure would benefit [the] defense."[FN256] "Given that counsel's failure to investigate was not supported by reasonably professional limits upon investigation, the Court finds that there is no decision entitled to a presumption of reasonableness under *Strickland.*"[FN257]

FN254. *Moore*, 194 F.3d at 614.

FN255. *Id.* at 615. *See Strickland*, 466 U.S. at 681 ("Counsel may not exclude certain lines of defense for other than strategic reasons."); *Boyle*, 93 F.3d 180 (explaining basis for counsel's strategic decision not to offer mitigating evidence identified by the defendant); *Loyd v. Whitley*, 977 F.2d 149, 158 (5th Cir.1992) ("Whether counsel's omission served a strategic purpose is a pivotal point in *Strickland* and its progeny. The crucial distinction between strategic judgment calls and just plain omissions has echoed in the judgments of this court.") (footnote omitted); *Profitt v. Waldron*, 831 F.2d 1245, 1249 (5th Cir.1987) (no required deference to decisions that do not yield any conceivable benefit to the defense); *Bell v. Lynaugh*, 828 F.2d 1085, 1090 (5th Cir.1987) (stating that when counsel makes an informed and considered decision not to present mitigating evidence, the issue becomes whether the decision was reasonable); *Wilson v. Butler*, 813 F.2d 664, 672 (5th Cir.1987) (remanding for evidentiary hearing because record did not reflect whether counsel made a sound strategic decision not to present mitigating evidence of troubled background and mental impairment); *Lyons v. McCotter*, 770 F.2d 529, 534-35 (5th Cir.1985) (finding deficient performance because there was no sound strategic basis for counsel's failure to object to evidence of prior offenses); *Mattheson v. King*, 751 F.2d 1432, 1439-40 (5th Cir.1985) (explaining strategic purpose motivating counsel's decision to exclude evidence of mental impairment from sentencing phase); *Moore v. Maggio*, 740 F.2d 308, 315-19 (5th Cir.1984) (explaining basis of counsel's considered decision to limit investigation by excluding implausible lines of mitigating evidence).

FN256. *Moore*, 194 F.3d at 616.

FN257. *Id.* at 617. *See also Wiggins*, 539 U.S. at 522 ("[O]ur principal concern in deciding whether [defense counsel] exercised 'reasonable professional judgment,' is not whether counsel should have presented a mitigation case. Rather, we focus on whether the investigation supporting counsel's decision not to introduce mitigating evidence of [defendant's] background *was itself reasonable.*" (internal citations omitted)).

As in *Moore*, defense counsel's decision in this case not to present any mitigating evidence was not motivated or justified by any strategic or tactical rationale.[FN258] Counsel's decision was instead borne out of poor planning and false hopes for the guilt-innocence phase of the trial. There was simply no "thorough investigation of the law and facts relevant to all plausible lines of defense,"[FN259] necessary to make a "strategic or tactical decision not to present mitigating evidence."[FN260] Here, as in *Moore*, counsel was unprepared and did not expect to proceed to the punishment phase of Willis's trial immediately after the guilty verdict was returned.[FN261] Also, counsel agreed to proceed rather

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than request a continuance, as was the case in *Moore.* FN262

FN258. *See Moore,* 194 F.3d at 615; *Whitley,* 977 F.2d at 158-59, nn. 21-22; *Profitt,* 831 F.2d at 1249; *Lyons,* 770 F.2d at 534-35 (*Strickland* does not require deference when there is no conceivable strategic purpose that would explain counsel's conduct).

FN259. *Moore,* 194 F.3d at 615.

FN260. *Id. See also McCoy v. Lynaugh,* 874 F.2d 954, 964 (5th Cir.1989) (counsel's decision not to present mitigating evidence is entitled to deference when based upon an informed and reasoned practical judgment); *Wilkerson v. Collins,* 950 F.2d 1054, 1064-65 (5th Cir.1992) (affording strategic decision deference where record established counsel retained an investigator to explore whether mitigating evidence relating to defendant's background or mental ability was available); *McCoy,* 874 F.2d at 964 (finding scope of investigation reasonable where counsel investigated possibility of mitigating evidence by interviewing everyone on a list provided by the capital defendant and determined none of them had anything good to say about the defendant); *Jones v. Thigpen,* 788 F.2d 1101, 1103 (5th Cir.1986) ("counsel either neglected or ignored critical matters of mitigation").

FN261. *See Moore,* 194 F.3d at 615. *See also Ex Parte Willis,* No. 27, 787-01 at 6.

FN262. *Moore,* 194 F.3d at 615, n. 9.

***33** In many situations, ineffective assistance claims are rejected "because the record established counsel conducted an adequate investigation, but made an informed trial decision not to use the potentially mitigating evidence because it could have a prejudicial backlash effect on the defense." FN263 This is not such a case. The mitigating evidence here-testimony of Willis's heroic acts and good behavior-could only have helped and could not have harmed the case. Thus, the decision to forego mitigation could not be expected to "yield some benefit or avoid some harm to the defense." FN264

FN263. *See id.* at 617. *See also Darden,* 477 U.S. 168 (counsel's failure to present mitigating evidence relating to defendant's character, psychiatric evaluation and history as a family man did not constitute deficient performance where such evidence would have opened the door to otherwise excluded evidence that defendant had prior criminal convictions, was diagnosed as a sociopathic personality, and had in fact abandoned his family); *Mattheson,* 751 F.2d 1439, 1440 (counsel made reasonable strategic decision to omit presentation of mitigating evidence of mental impairment where such evidence would have opened door to known evidence that defendant was a violent sociopath).

FN264. *Moore,* 194 F.3d at 615.

Finally, it is well established that the type of mitigating evidence that could have been presented in Willis's case is relevant to the sentencing determination. In *Skipper v. South Carolina,* the Supreme Court held that "evidence that the defendant would not pose a danger is spared (but incarcerated) must be considered potentially mitigating," and that a "jury could have drawn favorable inferences from ... testimony regarding [defendant's] character and his probable future conduct if sentenced to life in prison." FN265 The Court also stated that "a defendant's disposition to make a well-behaved and peaceful adjustment to life in prison is itself an aspect of his character that is by its nature relevant to the sentencing determination." FN266 Furthermore, information showing a defendant as a good family member is mitigating evidence. FN267

FN265. *Skipper v. South Carolina,* 476 U.S. 1, 4 (1986).

FN266. *Id.* at 7.

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FN267. *Hitchcock v. Dugger,* 481 U.S. 393, 397 (1987) (vacating death sentence for failure of trial judge to consider, in part, that petitioner had been a fond and affectionate uncle to the children of one of his brothers).

Defense counsel's decision to not present mitigating evidence was deficient performance, based on counsel's failure to investigate, failure to prepare, failure to follow-up and the fact that there could be no benefit, and thus no strategic reason, to not present mitigation. FN268

FN268. Willis also argues that defense counsel was ineffective for failing to make an individualized closing argument. Because this claim addresses the failure of defense counsel to acquire knowledge of Willis and present that knowledge at trail, the claim is incorporated into the claim of failure to investigate and present mitigating evidence.

The CCA's determination that counsel's failure to present mitigating evidence was not deficient performance is an unreasonable application of *Strickland.* The CCA based its decision, without discussion of federal authority, on the fact that counsel focused on the guilt-innocence phase of the trial instead of the punishment phase, that counsel spoke with some people who knew Willis, and on the fact that Willis failed to show each attorney separately met the *Strickland* standard.FN269

FN269. *See Ex Parte Willis,* No. 27, 787-01, Order at 6.

Clearly established federal law requires defense counsel to prepare for and investigate mitigating evidence.FN270 While the CCA correctly noted that defense counsel spoke with friends and relatives, the CCA did not determine whether the decision to limit the investigation at that point actually demonstrated reasonable professional judgment. The CCA did not address the trial court's factual finding that the limits on the investigation were due to a failure to follow-up and a lack of preparation.FN271

FN270. *See Williams,* 529 U.S. at 393 ("[It] is undisputed that Williams had a right-indeed, a constitutionally protected right-to provide the jury with the mitigating evidence that his trial counsel either failure to discover or failure to offer.") *Moore,* 194 F.3d at 615; *Stafford v. Saffle,* 34 F.3d 1557 (10th Cir.1994) (finding deficient performance and rejecting argument that an alibi defense during the guilt phase is per se inconsistent with mitigating evidence relating to the defendant's personal background); *Brewer v. Aiken,* 935 F.2d 850 (7th Cir.1991) (granting relief on claim that counsel failed to offer mitigating evidence during the sentencing phase in case involving an alibi defense at the guilt phase).

FN271. *Ex Parte Willis,* No. 27, 787-01 Find. of Fact and Conc. of Law at 19-22. Willis's defense counsel failed to contact potential witnesses for the sentencing phase who ultimately spoke at the habeas evidentiary hearing. Some of the witnesses were present in the courtroom for Willis's trial. Some of the witnesses made it clear to defense counsel that they were able to testify on Willis's behalf. Defense counsel never followed up. *See* Pet. at 125.

Limits on investigation are reasonable only to the extent that reasonable professional judgments support the limitations.FN272 Because this principle constitutes clearly established federal law, the CCA's determination that defense counsel's investigation was adequate in this instance is an unreasonable application of clearly established federal law. While the CCA stated that defense counsel decided to forego mitigation and to "load guns" for the guilt-innocence phase, the CCA failed to address whether such a decision was reasonable considering the nature of the mitigating evidence available in this case. The available mitigation evidence included good acts by Willis and his good behavior while incarcerated. This is not a case in which mitigation would be inconsistent with the theory at the first phase of the trial or even a situation wherein mitigation would be damaging. Here, no reason exists to refrain from presenting evidence

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about the good deeds and nature of a defendant, particularly when the evidence includes testimony by law enforcement officers. Defense counsel's decisions to forego mitigation and focus on guilt was not strategic because it could not be expected to yield some benefit or avoid some harm to the defense.[FN273] Therefore, the CCA's deference to defense counsel's decision to not present mitigation is an unreasonable application of *Strickland.*[FN274]

FN272. *Strickland,* 466 U.S. at 690-91. *See also Wiggins,* 539 U.S. at 524-26; *Moore,* 194 F.3d at 615.

FN273. *See Moore,* 194 F.3d at 615.

FN274. *See* 28 U.S.C. § 2254(d).

4. Prejudice at the Sentencing Phase

***34** The testimony that could have been presented, but was not, at the penalty phase of Willis's trial pertained to Willis's propensity for future dangerousness.[FN275] Law enforcement officers, including Pecos County Sheriff Bruce Wilson, would have testified on Willis's behalf. Sheriff Wilson, the Chief Deputy Sheriff, and two Pecos County jailers would have testified to Willis's good behavior in jail and that Willis was not a danger or threat in jail.[FN276] In addition, defense counsel could have presented evidence that Willis surrendered himself to authorities when he learned of the charges against him;[FN277] testimony describing Willis as a non-violent person;[FN278] evidence of heroic acts by Willis;[FN279] and testimony describing Willis as a loving family man.[FN280]

FN275. During the sentencing phase of a Texas capital trial, the jury must answer two questions. The first concerns whether the crime was committed deliberately: Whether the conduct of the defendant that caused the death of the deceased was committed deliberately, and with the reasonable expectation that the death of the deceased or another would result. The second asks about the defendant's propensity for future dangerousness: Whether there is a probability that the defendant would commit criminal acts of violence that would constitute a continuing threat to society. TEX.CODE CRIM. P. art. 37.071 (Vernon 2004). *See also Flores v. Johnson,* 210 F.3d 456, 458 (5th Cir.2000) (Garza, J., specially concurring) (thoroughly discussing the future dangerousness question and the lack of scientifically reliable evidence to support such a determination under federal law). "Overall, the theory that scientific reliability underlies predictions of future dangerousness has been uniformly rejected by the scientific community absent those individuals who routinely testify to, and profit from, predictions of dangerousness .... what separates the executioner from the murderer is the legal process by which the state ascertains and condemns those guilty of heinous crimes. If that process is flawed because it allows evidence without any scientific validity to push the jury toward condemning the accused, the legitimacy of our legal process is threatened." *Id.* at 465, 469-70. Nearly twenty-five years earlier, the Supreme Court indicated its disagreement in *Jurek v. Texas,* 428 U.S. 262, 274-76 (1976), but the issue will continue to demand the consideration of the federal courts.

FN276. Tr. at 85, ll. 21-23 (Wilson); Tr. at 47, ll. 11-12 (Harris); Tr. at 111, ll. 3-12 (Pringle); Tr. at 113, ll. 14 (Pringle). *See also* Tr. at 97, ll. 23-98 (Wilson); Tr. at 106, ll. 1-18 (Archer); Tr. at 114, ll. 3-5 (Pringle); Tr. at 49, ll. 2-6 (Harris).

FN277. This information could have been elicited from Deputy Jackson, one of the two prosecution witnesses during the penalty phase. Deputy Jackson met Willis in Odessa after Willis voluntarily came forward upon learning of the charges against him. Jackson did not have to restrain Willis on the drive to Fort Stockton. In fact, Willis sat in the front seat next to Deputy Jackson during the drive. Tr. at 118, ll. 22-25; Tr. at 119, ll. 16-24.

FN278. *See e.g.,* Tr. at 54, ll. 23-55 (Officer

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Butts).

FN279. Several witnesses were available who could have testified to how Willis saved the life of a boy who was drowning by diving in and pulling the child out of a car which had accidentally backed into the lake. Tr. at 21, ll. 22-25; Tr. at 62, ll. 19-64; Tr. at 12, ll. 2-21. *See also* Tr. at 36, ll. 20-38; Tr. at 11, ll. 11-12, 21.

FN280. *See e.g.*, Tr. at 51, ll. 5-53 (Officer Butts).

Thus, the mitigation evidence that could have been presented goes directly to the issue of Willis's propensity for future dangerousness, one of the two questions jurors must answer during the sentencing phase.[FN281] Because of the extent of mitigating evidence concerning Willis's non-violent demeanor, the fact that law enforcement officers, including jailers, and the County Sheriff, [FN282] were willing to testify to Willis's good behavior in jail, there is reasonable probability that, absent the failure of defense counsel, the jury would have concluded death was not the appropriate punishment for Willis. [FN283] In addition, the State's aggravating evidence was less than substantial; prosecutors presented only two witnesses at the penalty phase, each testifying to Willis's "bad reputation" in the unspecified communities in which Willis lived.[FN284] In a case in which innocence is a close question and in which the State's evidence of future dangerousness is weak, it is more likely that defense counsel's errors contributed to the jury's affirmative findings on issues of punishment.[FN285] Here, Willis has shown that but for counsel's deficient performance, the result of the proceeding would have been different.

FN281. *See Franklin v. Lynaugh*, 487 U.S. 164, 177 (1988) (good conduct in prison is relevant to the special issue concerning future dangerousness under Texas capital sentencing scheme).

FN282. *See Skipper*, 476 U.S. at 8 (testimony of jailers would have likely been given great weight by the jury, since the jailers "would have had no particular reason to be favorably predisposed toward one of their charges").

FN283. *See Strickland*, 466 U.S. at 668.

FN284. *See Ex Parte Willis*, No. 27, 787-01 Find. of Fact and Conc. of Law at 20.

FN285. *See Ex Parte Guzmon*, 730 S.W.2d 724, 735 (finding defense prejudiced by ineffective assistance of counsel at capital penalty phase where the "State's evidence to prove future dangerousness was extremely weak"). *See also Strickland*, 466 U.S. at 696; *Martinez-Macias*, 979 F.2d at 1067 ("We are left with the firm conviction that [petitioner] was denied his right to adequate counsel in a capital case in which actual innocence was a close question").

Furthermore, the CCA did not reach the prejudice prong of the *Strickland* analysis and thus this Court is not constrained by section 2254(d) in determining whether Willis was prejudiced.[FN286] However, because of the clarity of Supreme Court precedents holding that the type of mitigation evidence available in this case is relevant,[FN287] and for the reasons stated above, a determination that Willis was not prejudiced is an unreasonable application of federal law. The Court holds that Willis received ineffective assistance of counsel at the sentencing phase because counsel's performance was deficient and Willis was prejudiced by counsel's deficiency.

FN286. *Wiggins*, 539 U.S. at 534 (finding that the Court's "review is not circumscribed by a state court conclusion with respect to prejudice, as neither of the state courts below reached this prong of the *Strickland* analysis").

FN287. *See e.g.*, *Skipper*, 476 U.S. at 4, 7; *Hitchcock*, 481 U . S. at 397.

Finding reversible error at both the guilt-innocence phase and the sentencing phase, the Court need not address Willis's cumulative error claim.

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CONCLUSION

Convinced, as stated above, that Willis's conviction and sentence both were obtained in violation of the United States Constitution, the Court grants Willis's request for relief as follows:

***35** It is hereby ORDERED that the State's Motion for Summary Judgment is GRANTED IN PART and DENIED IN PART.

It is further ORDERED that Petitioner's Cross-Motion for Summary Judgment is GRANTED IN PART and DENIED IN PART.

It is further ORDERED that Willis's Petition for Writ of Habeas Corpus is GRANTED on the following grounds: 1) Petitioner's Due Process rights were violated by the State's administration of medically inappropriate antipsychotic drugs without Willis's consent; 2) the State suppressed evidence favorable and material to the sentencing determination; 3) Petitioner received ineffective assistance of counsel at the guilt-innocence phase; and 4) Petitioner received ineffective assistance of counsel at the sentencing phase.

W.D.Tex.,2004.
Willis v. Cockrell
Not Reported in F.Supp.2d, 2004 WL 1812698 (W.D.Tex.)

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August 20, 2010

Leigh M. Tomlin
Commission Coordinator
Texas Forensic Science Commission
Sam Houston State University, College of Criminal Justice
P. O. Box 2296
816 17th Street
Huntsville, TX 77341-2296

Re: Willingham

Dear Ms. Tomlin:

As per the request of the Commission in your letter of August 2, 2010, we are providing you with a response to your questions along with some supplemental materials we feel may be useful to the Commission in resolving this matter.

Enclosed is a written response to the questions posed to the State Fire Marshal, along with additional information from the investigation, numerous training affidavits, and certifications that capture the type and extent of training our fire investigators were receiving during the relevant time you are reviewing. We have also included a copy of NFPA 921 (1992 and 1995 editions), which we feel will be useful in analyzing the materials, along with several photographs taken during the initial investigation of this fire to assist the Commission in understanding what was actually observed during the investigation.

Please note that the NFPA 921 books are proprietary and should not be copied and/or distributed. We are providing them to the Commission as reference material in this matter.

The State Fire Marshal's Office has spent a great deal of time and energy to ensure as thorough a response as possible. In reviewing documents and standards in place then and now, we stand by the original investigator's report and conclusions. Should any subsequent analysis be performed to test other theories and possibilities of the cause and origin of the fire, we will of course re-examine the report again. Further, should the Commission make a finding of "flawed science" based on a comparison of what the investigator used at the time as the accepted standard and the standard as it exists today, we respectfully ask that it be articulated.

If we can be of further assistance or you are in need of additional information, please contact us. We appreciate the opportunity to provide you with these materials and stand ready to assist in any way possible.

Sincerely,

Paul Maldonado
State Fire Marshal

Enclosures

Cc: Mike Geeslin, Commissioner of Insurance
Texas Department of Insurance

Ed Salazar, Assistant State Fire Marshal
Texas Department of Insurance

Mark Lockerman, Director of Field Services
Texas Department of Insurance

State Fire Marshal's Office Response

FSC Question: Did the arson experts apply a standard of practice as it existed in Texas at the time of the Willingham investigation and testimony?

Prior to the publishing and release of NFPA 921, *Guide for Fire and Explosion Investigation*, (The Guide) in 1992, fire investigators, including the State Fire Marshal's Office (SFMO) relied on numerous publications and treatises for professional guidance. A review of the State Fire Marshal's training records dating back to 1987 reveals that fire investigators employed by the agency were certified and participated in training programs sponsored by a variety of organizations including the International Association of Arson Investigators (IAAI), the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), Texas Engineering Extension Service (TEEX) a member of the Texas A&M University System, and the Oklahoma State University (OSU) School of Fire Protection and Safety Technology (FPST). **The SFMO investigator for the Willingham case used principals that can be linked to NFPA 921 standards subsequently put in place.**

FSC Question: Do you agree or disagree that NFPA was not the standard of practice accepted in Texas at the time of the investigation and testimony?

The SFMO agrees that NFPA 921 was not an official standard at the time of the investigation and testimony. Note, however, that many of the principals and practices utilized by SFMO and other arson investigators were the basis for what ultimately appeared in NFPA 921.

According to the National Fire Protection Association, "The Guide" was intended "*to provide guidance to investigators that is based on accepted principals or scientific research.*" At this same time the legal system was attempting to establish qualifying and admissibility standards for experts ultimately set out in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). The need for reliance on credible expert testimony for both the plaintiffs and defendants in litigation required the scientific community to adopt acceptable standards and procedures.

As previously indicated, the SFMO fire investigators were, at the time of the subject incident, trained by well known respected organizations in the profession, using nationally accepted principals, procedures and science. The guidelines NFPA 921 set out were used by the State Fire Marshal prior to NFPA 921's initial publication. The Commission should compare the principals and procedures (and science) documented by the fire investigators in 1991 and their testimony at trial in 1992, with NFPA 921 as it first appeared in 1992, 1995 or NFPA 921 as it exists today. **The SFMO investigator for the Willingham case used principals that can be linked to NFPA 921 standards subsequently put in place.**

FSC Question: When did the Fire Marshal's Office adopt NFPA 921 in Texas as the Standard of Practice?

The SFMO has not adopted NFPA 921 by any official rule process. NFPA 921 is a "guideline" that is used nationwide by all fire investigators. The Commission should consider the distinction between an officially adopted standard that contains specific and absolute criteria or elements and a "guideline" such as NFPA 921 that deals with processes, principals, and concepts that establish a methodology for the systematic investigation of fire cause and origin. The SFMO utilized methods that eventually became part of NFPA 921's initial publication. The SFMO staff began referencing and received training on NFPA 921 almost immediately after its initial publication in 1992.

Attachments

The attached compilation (**Attachment A**, ***SFMO Investigation report and NFPA 921***) better illustrates the connection between findings from the original investigative report and the applicable NFPA 921 guidelines. **Attachment B**, ***Willingham Statement***, is composed of excerpts taken from the transcript of the initial interview with Willingham. NFPA 921 paragraphs 7-4 and 16-18 advise fire investigators of the need and purpose for witness interrogation. This information is relevant in revealing all the information the SFMO investigator had compiled in drawing his conclusion, and is provided to assist the Commission in determining adherence to acceptable standards to fully investigating all aspects of the fire, including human behavior.

We suggest the Commission review the Attachment B along with the photographs. This will provide the Commission with a better understanding of what the fire investigator saw and concluded.

Attachment A
SFMO Investigation Report and NFPA 921

(All NFPA 921 excerpt references are to 1995 edition because it is more comprehensive than the original 1992 version. However 1992 citation is noted in brackets [ ] if available)

Chapter 11 of NFPA 921 deals with Origin Determination, or the identification of the geographical location where the fire began and includes *"preliminary fire scene examination, the development of a fire spread scenario, an in depth examination of the fire scene, fire scene reconstruction, a final fire spread scenario, and the identification of the fire's origin"*. Deputy Vasquez's report begins with a preliminary scene assessment or perimeter exterior search identifying his visual observations. He then proceeds to enter from the rear (South) of the structure (least damaged), noting smoke and burn patterns as he move forward through the structure ultimately to the Northeast bedroom (most damaged). Deputy Vasquez's description of the fire scene included the following "indicators". "Indicators" is defined in NFPA 921 as:

> **NFPA 921 17-2 Incendiary Fire Indicators.** "There are a number of conditions related to fire origin and spread that may provide physical evidence of an incendiary fire."

1. The investigation report stated: *Distinct V pattern in hallway on both sides beginning at floor level near the front entry (north) and climbing 45 degrees angle towards the kitchen (south).*

   NFPA 921 4-17.1 V Shaped Patterns. "The angled lines of demarcation, which produce the 'V' pattern, can often be traced back from the higher to the lower levels, towards a point of origin. The low point or vertex of the 'V' may often indicate the point of origin." **[See 1992 3-7 and 4-17.1]**

   NFPA 921 4-17.1.1 Misconceptions about V patterns. "The value of these patterns lies in the direction of the spread that they depict, not in what caused them."

2. The investigation report stated: *Baseboards at north end of hall on both sides disclosed a low char burn.*

   NFPA 4-16.1.4 Floors. "The investigator should identify these areas of low burning and be cognizant of their possible proximity to a point of origin." **[See 1992 4-16.1.3]**

3. The investigation report stated: *Aluminum threshold at the base of the entrance door disclosed a burn pattern underneath.* **(Sample of wood taken at that location was positive)**

   NFPA 921 4-16.1.4 Floors. "Holes burned in floors or burning under baseboards, door sills, and between floorboards are often attributed to the

presence of ignitable liquids. In the absence of an otherwise explainable fuel and scenario, the use of an accelerant should be considered and samples taken." **[See 1992 4-16.1.3]**

4. The investigation report stated: *The examination of the hallway floor on the north end from the base of the north door and to the northwest door of the northeast bedroom disclosed a burn trailer, pour pattern, and puddle configuration.*

   NFPA 921 4-17.7.2 Irregular Patterns. "These patterns are common in post flashover conditions, long extinguishing times, or building collapse. These patterns may result from the effects of hot gases, flaming and smoldering debris, melted plastics, or ignitable liquid. Pooled ignitable liquids that soak into flooring or floor covering material as well as melted plastic can produce irregular patterns. These patterns can also be cause by localized heating or fallen fire debris." **[See 1992 4-17.7.2]**

5. The investigation report stated: *The ceiling above the center of the bedroom sustained intense heat from the center and below the ceiling. The fire did not burn up through the ceiling into the attic. However, the fire did mushroom when it hit the ceiling then climbed halfway down the walls.*

   NFPA 3-5.3.1 Fires Confined by a Ceiling. "When ceiling exists over a fire, and the fire is far from walls, the hot gases and smoke in the rising plume strike the ceiling surface and spread in all directions until stopped by an intervening wall. Fire growth when confined by a ceiling will be faster than when the plume is unconfined." **[See 1992 3-5.3.1]**

6. The investigation report stated: *In the center of the floor a liquid accelerant flowed under the tile squares and burned.*

   NFPA 921 4-16.1.4 Floors. "Fire damaged vinyl floor tiles often exhibit curled tile edges exposing the floor beneath. In a fire situation, the presence of radiation from a hot gas layer will produce the same patterns. This pattern may also be caused by ignitable liquids." **[See 1992 4-16.1.3]**

7. The investigation report stated: *The pieces of broken glass on the ledge of the north windows to the northeast bedroom disclosed a crazed (spiderwebbing) condition.*

   NFPA 921 4-13-1 Breaking of glass. "Crazing is a term used in the fire investigation community to describe a complicated pattern of short cracks in glass. Crazing has been theorized as being the result of very rapid heating on one side of the glass while the other side remains relatively cool. There is no published research to confirm this theory. However there is published research establishing that crazing can be created by the rapid cooling of glass in a hot environment by the application of water spray." **[See 1992 4-13.1]**

8. The investigation report stated: *Examination of the porch concrete floor disclosed an area of brown discoloration at the base of the north wall and in front of the door to the central hallway. This discoloration or brown condition is also an indication that a liquid accelerant burned on the concrete.*

   NFPA 921 4-6 Spalling. "Spalling of concrete, masonry, or brick has often been linked to unusually high temperatures caused by burning accelerant." **[See 1992 4-6]**

   NFPA 921 4-6.1 Misconceptions about Spalling. "The use of spalling evidence in fire investigations is one of the most misunderstood and improperly used evidential elements. Among the misconceptions are that spalling is caused only by the use of liquid accelerant. Exposure to any high rate of heating by flame or high levels of radiation from any fuel, whether solid, liquid or gas, can cause spalling."

9. The investigation report stated: *Based on the fire scene examination and statements from eye witnesses, it was determined that the fire had multiple origins.*

   NFPA 921 17-2.1 Multiple Fires. "Confirmation of multiple fires is a compelling indication that the fire was incendiary." **(Samples were taken from various areas and a positive sample was confirmed in one area deemed an area of origin.)**

Attachment B
Willingham Interview
Based on transcript of the initial interview with Willingham and Deputy SFM Vasquez on Dec. 31, 1991.

- *"I remember I woke up it was 9:13and you know I sat there and she (Stacy) left and everything and after she got out of the driveway I heard the twins cry so I got up and gave them a bottle you know and they was in the floor at the time, you know we always let them sleep in the floor there, and I gave them a bottle and Amber was in her bed, I went back to sleep."*

- *I don't know how long it was or whatever, you know the only thing, the next thing I remember is hearing 'Daddy, Daddy' and when I finally woke up you know when I heard the last "Daddy" and I woke up you know the house was already full of smoke it was so thick in there already I couldn't even see where the exit was from the bedroom it was so smokey in there already."*

- *"toward the front of the house you couldn't see nothing but black and you could smell you know our microwave blew up about three weeks ago prior to this and the smell that the microwave made was the same smell that the microwave made was the same smell that was in the house all you could smell was you know I guess wire and stuff like that, you could smell electrical wiring and stuff and also I never really could see, but I was noticing like the plug ins and light switches and stuff popping."*

- *"I kept looking for them and kept looking for them and I never could find them and they just wasn't nowhere, and they just wasn't nowhere around right there at the time, and I didn't I didn't, I tried to feel around most of the room but God the whole room, the fire was on top it was in their room and you know I noticed that it was around the top of the walls it seemed like you know it wasn't down on the floor because it wasn't eye level because I had to look up to see it*

- *"And I felt the slide and the slide had already started to melt, and then you know I could tell that the slide had already started to decompose. And then I felt all the back here beside Amber's bed you know and felt on top of Amber's bed and she wasn't there."*

- *"Well when I came out I stepped over it (baby gate) too, cause that was another time I burned my hand, when I come out. Cause I remember when I come out I stumbled and I caught myself and then I, I burned this finger here on the uh, door facing inside their room, you know it was already that hot, you know I burned my hand just picking things up that was in the room you know off the floor and stuff."*

- *"I remember that the door and stuff was already smoking the door you know might already be fixin to catch fire and after I got out the front door."*

- *"If I had'a come through the living room I could have, I'd have tripped over her (Amber) you know but you know I didn't go that way cause there was so much smoke you know and I couldn't seen nothing you know I was blind."*

- **Several witnesses interviewed said only a small amount of smoke was coming from entry way. ...Until he grabs a pool cue and smashes the front windows.**

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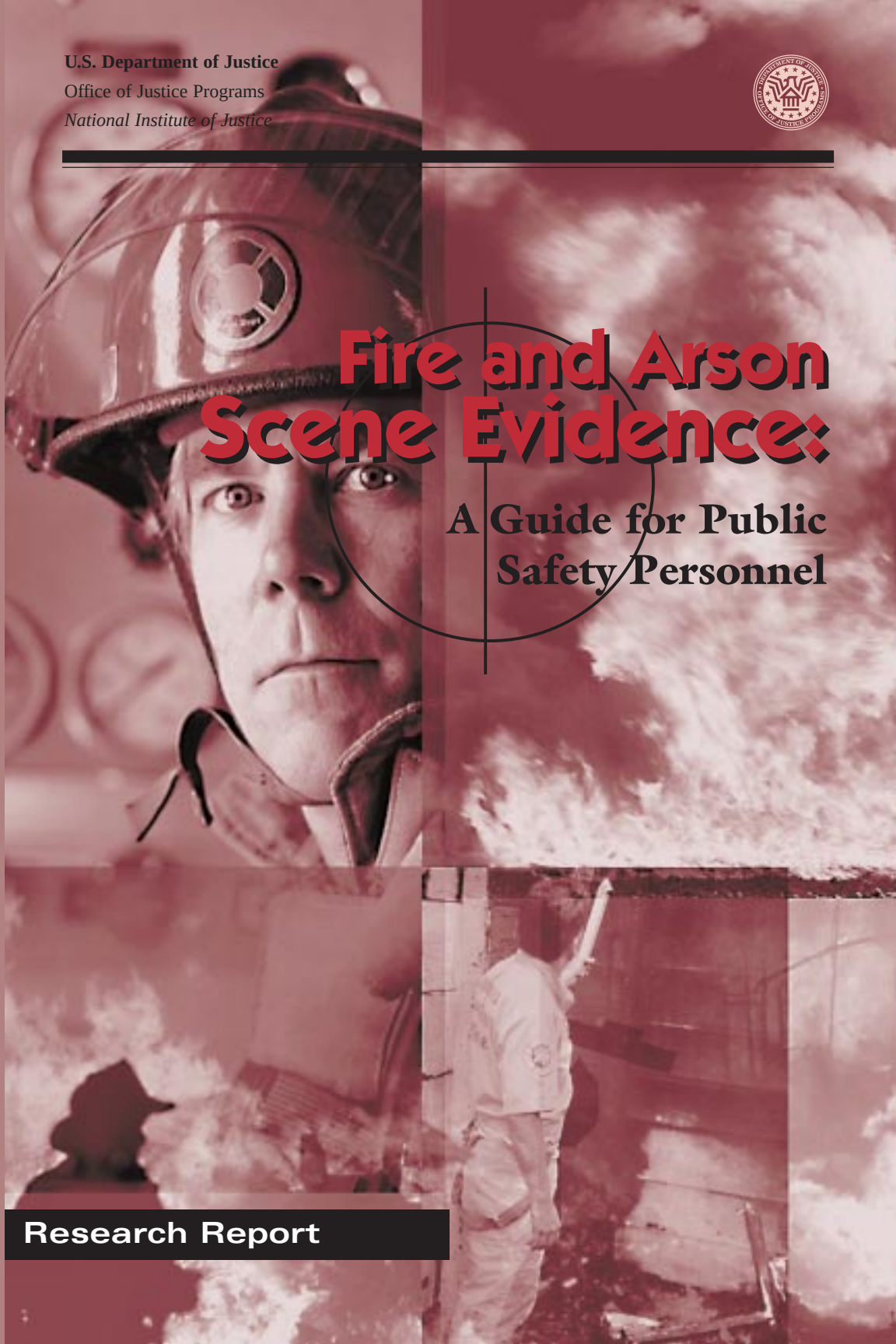
National Institute of Justice



Fire and Arson Scene Evidence:

A Guide for Public Safety Personnel

Research Report

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Fire and Arson Scene Evidence:
A Guide for Public Safety Personnel

Written and Approved by the Technical Working Group on
Fire/Arson Scene Investigation

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NIJ

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Opinions or points of view expressed in this document represent a consensus of the authors and do not necessarily reflect the official position of the U.S. Department of Justice.

The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, the Bureau of Justice Statistics, the Office of Juvenile Justice and Delinquency Prevention, and the Office for Victims of Crime.

Message From the Attorney General

Actions taken at the outset of an investigation at a fire and arson scene can play a pivotal role in the resolution of a case. Careful, thorough investigation is key to ensuring that potential physical evidence is not tainted or destroyed or potential witnesses overlooked.

While many agencies have programs in fire and arson scene processing, the level of training and resources available varies from jurisdiction to jurisdiction, as does the opportunity to practice actual investigation. To assist these agencies, the National Institute of Justice convened a group of law enforcement and legal practitioners, as well as expert fire investigators, to develop improved procedures for the investigation and collection of evidence from fire and arson scenes.

I commend the hard work of the 31 members of the technical working group that created this *Guide*. They represent the law enforcement, prosecution, defense, and fire and arson investigation communities, and their collective expert knowledge, experience, and dedication made this effort a success.

This *Guide* is one method of promoting quality fire and arson scene investigation. The type and scope of an investigation will vary from case to case. Every jurisdiction should give careful consideration to the recommendations in this *Guide* and to its own unique local conditions and logistical circumstances. Although factors that vary among investigations may call for different approaches or even preclude the use of certain procedures described in the *Guide*, consideration of the *Guide*'s recommendations may be invaluable to a jurisdiction shaping its own protocols.

Janet Reno

Message From the President of the University of Central Florida

The University of Central Florida (UCF) is proud to take a leading role in the investigation of fire and explosion scenes through the establishment of the National Center for Forensic Science (NCFS). The work of the Center's faculty, staff, and students, in cooperation with the National Institute of Justice (NIJ), has helped produce the NIJ Research Report *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel.*

More than 150 graduates of UCF's 25-year-old program in forensic science are now working in crime laboratories across the country. Our program enjoys an ongoing partnership with NIJ to increase knowledge and awareness of fire and explosion scene investigation. We anticipate that this type of mutually beneficial partnership between the university, the criminal justice system, and private industry will become even more prevalent in the future.

As the authors of the *Guide* indicate, the field of fire and explosion investigation lacks nationally coordinated investigative protocols. NCFS recognizes the need for this coordination. The Center maintains and updates its training criteria and tools so that it may serve as a national resource for public safety personnel who may encounter a fire or explosion scene in the line of duty.

I encourage interested and concerned public safety personnel to use *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel*. The procedures recommended in the *Guide* can help to ensure that more investigations are successfully concluded through the proper identification, collection, and examination of all relevant forensic evidence.

Dr. John C. Hitt

Technical Working Group on Fire/Arson Scene Investigation

The Technical Working Group on Fire/Arson Scene Investigation (TWGFASI) is a multidisciplinary group of content area experts from across the United States and Canada, from both urban and rural jurisdictions, each representing his or her respective agency or practice. Each of these individuals is experienced in the investigation of fires, the analysis of evidence gathered, or the use in the criminal justice system of information produced by the investigation. They represent such entities as fire departments, law enforcement agencies, forensic laboratories, insurance companies, investigation firms, and government agencies. Many of the members of TWGFASI were selected from the Technical Working Group on Fires and Explosions (TWGFEX), which serves as an advisory panel to the National Center for Forensic Science (NCFS).

At the outset of the TWGFEX effort, the National Institute of Justice (NIJ) and NCFS created the National Fire/Arson Scene Planning Panel (the Panel), which evolved into TWGFASI—composed of distinguished law enforcement and research professionals—to define needs, develop initial strategies, and steer the larger group. Additional members of TWGFASI were then selected from recommendations solicited from the Panel, NIJ's regional National Law Enforcement and Corrections Technology Centers, and national agencies and organizations, such as the National Fire Protection Association, the National Association of Fire Investigators, and the U.S. Fire Administration.

Collectively, over a 2-year period, the 31 members of TWGFASI listed on the following page worked together to develop this *Guide, Fire and Arson Scene Evidence: A Guide for Public Safety Personnel*.

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* These individuals served as editors during the document development process.

Preface

It is the intention of this *Guide* to acquaint a broad spectrum of public safety personnel with the fire investigation process, so they may understand their role in this important task and help identify, locate, and preserve evidence in its varied forms, to either assist a specialist investigator when one is needed or to adequately document and collect evidence when no assistance is needed or available. This *Guide* focuses on the documentation and collection of physical evidence at fire/arson scenes. Other issues of investigation—such as insurance inquiries, background information, fire deaths, the interpretation of fire dynamics and physical evidence, and case analysis and profiling—are not addressed in this document.

Not every portion of this document may be applicable to all fires. It is at the discretion of responding personnel (depending on their responsibilities, as well as the purpose and scope of their duties) to apply the procedures recommended in this *Guide* to a particular incident. Some of the procedures described in this *Guide* may not be performed in the sequence described or may be performed simultaneously.

Acknowledgments

The National Institute of Justice (NIJ) wishes to thank the members of the Technical Working Group on Fire/Arson Scene Investigation (TWGFASI) for their extensive efforts on this project and their dedication to improving the procedures for fire/arson scene investigation. Each of the 31 experts gave their time and expertise to draft and review this *Guide*, providing feedback and perspective from a variety of disciplines and from many areas of the Nation. The true strength of this *Guide* is derived from their commitment to produce procedures that could be implemented across the country, from rural townships to large cities. In addition, thanks are extended to the agencies and organizations that TWGFASI members represent for their flexibility and support, which enabled the participants to see this project to completion.

NIJ is immensely grateful to the National Center for Forensic Science (NCFS) at the University of Central Florida, particularly Director Carrie Whitcomb and Project Coordinator Joan Jarvis, for its coordination of the TWGFASI effort. NCFS's support in planning and hosting the Technical Working Group meetings, as well as the support of the staff in developing the *Guide*, made this work possible.

NIJ is grateful to the individuals from various national organizations who responded to the request for nominations of experts in the field of fire/arson scene investigation. TWGFASI members were selected from their recommendations. In particular, thanks go to the American Society of Crime Laboratory Directors, the National District Attorneys Association, the International Association of Arson Investigators, and the International Association of Bomb Technicians and Investigators. Additionally, thanks are extended to the individuals, agencies, and organizations across the country that participated in the review of this *Guide* and provided valuable comments and input. While all review comments

were given careful consideration by TWGFASI in developing the final document, the review by these organizations is not intended to imply their endorsement of the *Guide*.

NIJ would like to thank the co-manager for this project, Kathleen Higgins, for her advice and significant contributions to the development of the *Guide*.

Special thanks go to former NIJ Director Jeremy Travis for his support and guidance and to Lisa Forman, Lisa Kaas, and Anjali Swienton for their contributions to the Technical Working Group program. Thanks also go to Rita Premo of Aspen Systems Corporation, for her tireless work editing and re-editing the various drafts of the *Guide*.

Finally, NIJ would like to acknowledge Attorney General Janet Reno, whose support and commitment to the improvement of the criminal justice system made this work possible.

Contents

Introduction

It is a capital mistake to theorize before one has data. Insensibly, one begins to twist facts to suit theories instead of theories to suit facts.
—Sherlock Holmes, *A Study in Scarlet*, by Sir Arthur Conan Doyle

As Sherlock Holmes pointed out, many types of investigations are susceptible to prejudgment, but few as often as fire scene investigations. Fires, by their destructive nature, consume the evidence of their initiation and progress as they grow. Investigations are compromised, and often scenes are further destroyed by the activities of the fire service, whose primary responsibilities are to save lives and protect property against further damage. Fire scenes often involve all manner of public entities: emergency medical, law enforcement, and fire services. Public utilities such as gas and electric companies may be involved. Passers-by, owners, tenants, customers, delivery agents all may have relevant information. The press and curious individuals attracted to large fire scenes can complicate investigations, as they make security a necessity. As has frequently been said, "A fire investigation is like a picture puzzle. Everyone involved with it has some of the pieces, but no one has the whole picture. It is up to the investigator to gather enough of these pieces together to solve the puzzle."

Why Investigate Fires?

Since Roman times, civil authorities have recognized the threat that fire represents, not only to the well-being of individuals, but also, and perhaps more importantly, to the welfare and security of the community as a whole. In the days of wooden walls and roofs and straw-covered floors, any fire could ravage an entire city. So, it was in the interest of all concerned to investigate fires and establish how they began. Civil authorities attempted to control the fire risk by assessing penalties if an accidental fire was allowed to get out of control. Dangerous practices, such as leaving cooking fires unguarded, were identified and controlled.

William the Conqueror issued an edict that cooking fires be damped or covered after a particular time of evening so that unattended fires could not flare up. This policy of couvre feu (cover the fire) gave rise to the "curfew" of today. If authorities could determine the fire was deliberately set, the perpetrator could be identified and punished. Some of the oldest English common laws regarded arson to be the crime of burning the house or dwelling of another. The crime of arson was considered to be such a danger that it was punishable by death.

The same rationale applies today. Fires of accidental cause need to be identified, so that dangerous practices, such as filling kerosene room heaters with gasoline, can be eliminated by public education, or so that defective or dangerous products, such as instant-on televisions or room heaters with no overheating or tip-over protection, can be taken off the market or modified so they no longer pose a significant fire risk. Fires of incendiary (i.e., deliberate) cause must be detected, so that the firesetter can be intercepted before doing more harm and punished as necessary.

The Fire Problem in the United States

According to the National Fire Incident Reporting System (NFIRS) of the U.S. Fire Administration (USFA), Federal Emergency Management Agency, the United States has one of the highest per capita fire death rates among industrialized nations. In 1997, the U.S. fire death rate was 15.2 deaths per million. This was reflected in approximately 4,050 deaths and more than 23,000 injuries for that year alone. Nearly 2 million fires occurred in 1997, with a total estimated dollar loss of $8.5 billion.

Thirty-one percent of these fires were in structures. Residential fires comprised 23 percent of all fires and 74 percent of all structure fires. Eighty-four percent of all fatalities occurred in homes. In addition to structure fires, each year hundreds of thousands of vehicle and outside fires occur. In 1997, vehicle fires accounted for nearly 400,000 incidents, resulting in approximately 450 civilian deaths and 1,700 civilian injuries. Outside fires were estimated at more than 700,000 occurrences, accounting for 40 percent of the total number of reported fires.

Arson fires (defined as incendiary/suspicious in NFIRS) comprised almost 16 percent of all reported fires in 1997 and accounted for more than $554 million, or 15 percent, of the total estimated dollar loss. Since all fires are considered accidental until they can be proven to be intentionally set, the reported numbers are probably very conservative. There is also reluctance to report arson fires, as it is feared that it may cause a negative impact on the community or its economy.

While the general trend in numbers of fires and fire deaths has shown a steady gradual decline over the past decade, the overall costs are still significant. A continuing effort must be made to accurately identify the exact origin (where the fire started) and cause (the factors that brought the ignition source and first material ignited together) of all fires. This will assist in learning more about how to prevent fires in the future. Perhaps more important are preventive measures such as installing working smoke detectors and residential sprinklers in every home and using public education programs to effect behavior change.

The Problem of Fire Investigations

The advantages of accurate and thorough fire investigations are obvious. The United States is one of the few countries where public authorities have statutory responsibility to investigate all fires and determine their origins and causes. While this may appear to be a solution to the problem of fires and arsons, a number of major complications in fire investigations exist in the United States:

- A fire can be a complex event whose origin and cause are not obvious. Investigators may have to expend considerable time and effort before the cause can be identified. This is the area where Holmes' dictum is especially applicable. Without gathering data, the investigator can only guess at what might have caused the fire, based on circumstances alone. The training and preparation of qualified investigators are often costly and time-consuming, requiring dedication to the profession over many years.

- The destructive power of the fire itself compromises evidence from the outset. The larger a fire becomes and the longer it burns, the less evidence of causation will remain. In some fires, sufficient data to establish the origin and cause (i.e., evidence) do not survive, no matter how diligent the search or well prepared the searcher. This destruction may be exacerbated by the normal and necessary duties of fire personnel carrying out rescue, suppression, overhaul, and salvage tasks.

- The complexity of the threat a major fire presents to the health and welfare of the community means that representatives from law enforcement, fire, rescue, and emergency medical services; hazardous materials teams; utility company personnel; health and safety officers; and other public agency personnel may be on hand and may conduct some obligatory official duties. The presence of so many people, in addition to members of the press and the public who were attracted by the sights and sounds of a major fire, offers yet more chances for scene security to be compromised and critical evidence to be contaminated, moved, or destroyed.

- Responsibility for the investigation of fires is split. While the fire service has the primary civil responsibility to establish a fire's cause, if the cause is determined to be accidental, the scene is released to the owner or the owner's insurance company for further examination. If the conclusion is that the fire was purposely set, a crime has been committed and law enforcement authority is needed to investigate the crime. This often means releasing the scene and evidence to a local law enforcement agency. Where local law enforcement has inadequate resources or personnel, an outside agency such as a State fire marshal, or even a Federal agency (e.g., the Bureau of Alcohol, Tobacco and Firearms [ATF]) may be asked to investigate. Any such transfer may cause complications in establishing lines of authority. In some agencies, investigative teams are composed of individuals from both law enforcement agencies and fire departments so that the continuity of the investigation can be maintained through both civil and criminal phases. In a few cases, individuals have both law

enforcement and fire authority, thanks to extensive cross-training, so cases are handled from start to finish by a minimal number of trained, motivated investigators.

- A lack of commitment to conduct fire investigations exists on the part of some law enforcement and fire agencies. Because of the demand for rescue, hazardous materials, and emergency medical assistance, in addition to their traditional duties of fire suppression, fire departments often find themselves with fewer resources to stretch to cover all obligations. As a result, the less visible responsibilities of fire investigation and fire prevention are often scaled back. These cutbacks occur despite the advantages that aggressive programs in both areas could provide to the individual department and to the community it serves: Preventing a fire means there is no loss of life or property, no risk to personnel, and no equipment costs; investigating a fire means that potential accidental or criminal threats to the community may be averted in the future. Law enforcement agencies, facing similar overwhelming demands for their time, might prefer not to become involved in cases where the scene is destroyed or at the very least compromised, time-consuming scene examination and interviews are required, and the resulting evidence is often complex and circumstantial (meaning prosecutors may not want to use it even if it is properly and completely collected).

Then Who Investigates Fires?

As might be gathered from the preceding points, who actually will investigate a fire is not an easy question to answer. In addition to law enforcement and fire authorities, there may be prosecuting attorney investigators, forensic laboratory experts, engineering specialists (fire, chemical, mechanical, or electrical), and private investigators representing insurance companies, owners, tenants, and manufacturers of the myriad ignition sources found in a modern home or business.

Why This *Guide?*

Considering the wide spectrum of people involved in the investigation of fires, perhaps it is understandable why uniform guidelines for fire scene documentation and evidence collection have not been previously crafted for those public safety personnel who may not be trained in the specialized aspects of fire scene investigation but may be in the position of having to respond to a fire/arson scene. Whether from law enforcement or fire agencies, the public-sector individuals responsible for investigations have had access to specialized training programs through USFA's National Fire Academy, ATF, the Federal Bureau of Investigation (FBI), State fire marshal offices, professional organizations such as the International Association of Arson Investigators, and various private-sector groups. In 1992, the National Fire Protection Association (NFPA) issued *NFPA 921: Guide for Fire and Explosion Investigations*[1], a consensus document reflecting the knowledge and experience of fire, engineering, legal, and investigative experts across the United States. This document is continuously reviewed, public proposals and comments are solicited, and a revised edition is produced every 3 to 5 years. It has become a benchmark for the training and expertise of everyone who purports to be an expert in the origin and cause determination of fires. Unfortunately, not everyone involved in the process of scene examination and evidence documentation and collection will have the opportunity to master the entire contents of comprehensive manuals, such as *NFPA 921*. As previously discussed, fires are common occurrences that threaten lives and communities, so many people are involved in fire investigations, and many people hold pieces of the puzzle, often without knowing it.

1. *NFPA 921: Guide for Fire and Explosion Investigations*, Quincy, Massachusetts: National Fire Protection Association.

Training Criteria

With the completion of this *Guide*, the National Institute of Justice (NIJ) intends to support the creation of training resource materials, including publications and online interactive programs, through agencies such as the National Center for Forensic Science (NCFS). These resources will make it possible for all those involved in fire scenes to optimize the evidence recovered in investigations.

Background

National Fire/Arson Scene Planning Panel and Technical Working Group on Fire/Arson Scene Investigation

NCFS, which is located at the University of Central Florida (UCF) in Orlando and is an NIJ grantee, held a national needs symposium on arson and explosives in August 1997. The symposium's purpose was to identify problem areas associated with the collection and analysis of fire and bombing debris. One of the problem areas identified by this national panel of experts was the need for improved awareness of available procedures for the recognition, documentation, and collection of evidence at fire and arson scenes. In spring 1998, NIJ and NCFS, using NIJ's template, created a technical working group to develop guides for fire/arson and explosion/bombing scene investigations. The NIJ Director selected members for a planning group—the National Fire/Arson Scene Planning Panel (the Panel)—to draft a guide for fire/arson scene investigation, as well as members for an explosion/bombing scene planning panel that met separately. The 11 Panel members represented Federal, State, and local agencies involved in the investigation of both accidental fires and arsons, as well as national and international organizations that have been involved with the creation of professional guidelines (such as *NFPA 921*) for scene investigations. The selected members not only had extensive personal experience in the examination of fire scenes but also represented the diversity of disciplines involved with fire investigations—from the scene to the laboratory and courtroom.

The Panel was charged with developing an outline for a national guide for fire/arson scene evidence collection, using the format in the NIJ publication *Death Investigation: A Guide for the Scene Investigator*[2] as a template.

The Panel met in April 1998 at the Office of Law Enforcement Standards (OLES) at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland, under the sponsorship of NCFS and NIJ, to begin the document development process. Because many aspects of fire/arson scene investigation are complex and involve extensive specialist training and knowledge, the Panel was careful to focus on the evidence that should be collected and documented at all fire scenes and to emphasize the need to evaluate the limitations of the investigator's knowledge and request specialized expertise when the complexities of the scene exceeds those limitations. Documents already in place, such as *NFPA 921* and standards E1188 and E860 from the American Society for Testing and Materials, cover the collection and interpretation of complex evidence from fire/arson scenes. The Panel determined that this *Guide* should not attempt to supplant those widely accepted consensus documents but should supplement them for those public safety personnel who may not be trained in the specialized aspects of fire scene investigation but may be in the position of having to respond to a fire/arson scene.

In August 1998, the Technical Working Group on Fire/Arson Scene Investigation (TWGFASI), which was led by Panel members, met at UCF to expand, develop, and revise the document drafted by the Panel. In other meetings, TWGFASI established a long-term commitment to a separate group within it focusing on at-the-scene issues that will bring together laboratory and onsite workers.

In September 1998, the draft of the document was circulated to TWGFASI for review and comment. The comments generated by that review were collated by the OLES Director.

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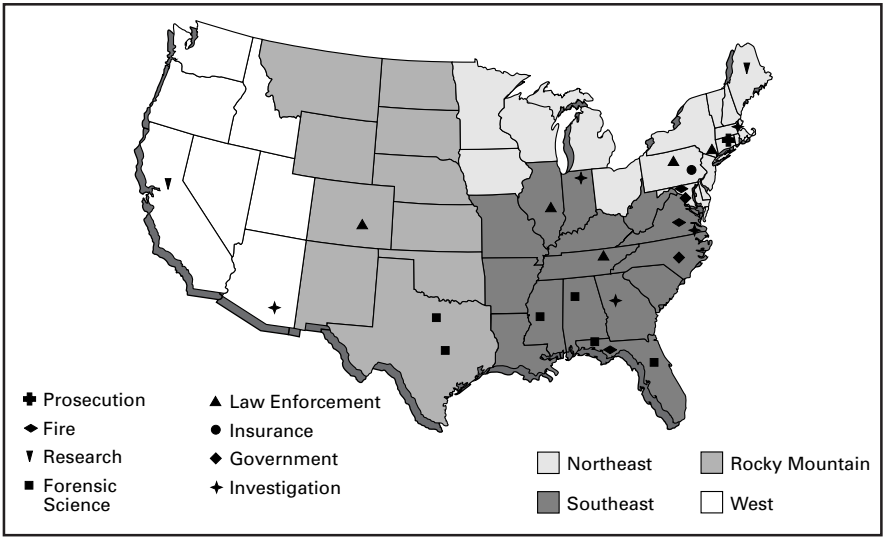
2. *Death Investigation: A Guide for the Scene Investigator*, Research Report, Washington, D.C.: U.S. Department of Justice, National Institute of Justice, December 1997, NCJ 167568.



TWGFASI Representation

Discipline	Northeast	Southeast	Rocky Mountain	West	Canada
Law enforcement	2	2	1		
Prosecution	1				1
Forensic science		6	2		
Research	1			1	
Investigation	1	2		1	
Fire		1			
Insurance	1				
Government	6	1			1

National Reviewer Network

After the initial review by TWGFASI members, editors selected from the Panel by NIJ met in Washington, D.C., in February 1999 to create a draft document for wide review. The comments elicited in the broad review were then incorporated into the final document by the editorial board at a meeting in July 1999, prior to its submission for acceptance by TWGFASI in October 1999.

The 132 organizations and individuals whose comments were solicited during the national review included all levels of law enforcement, regional and national organizations, attorneys, judges, and forensic scientists from across the United States and Canada. A complete list of organizations that received the document for review can be found in appendix E.

This handbook is intended as a guide to recommended practices for the collection and preservation of evidence at fire/arson scenes. Jurisdictional, logistical, or legal conditions may preclude the use of particular procedures contained herein.

Actions taken pursuant to this *Guide* shall be performed in accordance with department policies and procedures and Federal and State laws.

Not every portion of this document may be applicable to all fires. It is at the discretion of responding personnel (depending on their responsibilities, as well as the purpose and scope of their duties) to apply the procedures recommended in this *Guide* to a particular incident. Some of the procedures described in this *Guide* may not be performed in the sequence described or may be performed simultaneously.

Note: *The actions of public safety personnel providing emergency services at a fire scene are critical not only to lifesaving and fire suppression efforts but also to any subsequent investigation of the incident.*

1. Observe the Fire and Scene Conditions

Principle: Public safety personnel responding to a fire should observe conditions and activities at or near the scene so they can give investigators arriving later an accurate and complete description. *First responders*[3] can gain information valuable to the fire investigation during their approach to and arrival at the scene.

Procedure: While approaching a fire scene, first responders should observe and mentally note the following conditions and activities and, as soon as conditions permit, initiate permanent documentation of the information (e.g., written notes, voice recordings, videotapes):

A. The presence, location, and condition of victims and witnesses.

B. Vehicles leaving the scene, bystanders, or unusual activities near the scene.

C. Flame and smoke conditions (e.g., the volume of flames and smoke; the color, height, and location of the flames; the direction in which the flames and smoke are moving).

3. The first public safety personnel to arrive on the scene, whether they are law enforcement professionals, firefighters, or emergency medical services (EMS) personnel.

D. The type of occupancy and use of the structure (e.g., a residential occupancy being used as a business).

E. Conditions of the structure (e.g., lights turned on; fire through the roof; walls standing; open, closed, or broken windows and doors).

F. Conditions surrounding the scene (e.g., blocked driveways, debris, damage to other structures).

G. Weather conditions.

H. Unusual characteristics of the scene (e.g., the presence of containers, exterior burning or charring on the building, the absence of normal contents, unusual odors, fire trailers[4]).

I. The fire suppression techniques used, including ventilation, forcible entry, and utility shutoff measures.

J. The status of fire alarms, security alarms, and sprinklers.

Summary: First responders' initial observations provide investigators with information pertinent to the investigation. As the investigation unfolds, these observations may provide the starting point for evidence collection and preservation efforts.

2. Exercise Scene Safety

Principle: Safety overrides all other concerns: Ensuring the safety of victims, bystanders, and public safety personnel is the first responders' foremost concern at a fire scene. First responders must take steps to identify and remove or mitigate safety hazards that may further threaten victims, bystanders, and public safety personnel. They must exercise due caution to avoid injuries to themselves and others.

4. Physical trails of fuel and the burn patterns caused by those trails.

Procedure: Upon arrival at the scene, first responders should:

A. Evaluate the scene for safety hazards (e.g., structural collapse of the building; smoke; electrical, chemical, or biological hazards; other health risks).

B. Establish safety/hazard zones.

C. Communicate hazards to other personnel arriving at the scene.

D. Use tools and personal protective equipment appropriate to the task during all operations.

DANGER:

Beware of incendiary or explosive devices!
The scene may contain devices specifically designed to kill or maim public safety responders. Do not touch any suspected incendiary or explosive device. Evacuate the area, and request the services of personnel trained in the removal of such items.

Summary: Safety is the overriding concern during emergency operations and the subsequent investigation. To ensure the safety of civilians and public safety personnel, first responders should take steps to identify, evaluate, and mitigate scene hazards, and they should communicate those hazards to other public safety personnel arriving at the scene. Necessary safety zones should be established to receive victims as they are evacuated. Personal protective equipment and other measures should be used to ensure the safety of all persons at the scene. The scene should continually be reassessed to evaluate safety hazards that may change due to fire conditions or suppression efforts.

3. Preserve the Fire Scene

Principle: Evidence at a fire scene takes many different forms, some of which are transient (i.e., they are not permanent and may disappear quickly, such as impressions in snow or evaporating liquids). First responders must understand how rescue, medical, fire suppression, overhaul,[5] and salvage[6] efforts can adversely affect different forms of evidence and take steps to preserve evidence accordingly. First responders should assess the fire scene to identify potential evidence, take preliminary steps to preserve it, and notify appropriate authorities about its existence.

Procedure: To preserve evidence, first responders should:

A. Observe and mentally note evidence that may be present at the scene, such as:

- Fire patterns (including multiple fire locations).
- Burn injuries to victims and fire patterns on clothing.
- Trailers, ignitable liquids, or other unusual fuel distribution (e.g., piles of newspapers, furniture pushed together).
- Incendiary/ignition/explosive devices (e.g., lighters, matches, timing devices).
- Shoe prints and tire impressions.
- Broken windows and doors.
- Distribution of broken glass and debris.
- Indications of forced entry (tools and tool marks).

---

5. The process of opening concealed spaces to find pockets of fire and removing smoldering materials.

6. The process of protecting, moving, or removing items.

- Containers.
- Discarded clothing.
- Trace evidence (e.g., hairs, fibers, fingerprints, blood, other body fluids).
- Evidence of crimes in addition to the possible arson (e.g., weapons, bodies, drugs, clandestine drug laboratory equipment).
- Witnesses, bystanders, and victims.
- Any other unusual items or the absence of normal contents or structural components.

B. Recognize threats to evidence (i.e., its movement, removal, contamination, or destruction) from any of the following sources:

- Fire suppression activities, such as a straight stream applied at the point of origin or deluge applications that may wash away or dilute potential evidence.
- Overhaul activities that destroy fire patterns.
- Salvage activities that involve moving or removing potential physical evidence.
- Use of a tool in any manner that causes destruction of evidence.
- Movement of knobs, switches, and controls on appliances and utilities.
- Weather conditions that affect transient evidence (i.e., wind, precipitation, or temperature changes).
- Personnel walking through the scene.
- Witnesses and victims leaving the scene.
- Medical intervention and treatment of victims (e.g., by damaging evidence at the scene or destroying victims' clothing).
- Premature removal or movement of bodies.

- Vehicles at the scene (e.g., that introduce fluid to the scene through vehicle leaks or destroy other evidence, including shoe prints and tire impressions).
- Contamination from external sources, such as fuel-powered tools or equipment.

C. Protect evidence by:

- Limiting excessive fire suppression, overhaul, and salvage.
- Avoiding needless destruction of property.
- Leaving bodies undisturbed.
- Flagging items of evidence with cones or markers.
- Recording observations through written notes or voice recordings.
- Covering items or areas containing evidence with objects that will not contaminate the evidence (e.g., clean boxes or tarpaulins).
- Isolating items or areas containing evidence with rope, barrier tape, barricades, or sentries.
- Retaining and securing clothing items removed from victims and suspects.
- Obtaining information about victims and witnesses (i.e., their names, addresses, and telephone numbers).
- Preserving transient evidence (e.g., trace evidence, shoe prints, tire impressions).
- Removing evidence at risk of imminent destruction by the fire or the structural collapse of the damaged building.
- Ensuring that later arriving investigators are fully apprised of the evidence discovered.

Summary: First responders should recognize items that may have evidentiary value in a subsequent investigation and take steps to protect them from damage that could result from the fire, fire suppression, or rescue efforts.

4. Establish Security and Control

Principle: Fire suppression and rescue efforts can be performed more efficiently and effectively if only essential authorized personnel are permitted access to the area. Restricting access also ensures the safety of civilians and helps to preserve the scene for subsequent investigation. First responders should immediately establish control of the scene. Then, as soon as conditions permit, first responders should initiate documentation of the scene to aid in the investigation.

Procedure: To establish security and control, first responders should:

A. Set up a security perimeter (e.g., using barrier tape, fire line, sentry).

B. Control access into the scene through the security perimeter.

C. Initiate documentation of the scene. (See "Section C: Documenting the Scene.")

Summary: The actions of first responders at a fire scene are not only critical to saving lives and suppressing fires; they also set the stage for the investigators arriving to process the scene by establishing a controlled security perimeter and initiating documentation of the scene.

5. Coordinate Activities

Principle: Emergency operations at the fire scene may involve many different agencies and organizations, each having a different focus and performing different activities. These activities must be well coordinated to accomplish emergency operations efficiently and to preserve the integrity of the scene. Upon arrival at the scene, first

responders must establish an incident command system, which allows for a systematic flow and transfer of critical scene information.

Procedure: To coordinate activities at the scene, first responders should:

A. Establish a command post and implement an incident command system (i.e., a point of contact and line of communication and authority for public safety personnel).

B. Establish staging areas to ensure that emergency and support vehicles have access into the area.

C. Request additional personnel resources, such as firefighters, EMS personnel, law enforcement officers, investigators, and representatives of utility companies.

D. Inform authorities about the status of the incident, hazards, injuries, witnesses, the location of evidence, and other pertinent facts.

Summary: First responders must establish an incident command system to coordinate activities at the scene and communicate information to responsible authorities.

Section B. Evaluating the Scene

Note: *This and subsequent sections of this* Guide *are intended for the individual responsible for the investigation of a fire incident. At the time the scene is determined to involve an arson or other crime, the investigator must address legal requirements for scene access, search, and evidence seizure.*

1. Introduce Yourself and Your Role as the Investigator

Principle: Introductions at the scene allow the *investigator*[7] to establish formal contact with other official agency representatives. The investigator should meet with the *incident commander*[8] and first responders to assess previous events and the current status of the fire scene, introduce himself or herself, identify essential personnel, and determine what the scene safety and integrity issues are.

Procedure: Upon arrival at the scene, and prior to entering the scene, the investigator should:

A. Identify and contact the current incident commander and present identification.

B. Conduct a briefing with the incident commander to determine who has jurisdiction and authorization (legal right of entry) and to

7. The individual responsible for the investigation, whether a qualified fire investigator or any member of the authorized agency given investigative responsibility.

8. The supervisor/officer in control of the scene.

identify other personnel at the scene (e.g., law enforcement, firefighting, EMS, hazardous materials, and utility services personnel).

C. Determine the level of assistance required and whether additional personnel are needed.

D. Determine initial scene safety prior to entry through observations and discussions with first responders. Consider environmental as well as personnel safety concerns. Assess changes in safety conditions resulting from suppression efforts.

Summary: Onscene introductions establish formal contact with the incident commander and other official agency representatives and promote a collaborative investigative effort. Preliminary scene safety concerns are addressed and continually reevaluated due to the effects of changing fire conditions, suppression efforts, and scene reconstruction.

2. Define the Extent of the Scene

Principle: To provide for the safety and security of personnel and to protect the evidence, the investigator should perform a preliminary scene assessment. The investigator should determine the area in which the site examination will be conducted and establish or adjust the scene perimeter.

Procedure: To determine the boundaries of the scene, the investigator should:

A. Make a preliminary scene assessment (an overall tour of the fire scene to determine the extent of the damage, proceeding from areas of least damage to areas of greater damage) to identify areas that warrant further examination, being careful not to disturb evidence.

B. Inspect and protect adjacent areas—even areas with little or no damage—that may include nonfire evidence (e.g., bodies, blood stains, latent prints, tool marks) or additional fire-related evidence (e.g., unsuccessful ignition sources, fuel containers, ignitable liquids).

C. Mark or reevaluate the perimeter and establish or reassess the procedures for controlling access.

Summary: Procedures focusing on the perimeter and on control of access to the fire scene protect the integrity of the scene.

3. Identify and Interview Witnesses at the Scene

Principle: Persons with information about the scene, activities prior to the fire, the fire, and its suppression are valuable witnesses. The investigator should determine the identities and locations of witnesses and make arrangements to conduct interviews.

Procedure: To develop a witness list, the investigator should:

A. Contact the incident commander, identify first responders and first-in firefighters, and arrange to document their observations either in writing or through recorded interviews.

B. Determine who reported the fire. (Secure a tape or transcript of the report if available.)

C. Identify the owner of the building/scene, any occupants, and the person responsible for property management.

D. Identify who was last to leave the building/scene and what occurred immediately before they left.

E. Identify and interview other witnesses (e.g., neighbors, bystanders, people injured during the fire, later arriving public agency personnel) and record their statements.

Summary: Developing a list of persons who have information about the scene, activities prior to the fire, the fire, and its suppression assists investigators with the subsequent investigation.

4. Assess Scene Security at the Time of the Fire

Principle: The investigator should determine whether the building or vehicle was intact and secure and if intrusion alarms or fire detection and suppression systems were operational at the time of the fire. This information helps to establish factors such as ventilation conditions, possible fire development timelines and scenarios, and whether vandalism of the property or systems occurred prior to the fire.

Procedure: To determine the status of security at the time of the fire, the investigator should:

A. Ask first responders where entry was made, what steps were taken to gain entry, and whether any systems had been activated when they arrived at the scene.

B. Observe and document the condition of doors, windows, other openings, and fire separations (e.g., fire doors). Attempt to determine whether they were open, closed, or compromised at the time of the fire.

C. Observe and document the position of timers, switches, valves, and control units for utilities, detection systems, and suppression systems, as well as any alterations to those positions by first responders.

D. Contact security and suppression system monitoring agencies to obtain information and available documentation about the design and functioning of the systems.

Summary: Determining and documenting system operations and scene security at the time of the fire establishes existing conditions of the scene. Data from detection and suppression systems can provide information about the fire's origin and spread.

5. Identify Resources Required to Process the Scene

Principle: The investigator should recognize limitations of his or her own expertise and knowledge and determine what personnel may be required to process the scene according to *NFPA 921* and other recognized national guidelines. Except in the most obvious cases, the determination of a fire's origin and cause may be a complex and difficult undertaking that requires specialized training and experience as well as knowledge of generally accepted scientific methods[9] of fire investigation. The investigator must either have appropriate expertise or call upon the assistance of someone with that knowledge. This is especially true in cases involving deaths, major injuries, or large property losses.

Procedure: Based on the preliminary scene assessment and analysis of fire patterns and damage at the scene, the investigator should:

A. Identify a distinct origin (location where the fire started) and an obvious fire cause (ignition source, first fuel ignited, and

9. As stated in *NFPA 921*, the scientific method consists of defining the problem, collecting data, analyzing the data, developing hypotheses (e.g., what could have caused the fire), testing the hypotheses, and considering alternative hypotheses.

circumstances of the event that brought the two together). If neither the origin nor the cause is immediately obvious, or if there is clear evidence of an incendiary cause, the investigator should conduct a scene examination in accordance with *NFPA 921* and other recognized national guidelines or seek someone with the expertise required.

Note: *At the time the scene is determined to involve an arson or other crime, the investigator must address legal requirements for scene access, search, and evidence seizure.*

B. Know when to contact or request the assistance of specialized personnel and to obtain specialized equipment as required to assist with the investigation. For a comprehensive discussion of suggested equipment and tools, see *NFPA 921*. Standard equipment should include the following:

- Barrier tape.
- Clean, unused evidence containers (e.g., cans, glass jars, nylon or polyester bags).
- Compass.
- Decontamination equipment (e.g., buckets, pans, detergent).
- Evidence tags, labels, and tape.
- Gloves (disposable gloves and work gloves).
- Handtools (e.g., hammers, screwdrivers, knives, crowbars).
- Lights (e.g., flashlights, spotlights).
- Marker cones or flags.
- Personal protective equipment.
- Photographic equipment.
- Rakes, brooms, spades, etc.
- Tape measures.
- Writing equipment (e.g., notebooks, pens, pencils, permanent markers).

C. Recognize and consider the interests of parties that may be affected by the outcome of the investigation and, to the extent possible, avoid jeopardizing those interests by taking steps to protect evidence. These issues include spoliation,[10] subrogation,[11] and third-party claims.

Summary: Identifying the required resources ensures that the scene is processed by qualified individuals and that evidence necessary for both criminal and civil litigation will be preserved.

10. Damage or loss of evidence that would compromise a legal case.

11. Recovering damages by a finding of fault; finding that the cause of the fire was the failure of some product or system.

Section C. Documenting the Scene

1. Photograph/Videotape the Scene

Principle: Photographic documentation creates a permanent record of the scene and supplements the written incident report(s), witness statements, or reports on the position of evidence. The investigator should create and preserve an accurate visual record of the scene and the evidence prior to disturbing the scene. Additional photography or videography should occur as the investigation progresses.

Procedure: The scene should be photographed prior to the disturbance or removal of any evidence and throughout the scene investigation. The investigator (or other individual responsible for evidence) should:

A. Photograph and/or videotape the assembled crowd and the fire in progress.

B. Remove all nonessential personnel from the background when photographing the scene and evidence.

C. Photograph the exterior and interior of the fire scene (consider walls, doors, windows, ceilings, floors) in a systematic and consistent manner. (Videotaping may serve as an additional record but not as a replacement for still photography.)

D. Photograph any points or areas of origin, ignition sources, and first material ignited.

E. Photograph any physical reconstruction of the scene.

F. Maintain photo and video logs. Record the date, the name of the photographer, and the subject. (See appendix A for examples.)

G. Determine whether additional photographic resources are necessary (e.g., aerial photography, infrared photography, stereo photography, photogrammetry).

Summary: Photographic documentation provides a permanent record of the scene.

2. Describe and Document the Scene

Principle: Written documentation of the scene provides a permanent record of the investigator's observations that may be used to refresh recollections, support the investigator's opinions and conclusions, and support photographic documentation.

Procedure: The investigator should:

A. Prepare narrative, written descriptions and observations, including assessments of possible fire causes. (See appendix A for samples.)

B. Sketch an accurate representation of the scene and its dimensions, including significant features such as the ceiling height, fuel packages (e.g., combustible contents of the room), doors, windows, and any areas of origin.

C. Prepare a detailed diagram using the scene sketch(es), preexisting diagrams, drawings, floor plans, or architectural or engineering drawings of the scene. This may be done at a later date.

D. Determine whether additional documentation resources are necessary.

Summary: Written descriptions of the scene, along with accurate sketches and measurements, are invaluable for focusing the investigation. Written scene documentation recreates the scene for investigative, scientific analysis, and judicial purposes and correlates with photographic evidence.

Section D. Processing Evidence at the Scene

Note: *At the time the scene is determined to involve an arson or other crime, the investigator must address legal requirements for scene access, search, and evidence seizure.*

1. Identify, Collect, and Preserve Evidence

Principle: Collecting evidence at a fire scene requires attention to documenting and maintaining the integrity of the evidence. The investigator should ensure that evidence collectors identify and properly document, collect, and preserve evidence for laboratory analyses, further investigations, and court proceedings, in accordance with *NFPA 921* and other recognized national guidelines, including American Society for Testing and Materials standards E860, E1188, and E1459. This will ensure that critical evidence is not contaminated or lost prior to analysis and that the chain of custody is maintained.

Procedure: To optimize the recovery and evaluation of physical evidence, evidence collectors should:

A. Take precautions to prevent contamination. (See "Prevent Contamination.")

B. Document the location of evidence using written notes, sketches, photographs, photo and video logs, the evidence recovery log, evidence tags, and container labels. (See appendix A.) When evidence is excavated, additional photographs may be of value.

C. Take special care to collect evidence in any areas of origin (such as the first fuel ignited and ignition source) in cases where the fire is not accidental.

Note: *In cases where the fire appears to be accidental, evidence should not be needlessly disturbed, but the property owner or insurer should be notified to avoid issues of spoliation.*

D. Place evidence in labeled containers for transportation and preservation. Evidence collected for laboratory identification of ignitable liquids must be immediately placed in clean, unused, vaportight containers (e.g., clean, unused paint cans; glass jars; laboratory-approved nylon or polyester bags) and then sealed.

E. Label each container so that it is uniquely identified. Labeling may include the name of the investigator, date and time of collection, case number, sample number, description, and location of recovery.

F. Collect and preserve suitable comparison samples but recognize that such samples may be unavailable.

G. Package evidence in accordance with their laboratories' policies and procedures.

H. Recognize the presence of other physical evidence, such as blood stains, shoe prints, latent prints, and trace evidence, and use proper preservation and collection methods or seek qualified assistance.

Summary: Proper collection and packaging preserve the value of physical evidence.

2. Prevent Contamination

Principle: Preventing contamination during evidence collection protects the integrity of the fire scene and evidence. The investigator should ensure that access to the fire scene after fire suppression is controlled and that evidence is collected, stored, and transported in such a manner that it will not be contaminated.

Procedure: To prevent contamination, personnel (e.g., evidence collectors) should:

A. Establish and maintain strict control of access to the scene.

B. Recognize that fuel-powered tools and equipment present potential contamination sources and should be avoided. When it is necessary to use these tools and equipment, the investigator should document their use.

C. Wear clean, protective outergarments, including footwear.

D. Use clean disposable gloves for collecting items of evidence. (To avoid cross-contamination, gloves should be changed between collection of unrelated items of evidence or when visibly soiled.)

E. Use clean tools for collecting items of evidence from different locations within a scene. (Disposable tools also can be used.)

F. Place evidence in clean, unused containers and seal immediately.

G. Store and ship fire debris evidence containers of evidence collected from different scenes in separate packages.

H. Package liquid samples to prevent leakage and ship them separately from other evidence.

I. Store and ship fire debris evidence separately from other evidence.

J. Follow any specific laboratory requests, such as submitting an unused sample container or absorbent medium for detection of any contaminants.

Summary: Attention to scene control and evidence collection and packaging helps to prevent contamination and ensures the integrity of the evidence.

3. Package and Transport Evidence

Principle: Preventing changes in the condition of a sample after it has been collected ensures the integrity of the evidence and requires controlled packaging and transportation. The investigator should ensure that packaging, transportation, and storage procedures are followed to prevent any destructive changes in the condition of samples.

Procedure: To minimize changes in the condition of samples, the personnel responsible for packaging and transport should:

A. Take precautions to prevent contamination. (See "Prevent Contamination.")

B. Package fragile items carefully.

C. Freeze or immediately transport items containing soil to the laboratory.

D. Transport all volatile samples to the laboratory in a timely manner.

E. Comply with shipping regulations.

Summary: Adherence to approved packaging and transportation procedures safeguards the condition of the evidence and ensures its continued integrity.

4. Establish and Maintain the Chain of Custody

Principle: Establishing and maintaining a chain of custody verifies the integrity of the evidence. The investigator should ensure that the chain of custody is maintained.

Procedure: Personnel responsible for the chain of custody should:

A. Maintain written records documenting the sample number, description of the evidence, date and location where it was found, collector's name, and miscellaneous comments.

B. Document all transfers of custody, including the name of the recipient and the date and manner of transfer.

C. Document the final disposition of the evidence.

Summary: Maintaining the chain of custody for evidence, from collection through final disposition, ensures its integrity.

Section E. Completing the Scene Investigation

1. Release the Scene

Principle: The investigator should ensure that the scene is not released until reasonable efforts have been made to identify, collect, and remove all evidence from the scene for further examination and that all physical characteristics of the scene have been documented. In addition, prior to releasing the scene, associated legal, health, and safety issues must be articulated to the party receiving the scene and reported to public safety agencies if necessary. Doing so minimizes the risk of a further incident or injury and the potential liability of the authority releasing the scene.

Procedure: The investigator should ensure that the following tasks are completed before releasing the scene:

A. Perform a final critical review:

- Ensure that all evidence is inventoried and in custody.
- Discuss preliminary scene findings with team members.
- Discuss postscene issues, including forensic testing, insurance inquiries, interview results, and criminal histories.
- Assign postscene responsibilities to law enforcement personnel and other investigators.[12]
- Address legal considerations.

12. Remember that this *Guide* focuses on the documentation and collection of physical evidence at fire/arson scenes. Other issues of investigation, such as insurance inquiries, background information, fire deaths, the interpretation of physical evidence, and case analysis and profiling, are not addressed in this document.

B. Verify that all scene documentation has been completed. (This can be accomplished using an incident documentation checklist or closure form; see appendix A.)

C. Address structural, environmental, health, and safety issues.

D. Remove all investigative equipment and materials.

- Recover and inventory equipment.
- Decontaminate equipment and personnel.

E. Document the following information:

- Time and date of release.
- Receiving party.
- Authority releasing the scene.
- Condition of the scene at the time of release (e.g., structural, environmental, health, and safety issues). Consider photographing and/or videotaping the final condition of the scene.
- Cautions given to the receiving party upon release (e.g., safety concerns, conditions, evidence, legal issues).

Summary: Responsibility for the scene should be transferred to an authority having jurisdiction or to the party with the legal right to the scene, after the scene examination, the condition of the scene, and any cautions supplied have been documented.

2. Submit Reports to the Appropriate Databases

Principle: Detailed fire information is collected, integrated, and disseminated through national and State databases. These data help authorities identify fire trends and

develop innovative procedures and equipment. The responsible agencies must file incident reports with the appropriate databases.

Procedure: The investigator should collect sufficient information to facilitate reporting to the following databases as appropriate:

A. Arson and Explosives National Repository (Bureau of Alcohol, Tobacco and Firearms).

B. Bomb Data Center (Federal Bureau of Investigation).

C. National Fire Incident Reporting System (U.S. Fire Administration).

D. National Incident-Based Reporting System (Federal Bureau of Investigation).

E. State and local fire incident reporting systems.

Summary: The responsible agencies should contribute to databases that compile information for purposes of identifying fire trends and developing suspect profiles.

Appendixes

Appendix A. Documentation Examples

The forms in this appendix are provided to assist in the organization of investigation information and data. They are intended as examples and may not include all information needed or may refer to information that is not applicable. The forms are taken from *NFPA 906: Guide for Fire Incident Field Notes*[13] and are printed here by permission of NFPA. For information on the development of these forms and instructions on their use, see *NFPA 906*.

13. *NFPA 906: Guide for Fire Incident Field Notes*, Quincy, Massachusetts: National Fire Protection Association.

CASE SUPERVISION
FIELD NOTES 906-0

AGENCY	FILE NUMBER

This cover sheet will assist in keeping track of the progress of the investigation. Indicate what has been done, what needs to be done, assignments, dates and so forth, in the Remarks sections. The lower portion should be used to record routine checks or rechecks and other information pertinent to the investigation.

FIELD NOTES FORMS

ANY FIRE	906-1	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
STRUCTURE	906-2	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
VEHICLE	906-3	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
WILDLAND	906-4	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
CASUALTY	906-5	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
WITNESS	906-6	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
EVIDENCE	906-7	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
PHOTOGRAPH	906-8	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
SKETCH	906-9	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
INSURANCE	906-10	☐ COMPLETE _____ DATE	☐ N/A	REMARKS
RECORDS/DOCUMENT	906-11	☐ COMPLETE _____ DATE	☐ N/A	REMARKS

INCIDENT AND CASUALTY REPORTS UPDATED ☐ YES _____ DATE ☐ NO ☐ NOT NECESSARY

DATE	ACTIVITY	BY

ANY FIRE
FIELD NOTES 906-1

AGENCY	FILE NUMBER

INCIDENT

ADDRESS/LOCATION		DAY	DATE	TIME	FIRE DEPT. INCIDENT NO.	
WEATHER AT TIME OF FIRE	GENERAL CONDITIONS			TEMP.	WIND DIR.	WIND SPEED
PROPERTY DESCRIPTION	☐ STRUCTURE (906-2) ☐ VEHICLE (906-3) ☐ WILDLAND (906-4) ☐ OTHER					

OWNER/OCCUPANT

OWNER'S NAME	PHONE NO.
OWNER'S ADDRESS	
OCCUPANT'S NAME	PHONE NO.
OCCUPANT'S ADDRESS	
DOING BUSINESS AS	PHONE NO.

NOTIFICATION FOR INVESTIGATION

DAY	DATE	TIME	FROM WHOM		
RECEIVED BY			ASSIGNED TO		
ARRIVED AT SCENE	DAY	DATE	TIME	SCENE SECURED ☐ NO (COMMENT ON CONDITION) ☐ YES (BY WHOM)	
AUTHORITY TO ENTER	EMERGENCY	CONSENT ☐ VERBAL ☐ WRITTEN	WARRANT ☐ ADMIN. ☐ CRIM.	OTHER (Describe)	
DEPARTED SCENE	DAY	DATE	TIME	COMMENTS	

OTHER AGENCIES INVOLVED

FIRE DEPT.	INCIDENT NO.	CONTACT PERSON	PHONE NO.
POLICE DEPT.	FILE NO.	CONTACT PERSON	PHONE NO.
OTHER	CASE NO.	CONTACT PERSON	PHONE NO.

ESTIMATED TOTAL LOSS

$	ESTIMATED BY

REMARKS

STRUCTURE FIRE
FIELD NOTES 906-2b

AGENCY	FILE NUMBER

EXTERIOR OBSERVATIONS

INTERIOR OBSERVATIONS

HEATING SYSTEM

TYPE	LOCATION
COMMENTS	

ELECTRICAL SERVICE

☐ FUSES ☐ BREAKERS	ENTRY LOCATION	SERVICE PANEL LOCATION
COMMENTS		

OTHER HEATING EQUIPMENT

TYPE(S)	LOCATION
COMMENTS	

STRUCTURE CONTENTS

COMMENTS

AREA OF ORIGIN

COMMENTS

STRUCTURE FIRE
FIELD NOTES 906-2c

AGENCY	FILE NUMBER

IGNITION SEQUENCE

HEAT SOURCE

MATERIAL IGNITED

IGNITION FACTOR

IF EQUIPMENT INVOLVED

MAKE | MODEL | SERIAL NO

COMMENTS

FIRE SPREAD

MATERIALS

AVENUES

COMMENTS

SMOKE SPREAD

MATERIALS

AVENUES

COMMENTS

REMARKS

MOTOR VEHICLE
FIELD NOTES 906-3

AGENCY	FILE NUMBER

VEHICLE DESCRIPTION

COLOR(S)	YEAR	MAKE	MODEL	LICENSE — NO., STATE, EXPIRES	VIN NO.

OWNER/OPERATOR

OWNER'S NAME	OWNER'S ADDRESS	OWNER'S PHONE NO.
OPERATOR'S NAME/LICENSE NO.	OPERATOR'S ADDRESS	OPERATOR'S PHONE NO.

EXTERIOR

PRIOR DAMAGE	FIRE DAMAGE
TIRES/WHEELS (Missing, Match, Condition)	
PARTS MISSING	

FUEL SYSTEM

PRIOR DAMAGE		FIRE DAMAGE	
TYPE FUEL	CONDITION OF TANK	FILLER CAP CONDITION	FUEL LINE CONDITION

ENGINE COMPARTMENT

PRIOR DAMAGE	FIRE DAMAGE
FLUID LEVELS OIL _____ TRANSMISSION _____ RADIATOR _____ OTHER _____	
PARTS MISSING	

INTERIOR

PRIOR DAMAGE	FIRE DAMAGE
IGNITION SYSTEM	KEY IN IGNITION ☐ YES ☐ NO
PERSONAL CONTENTS MISSING	
ACCESSORIES MISSING	
ODOMETER READING	SERVICE STICKER INFORMATION

VEHICLE SECURITY

ALARM	DOOR AND TRUNK LOCKS	WINDOW POSITIONS

ORIGIN/IGNITION SEQUENCE

AREA
HEAT SOURCE
MATERIAL IGNITED
IGNITION FACTOR

WILDLAND FIRE
FIELD NOTES 908-4

AGENCY	FILE NUMBER

PROPERTY DESCRIPTION

FIRE DAMAGE
☐ LESS THAN ACRE _____ NO. ACRES

SECURITY
☐ OPEN ☐ FENCED ☐ LOCKED GATES

OTHER PROPERTIES INVOLVED

COMMENTS

FIRE TRAVEL FACTORS

TYPE FIRE
☐ GROUND ☐ CROWN

FACTORS
☐ WIND ☐ TERRAIN

COMMENTS

AREA OF ORIGIN

PEOPLE IN AREA

AT TIME OF FIRE
☐ YES ☐ NO ☐ UNDETERMINED

COMMENTS

IGNITION SEQUENCE

HEAT OF IGNITION

MATERIAL IGNITED

IGNITION FACTOR

IF EQUIPMENT INVOLVED

MAKE MODEL SERIAL NO.

COMMENTS

CASUALTY
FIELD NOTES 906-5

AGENCY	FILE NUMBER

DESCRIPTION

NAME			ADDRESS					PHONE NO
RACE	SEX	AGE	DATE OF BIRTH	HEIGHT	WEIGHT	HAIR	EYES	OTHER
DESCRIBE CLOTHING								

TYPE OF INJURY

☐ MINOR ☐ MODERATE ☐ SEVERE ☐ FATAL

DESCRIBE INJURY

CIRCUMSTANCES

WHO FOUND VICTIM? WHERE?

VICTIM'S ACTIVITY JUST PRIOR TO AND AT TIME OF IGNITION

VICTIM'S ACTIVITY AFTER TIME OF IGNITION

CASUALTY TREATMENT

☐ TREATED AT SCENE BY?

SENT TO	VIA	TREATED BY
REMARKS		

FATALITY

BODY POSITION

BODY REMOVED TO	BODY REMOVED BY	AUTHORITY TO MOVE BODY GIVEN BY
MEDICAL EXAMINER/CORONER	ADDRESS	PHONE NO
CAUSE OF DEATH		
AUTOPSY BY	ADDRESS	PHONE NO

DATE OF AUTOPSY	CASE NO	BLOOD TEST	X-RAYS	REPORTS IN POSSESSION
		☐ YES ☐ NO	☐ YES ☐ NO	☐ YES ☐ NO

NEXT OF KIN

NAME	RELATIONSHIP	ADDRESS AND PHONE
NOTIFIED BY (How, Date, and Time)		

REMARKS

WITNESS STATEMENT
FIELD NOTES 906-6

AGENCY	FILE NUMBER

IDENTIFICATION

NAME				ADDRESS		PHONE NO.
RACE	SEX	AGE	DATE OF BIRTH	SOC. SECURITY NO.		DRIVER'S LIC. NO.
EMPLOYER				ADDRESS		PHONE NO.
RELATIONSHIP TO INCIDENT				CAN BE CONTACTED AT		
STATEMENT TAKEN BY				LOCATION, DATE, AND TIME OF STATEMENT		

STATEMENT

EVIDENCE
FIELD NOTES 906-7

AGENCY	FILE NUMBER

	DESCRIPTION	WHERE FOUND/WHEN	REMOVED TO/BY
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

REMARKS

PHOTOGRAPH
FIELD NOTES 908-8

ROLL NO.	AGENCY	FILE NUMBER

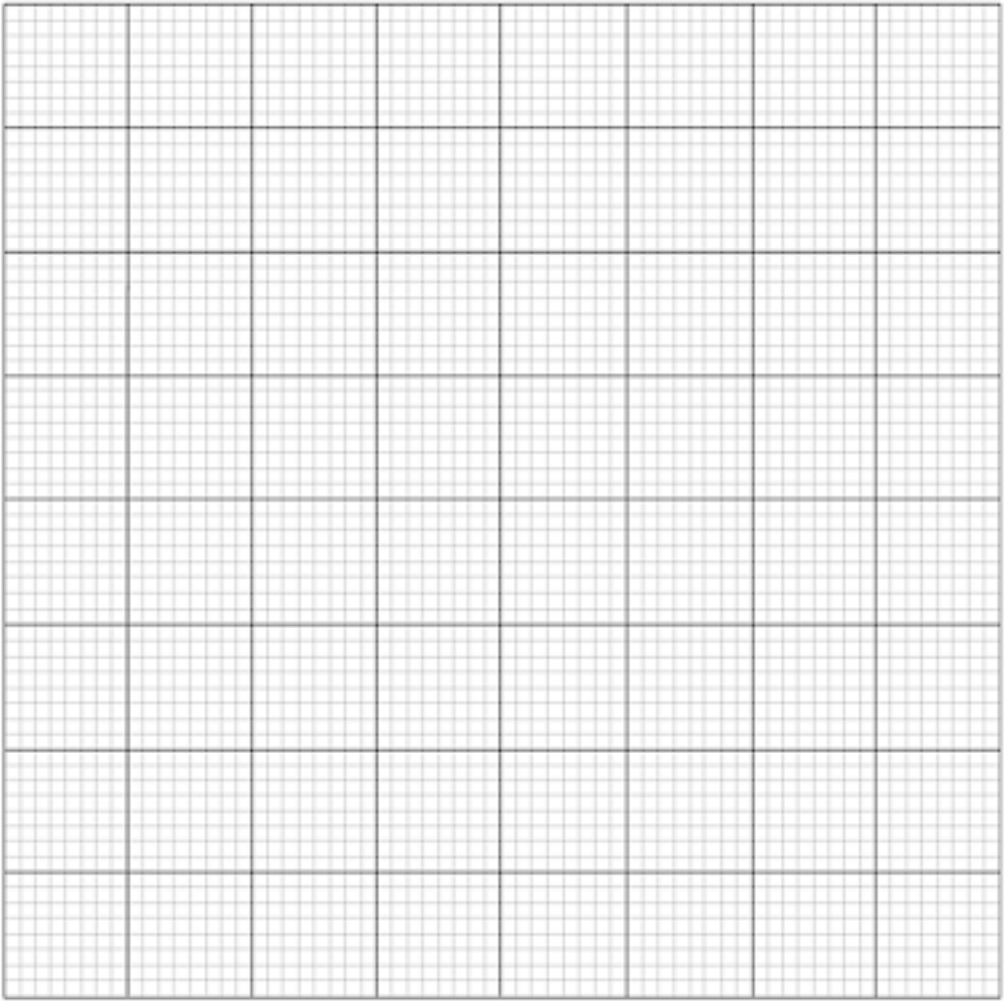
*ONLY ONE ROLL OF FILM PER FORM.

NEG. NO.	DESCRIPTION	NEG. NO.	DESCRIPTION
1		21	
2		22	
3		23	
4		24	
5		25	
6		26	
7		27	
8		28	
9		29	
10		30	
11		31	
12		32	
13		33	
14		34	
15		35	
16		36	
17		37	
18		38	
19		39	
20		40	

REMARKS

SKETCH
FIELD NOTES 9008-9

AGENCY	FILE NUMBER



Scale: Sketcher: Date:

NOTE: Be sure to show reference north on sketch.

INSURANCE INFORMATION

FIELD NOTES 906-10

AGENCY	FILE NUMBER

COMPANY

NAME	ADDRESS	PHONE NO.
1.		
POLICY NO.	EFFECTIVE DATE	EXPIRATION DATE
NAME	ADDRESS	PHONE NO.
2.		
POLICY NO.	EFFECTIVE DATE	EXPIRATION DATE

COVERAGE

STRUCTURE/VEHICLE	CONTENTS, PERSONAL PROPERTY	BUSINESS INTERRUPTION, LOSS EARNINGS, LIVING EXPENSES
1. ☐ NEW ☐ RENEWAL	NAME OF INSURED	ADDRESS OF INSURED
2. ☐ NEW ☐ RENEWAL	NAME OF INSURED	ADDRESS OF INSURED

PREVIOUS INSURANCE CARRIER NAME	ADDRESS	PHONE NO.

$ _____ STRUCTURE/VEHICLE $ _____ CONTENTS $ _____ OTHER ? _____

PREVIOUS LOSSES, CANCELLATIONS

INSURANCE AGENT

NAME	ADDRESS	PHONE NO.
1.		
NAME	ADDRESS	PHONE NO.
2.		

ADJUSTER/INVESTIGATOR

NAME OF COMPANY ADJUSTER/INVESTIGATOR	ADDRESS	PHONE NO.
1.		
NAME OF COMPANY ADJUSTER/INVESTIGATOR	ADDRESS	PHONE NO.
2.		
NAME OF PUBLIC ADJUSTER	ADDRESS	PHONE NO.

TOTAL PAID LOSS

STRUCTURE	CONTENTS/PERSONAL PROPERTY	OTHER (Explain)
1. $	1. $	1. $
STRUCTURE	CONTENTS/PERSONAL PROPERTY	OTHER (Explain)
2. $	2. $	2. $

REMARKS

RECORDS/DOCUMENTS
FIELD NOTES 906-11

AGENCY	FILE NUMBER

Use this form as a checklist to indicate which records have been considered in the investigation. The Remarks sections should be used to note availability, contacts, and so forth.

INCIDENT RELATED

FIRE DEPT. NAME	INCIDENT NO.	REMARKS
POLICE DEPT. NAME	FILE NO.	REMARKS
INSURANCE CO. NAME	CASE NO.	REMARKS
GAS CO. NAME	REMARKS	
ELECTRIC CO. NAME	REMARKS	
MEDIA COVERAGE	REMARKS	
MEDIA COVERAGE	REMARKS	
MEDIA COVERAGE	REMARKS	
OTHER — INCIDENT RELATED	REMARKS	
OTHER — INCIDENT RELATED	REMARKS	

PROPERTY RECORDS

MORTGAGE HOLDER	REMARKS
LIEN HOLDER	REMARKS
TAX RECORDS	REMARKS
CONTRACTS/LEASES	REMARKS
TITLES/REGISTRATIONS	REMARKS
ZONING/CODES	REMARKS
DEEDS	REMARKS
OTHER	REMARKS
OTHER	REMARKS

BUSINESS/PERSONAL

ACCOUNTING	REMARKS
INVENTORY	REMARKS
BANKS/CREDIT UNIONS, ETC.	REMARKS
BUSINESS AND PERSONAL TAX	REMARKS
CRIMINAL HISTORY	REMARKS
CIVIL LITIGATIONS	REMARKS

Appendix B. Additional Reading

The documents listed below are for informational purposes and should not necessarily be considered authoritative in their entirety.

American Society for Testing and Materials. *E860–97 Standard Practice for Examining and Testing Items That Are or May Become Involved in Products Liability Litigation*. West Conshohocken, Pennsylvania: American Society for Testing and Materials, 1999.

American Society for Testing and Materials. *E1188–95 Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator*. West Conshohocken, Pennsylvania: American Society for Testing and Materials, 1999.

American Society for Testing and Materials. *E1459–92 Standard Guide for Physical Evidence Labeling and Related Documentation*. West Conshohocken, Pennsylvania: American Society for Testing and Materials, 1998.

Bureau of Alcohol, Tobacco and Firearms. *ATF Arson Investigative Guide*. Washington, D.C.: U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms, 1997.

Cole, Lee S. *The Investigation of Motor Vehicle Fires*. 3d ed. Novato, California: Lee Books, 1992.

DeHaan, John D. *Kirk's Fire Investigation*. 4th ed. Upper Saddle River, New Jersey: Brady Publishing/Prentice Hall, 1997.

DiNenno, Philip J., ed. *The SFPE Handbook of Fire Protection Engineering*. Quincy, Massachusetts: National Fire Protection Association and Society of Fire Protection Engineering, 1999.

"Glossary of Terms." *Fire and Arson Investigator* 40 (2): 25–34.

International Fire Service Training Association. *Introduction to Fire Origin and Cause*. 2d ed. Stillwater, Oklahoma: Fire Protection Publications, 1997.

Munday, J.W. *Safety at Scenes of Fire and Related Incidents*. London: Fire Protection Association, 1995.

National Fire Protection Association. *Fire Protection Handbook*. 18th ed. Quincy, Massachusetts: National Fire Protection Association, 1997.

National Fire Protection Association. *NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents*. Quincy, Massachusetts, 1999.

National Fire Protection Association. *NFPA 906: Guide for Fire Incident Field Notes*. Quincy, Massachusetts: National Fire Protection Association.

National Fire Protection Association. *NFPA 921: Guide for Fire and Explosion Investigations*. Quincy, Massachusetts: National Fire Protection Association.

A Pocket Guide to Accellerant Evidence Collection. 2d ed. Saugus, Massachusetts: Massachusetts Chapter, International Association of Arson Investigators, 2000.

Quintiere, James G. *Principles of Fire Behavior*. Albany, New York: Delmar Publishers, 1997.

Appendix C. National Resources

interFIRE
877–INTERFIRE
URL: http://www.interfire.com

International Association of Arson Investigators
314–739–4224
URL: http://www.fire-investigators.org

International Fire Service Training Association
405–744–5723
URL: http://www.ifsta.org

National Association of Fire Investigators
312–427–6320
URL: http://www.nafi.org

National Center for Forensic Science
407–823–6469
URL: http://ncfs.ucf.edu

National Fire Protection Association
617–770–3000
URL: http://www.nfpa.org

Appendix D. Points of Contact

Bureau of Alcohol, Tobacco and Firearms
Headquarters Enforcement Operations Center
888–ATF–FIRE
URL: http://www.atf.treas.gov

Arson and Explosives National Repository
800–461–8841
202–927–4590

Arson and Explosives Programs Division
202–927–7930

National Laboratory
301–762–9800

Chemical Transportation Emergency Center (CHEMTREC®)
800–262–8200
URL: http://www.chemtrec.org

Federal Bureau of Investigation
Chemistry Division
202–324–4318
URL: http://www.fbi.gov

Federal Emergency Management Agency
U.S. Fire Administration
301–447–1000
URL: http://www.usfa.fema.gov

National Institute of Standards and Technology
Building and Fire Research Laboratory
301–975–6850
URL: http://www.bfrl.nist.gov

U.S. Consumer Product Safety Commission
800–638–2772
URL: http://www.cpsc.gov

U.S. Environmental Protection Agency
National Response Center
800–424–8802
URL: http://www.epa.gov

Appendix E. List of Organizations

The following is a list of public and professional organizations to which a draft copy of this document was mailed.

Accomack County (Virginia) Sheriff's Office

Alaska Criminal Laboratory

Alaska Public Defender Agency

Allegheny County (Pennsylvania) Fire Marshal

American Academy of Forensic Sciences

American Bar Association

American Correctional Association

American Jail Association

American Prosecutors Research Institute

American Reinsurance Company

American Society of Crime Laboratory Directors

American Society of Law Enforcement Trainers

Anchorage (Alaska) Police Department

Arapahoe County (Colorado) Sheriff's Office

Armed Forces Institute of Pathology

Association of Federal Defense Attorneys

Bridgeport (Michigan) Forensic Laboratory

Bristol (Virginia) Police Department

Broward County (Florida) Sheriff's Office

Brownsville (Texas) Police Department

Bureau of Alcohol, Tobacco and Firearms

Cameron County (Texas) Sheriff's Office

Campaign for an Effective Crime Policy

Chicago (Illinois) Fire Department

Children's Defense Fund

Cincinnati (Ohio) Fire Division

City of Donna (Texas) Police Department

City of Inver Grove Heights (Minnesota)

Clark County (Nevada) Fire Department

Cleveland State Community College Basic Police Academy

Commission on Accreditation for Law Enforcement Agencies

Conference of State Court Administrators

Connecticut State Police Forensic Science Laboratory

Conyers (Georgia) Police Department

Council of State Governments

Covington (Tennessee) Fire Department

Crime Scene Academy

Criminal Justice Institute, Inc.

Delaware State Fire Marshal's Office

Drug Enforcement Administration

Edinburg (Texas) Police Department

Fairbanks (Alaska) Police Department

Federal Bureau of Investigation

Federal Law Enforcement Training Center

Florida Department of Law Enforcement

Florida International University

Florida Division of State Fire Marshal

Georgia Bureau of Investigation

Harlingen (Texas) Police Department

Hidalgo County (Texas) Sheriff's Office

Illinois State Police

Indiana State Police Laboratory Division

The Institute for Genomic Research

Institute of Police Technology and Management, University of North Florida

International Association for Identification

International Association of Bomb Technicians and Investigators

International Association of Chiefs of Police

International City/County Management Association

International Homicide Investigators Association

Iowa Division of Criminal Investigation

Jefferson Parish (Louisiana) Fire Department

Juneau (Alaska) Police Department

Laredo (Texas) Police Department

Law Enforcement Training Institute, University of Missouri—Columbia

Los Angeles (California) Fire Department

Maine State Police Crime Laboratory

Massachusetts State Police

McAllen (Texas) Police Department

Metropolitan Government of Nashville and Davidson County Criminal Court Division III

Metropolitan Government of Nashville and Davidson County Office of the District Attorney General

Metropolitan Nashville (Tennessee) Police Academy

Metropolitan Nashville (Tennessee) Police Department

Michigan Department of State Police

Mission (Texas) Police Department

National Association of Attorneys General

National Association of Black Women Attorneys

National Association of Counties

National Association of Criminal Defense Lawyers

National Association of Drug Court Professionals

National Association of Police Organizations, Inc.

National Association of State Alcohol and Drug Abuse Directors

National Association of Women Judges

National Center for State Courts

National Center for Victims of Crime

National Clearinghouse for Child Abuse and Neglect

National Conference of State Legislatures

National Council on Crime and Delinquency

National Crime Prevention Council

National Criminal Justice Association

National District Attorneys Association

National Governors' Association

National Law Enforcement and Corrections Technology Centers

National Law Enforcement Council

National League of Cities

National Legal Aid and Defender Association

National Organization for Victim Assistance

National Sheriffs' Association

New Hampshire State Police Forensic Laboratory

New Jersey State Police

New York State Office of Fire Prevention and Control

Office of Law Enforcement Standards, National Institute of Standards and Technology

Orange County (California) Sheriff's Department

Orange County (New York) Community College

Peace Officer Standards and Training

Pennsylvania State Police

Pharr (Texas) Police Department

Pinellas County (Florida) Forensic Laboratory

Police Association

Police Executive Research Forum

Police Foundation

Rhode Island State Crime Laboratory

San Diego (California) Police Department

The Sentencing Project

Sitka (Alaska) Police Department

South Carolina Law Enforcement Division

St. Louis (Missouri) Metropolitan Police Department

State of Florida Crime Laboratory

Suffolk County (New York) Crime Laboratory

Tennessee Bureau of Investigation

Tennessee Law Enforcement Training Academy

Texas Department of Public Safety, Texas Rangers

Town of Goshen (New York) Police Department

Tucson (Arizona) Police Department

University of Texas Pan American Police Department

U.S. Border Patrol

U.S. Conference of Mayors

U.S. Postal Inspection Service

U.S. Sentencing Commission

Webb County (Texas) Sheriff's Department

Weslaco (Texas) Police Department

Willacy County (Texas) Sheriff's Office

Wisconsin State Crime Laboratory

About the National Institute of Justice

The National Institute of Justice (NIJ), a component of the Office of Justice Programs, is the research agency of the U.S. Department of Justice. Created by the Omnibus Crime Control and Safe Streets Act of 1968, as amended, NIJ is authorized to support research, evaluation, and demonstration programs, development of technology, and both national and international information dissemination. Specific mandates of the Act direct NIJ to:

- Sponsor special projects and research and development programs that will improve and strengthen the criminal justice system and reduce or prevent crime.
- Conduct national demonstration projects that employ innovative or promising approaches for improving criminal justice.
- Develop new technologies to fight crime and improve criminal justice.
- Evaluate the effectiveness of criminal justice programs and identify programs that promise to be successful if continued or repeated.
- Recommend actions that can be taken by Federal, State, and local governments as well as by private organizations to improve criminal justice.
- Carry out research on criminal behavior.
- Develop new methods of crime prevention and reduction of crime and delinquency.

In recent years, NIJ has greatly expanded its initiatives, the result of the Violent Crime Control and Law Enforcement Act of 1994 (the Crime Act), partnerships with other Federal agencies and private foundations, advances in technology, and a new international focus. Examples of these new initiatives include:

- Exploring key issues in community policing, violence against women, violence within the family, sentencing reforms, and specialized courts such as drug courts.
- Developing dual-use technologies to support national defense and local law enforcement needs.
- Establishing four regional National Law Enforcement and Corrections Technology Centers and a Border Research and Technology Center.
- Strengthening NIJ's links with the international community through participation in the United Nations network of criminological institutes, the U.N. Criminal Justice Information Network, and the NIJ International Center.
- Improving the online capability of NIJ's criminal justice information clearinghouse.
- Establishing the ADAM (Arrestee Drug Abuse Monitoring) program—formerly the Drug Use Forecasting (DUF) program—to increase the number of drug-testing sites and study drug-related crime.

The Institute Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the Department of Justice, and the needs of the criminal justice field. The Institute actively solicits the views of criminal justice professionals and researchers in the continuing search for answers that inform public policymaking in crime and justice.

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FIRE AND EXPLOSION INVESTIGATIONS AND FORENSIC ANALYSES:

NEAR- AND LONG-TERM NEEDS ASSESSMENT

FOR STATE AND LOCAL LAW ENFORCEMENT

A REPORT FOR THE NATIONAL INSTITUTE OF JUSTICE (NIJ)

PREPARED BY THE NATIONAL CENTER FOR FORENSIC SCIENCE,

CARL CHASTEEN,

THE NATIONAL CENTER FOR FORENSIC SCIENCE,

AND

THE TECHNICAL/SCIENTIFIC WORKING GROUP

FOR FIRE AND EXPLOSIONS

FUNDED BY NIJ AWARD 2005-MU-MU-K044, SUPPLEMENT NO. 1
(UCF PROJECT NO. 24076017)

REVIEWED AND EDITED BY CARL CHASTEEN

JANUARY 6, 2008

FINAL EDITING COMPLETED BY NCFS

JANUARY 8, 2008

Preface

Among the various types of criminal investigations and the varied specialties for forensic analyses, crimes associated with arson and explosions are sometimes the most difficult to process and analyze. The inherent destructiveness of the events often compromise much of the evidence left behind. Ignitable liquids and many individual chemical compounds are found as contaminants in various matrices from a fire scene. The residues produced from the complete reaction of explosives are often gases. Those, which are not gases, are often so common that their presence is not meaningful.

The International Association of Arson Investigators[1], the **National Fire Protection Association**[2], the **American Society for Testing and Materials**[3], the **International Association of Bomb Technicians and Investigators**[4], and the **Technical/Scientific Working Group for Fire and Explosions**[5], have a high level of interest and desire in improving both the procedures at the scene and the capabilities of the laboratory. Yet, the status of investigations and analyses are not uniform across the nation. Among scene investigators, there is a desire to use more scientific and forensically sound methods. Among laboratory analysts, there is a desire to be able to glean the most that science can reveal about the evidence and to begin to approach the same levels of individualization as has been achieved in DNA analysis.

Recognizing the current state of affairs and wishing to provide guidance, the **National Institute of Justice**[6] commissioned[7] the **National Center for Forensic Science**[8] to prepare this report on the near- and long-term needs in Arson and Explosion analyses and investigations. Through collaboration with numerous representatives of the relevant communities and a survey instrument targeted to those communities this report was prepared.

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[1] IAAI, http://www.firearson.com.

[2] NFPA, http://www.nfpa.org.

[3] ASTM, http://www.astm.org.

[4] IABTI, http://www.iabti.org.

[5] T/SWGFEX, http://www.ncfs.ucf.edu/twgfex/index.html.

[6] NIJ, http://www.ojp.usdoj.gov/nij.

[7] NIJ funded this project **($100,000**) through **Award No. 2005-MU-MU-K044, Supplement No. 1** (FY-2006, **$1,450,000**), UCF Project No. 24076022. **Mr. John Paul Jones** is the NIJ Program Manager for this award.

[8] NCFS, http://www.ncfs.org.

Acknowledgements

The individuals responsible for preparing this report (and who are listed in Appendix A) would like to thank the Director and Staff of the National Center for Forensic Science, the Chair and Co-Chair of the Technical/Scientific Working Group for Fire and Explosions, the various agencies who allowed their staff members to participate, as well as the national and regional forensic science organizations that assisted with the distribution of the survey instrument, including:

- The American Academy of Forensic Science[9]
- The American Society of Crime Laboratory Directors[10]
- The International Association of Arson Investigators[11]
- The International Association of Bomb Technicians and Investigators[12]
- The Northeastern Association of Forensic Scientists[13]
- The Midwestern Association of Forensic Scientists[14]
- The Mid-Atlantic Association of Forensic Scientists[15]
- The Southern Association of Forensic Scientists[16]
- The Southwestern Association of Forensic Scientists[17]
- Technical/Scientific Working Group for Fire and Explosion[18]

Numerous individuals who sent personal emails and letters to colleagues so that they were aware of the survey are noted, but cannot be listed.

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[9] AAFS, http://www.aafs.org.

[10] ASCLD, http://www.ascld.org.

[11] IAAI, http://www.firearson.com.

[12] IABTI, http://www.iabti.org.

[13] NEAFS, http://www.neafs.org.

[14] MAFS, http://www.mafs.net.

[15] MAAFS, http://www.maafs.org.

[16] SAFS, http://www.southernforensic.org.

[17] SWAFS, http://www.swafs.us.

[18] T/SWGFEX, http://www.ncfs.ucf.edu/twgfex/index.html.

TABLE OF CONTENTS

1. Executive Summary

In March of 2007, the National Center of Forensic Science (NCFS) turned to six (6) members of the Technical/Scientific Working Group in Fire and Explosion (T/SWGFEX) to form a Needs Assessment Planning Panel. This group was charged with preparing a report on the near- and long-term needs to the fire and explosion investigation and forensic analysis communities. The six (6) planning panel members were tasked to chair of one of the following planning sub-committees:

- Near- and long-term needs in Analytical Methods for Fire Debris Analysis
- Near- and long-term needs in Analytical Methods for Explosives Analysis
- Near- and long-term needs in Technology for Fire Debris Analysis and Fire Scene Investigation
- Near- and long-term needs in Technology for Explosives Analysis and Explosive Scene Investigation
- Near- and long-term needs in Training for Fire Debris Analysts and Forensic Fire Scene Investigators
- Near- and long-term needs in Training for Explosives Analysts and Forensic Explosive Scene Investigators

Each Chair selected additional members to fill each of these committees. The group reviewed two (2) surveys originally prepared by the Technical Working Group for Fire and Explosions in 1999 and 2000. These surveys were used by the T/SWGFEX organization to guide it in selecting projects and tasks that would be relevant to the fire and explosion investigative and forensic analysis communities. Using these as a template, one hundred (100) questions were formulated to create a survey instrument for 2007.

The survey was distributed using the assistance of a variety of investigative and analytical organizations. The results were collected in late September of 2007. The Planning Panel and members of the T/SWGFEX Executive Board met in late September of 2007 where they discussed the results of the survey. Using the survey instrument as well as input from their committee members, the group drafted their recommendations for this report. A process of drafts and reviews were used to hone these into a final recommendation divided into five general themes. Some of the themes could only be addressed through examination of multiple issues.

The themes and sub-divisions are:

Within each theme and sub-division, there are recommendations providing specific guidance and comment on:

- Needs and Problems Identified
- Suggested Solutions
- Implementation Strategies

It is hoped that these recommendations will provide direction on methods, technologies, and training identified as being most needed to meet the near and long term needs of those who both investigate fires and bombings as well as the scientists who provide forensic analyses.

2. Background

In 1998, the National Center for Forensic Science[19], a National Institute of Justice[20] program hosted by the University of Central Florida[21], organized a National Needs Assessment[22] meeting for fire and explosion investigators and analysts. Following this meeting, NCFS used NIJ funds to create two (2) Technical Working Groups (TWGs) responsible for writing two (2) guidebooks. NIJ in 2002 published the two (2) documents as research reports: *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel*[23] and *A Guide for Explosion and Bombing Scene Investigation*[24]. A large contingent of the individuals attending this National Needs Assessment and who wrote these reports merged under the guidance of NCFS to form the Technical/Scientific Working Group for Fire and Explosions (T/SWGFEX).

This Working Group is unique among the various Technical and Scientific Working Groups in that it is composed of both laboratory scientists in fire debris and explosives analysis as well as fire and explosives scene investigators. Since then, the mission of T/SWGFEX has been:

> "To establish and maintain nationally accepted programs for the forensic investigation of fire, arson, and explosion scenes and devices. Further, to promote and maintain dialogue among personnel in the public safety and legal communities."

To achieve this mission, its various sub-committees have written and proposed standards for analysis, created modules for training, initiated and maintained a national database and repository for ignitable liquids, and organized symposia. T/SWGFEX chose these projects based on the results from one of its first projects. In 1999 and 2000, T/SWGFEX prepared and issued surveys to both laboratory[25] and

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[19] NCFS, http://www.ncfs.org.

[20] NIJ, http://www.ojp.usdoj.gov/nij.

[21] UCF, http://www.ucf.edu.

[22] August 7-8, 1997 (Orlando, Florida).

[23] http://www.ncjrs.gov/pdffiles1/nij/181584.pdf.

[24] http://www.ncjrs.gov/pdffiles1/nij/181869.pdf.

[25] Survey of Forensic Science Laboratories by the Technical Working Group for Fire and Explosions (TWGFEX)", *Forensic Science Communications*, January 2000 (Volume 2. Number 1), http://www.fbi.gov/hq/lab/fsc/backissu/jan2000/allen.htm.

scene[26] experts in fire and explosion investigations. These surveys provided comprehensive overviews of the state of fire and explosives analyses and investigative issues.

In 2007, NCFS was again charged by NIJ to assess the near- and long-term needs for arson (i.e., fire debris) analysis, explosives analysis, fire scene investigation, and bombing investigations. Its focus was on the analytical methods, technology, and training necessary to improve those fields. To achieve this task, NCFS turned to T/SWGFEX.

The experts from T/SWGFEX, as well as other organizations, were selected to expand the base of expertise within each committee. The panel began by discussing its task and decided that the original T/SWGFEX surveys should be a logical place from where to begin. The panel and their committee members worked to create a comprehensive survey that would assess the needs of the analytical and investigative communities. This survey was posted via Internet to members of relevant associated groups.

The survey was composed of one hundred (100) questions in eleven (11) categories. After the deadline for response to the survey, the results of the survey were analyzed and the various committees made their recommendations, which were coalesced into a comprehensive list of recommendations. This report contains those recommendations as well as additional information on how the recommendations were derived, the survey instrument and its raw results, and interpretation of those results.

[26] "Results of TWGFEX Scene Survey" (http://www.ncfs.ucf.edu/twgfex/docs/Scene+Survey+Results+Report.pdf).

3. Structure of the Survey Instrument

The survey instrument contained one hundred (100) questions sub-divided into eleven (11) parts:

- Demographics and General Questions
- Professional Development
- Fire Debris Analysis Casework
- Fire Debris Analysis Analytical Methods
- Fire Debris Analysis Data Interpretation
- Explosives Analysis Casework
- Explosives Analytical Methods
- Explosives Data Interpretation
- Fire Scene Investigation
- Explosives Scene Investigation
- Laboratory Research Topics

Most questions related to more than one of the six (6) original planning panel sub-committee topics. Tables showing these relationships are included in the appendix. The survey was formatted by the Vista ™ Survey System to an instrument, which could be posted, completed, and submitted *via* Internet. NCFS representatives and members of the various planning panels made contact with professional organizations who agreed to post a link to the survey on their websites and to alert their members.

The survey was posted for most of the month of August 2007 and the first week of September 2007. At the end of the posting period, the Vista ™ Survey System prepared a report, which a committee of Planning Panel members and T/SWGFEX reviewed. The committee felt that the report by Vista ™ Survey System was helpful, but felt that additional information could be derived through a closer examination of the raw data. Using Statistical Package for the Social Sciences ® (SPSS) software, a member of the Planning Panel was able to re-format many of the results to the survey questions so that committee members could better understand respondents.

For some questions, it was obvious from the number of responses that more than the target community had provided input. Separating responses by the primary job category indicated by a respondent allowed the committee to view responses by specific job category rather than the more general response.

4. Recommendations for the Near- and Long-Term Needs In Fire and Explosion Analysis and Investigations

The 2007 T/SWGFEX Needs Assessment Survey[27] have identified five (5) general areas/themes which address the near- and long-term needs of Fire and Explosion Analysts and Investigators. A careful review reveals that many of the issues are intricately linked; some give greater emphasis to technology and methods while others emphasize education and training. Where a new technology is developed, the issue of training will follow closely behind. The five (5) general themes included (from I through V):

I. Develop Analytical and Investigative Products, Equipment, and Technique

   A. Technology Transfer and Development of New Instrumentation for Field and Laboratory Detection and Analysis of Ignitable liquids and Explosives

   B. Expansion and Creation of Databases Relevant to Fire Debris and Explosives Analysis

   C. Alternatives and Improvements to Fire Debris Extraction Techniques

   D. Improvements to Recognition, Sampling, and Preservation of Bombing Evidence

   E. Basic Instrumentation Improvement for Under-funded Laboratories

   F. Access to Existing Federal Databases and Information on Fire and Explosives Issues and Materials

   G. Fire and Explosion Computer Modeling

   H. Selected ILRC Reference Materials for Forensic Laboratories

   I. Internal Standards Research

   J. Development of Gasoline “Taggants”

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[27] NIJ funded the 2007 TWGFEX Needs Assessment *via* its FY-2006 **2005-MU-MU-K044, Supplement No. 1** award to NCFS (UCF Project No. 24076017).

II. Improve Communications, Contacts, and Cooperation

III. Enhance and Standardize Qualifications and Training

IV. Expand Access to Existing Information on Instrumentation and Equipment

V. Promote Consistency in Terminology, Methods, and Techniques

A. Glossaries for Fire and Explosions

B. Laboratory Submission Guidelines

C. Resources and Best Practices in Analysis and Investigations

D. Canine Use in Post-Blast Environments

Each of these may be further subdivided into sub-topics. All have been proportioned between the three following considerations:

1. Needs and Problems Identified

2. Suggested Solution(s)

3. Implementation Strategies

Participants in the Needs Assessment Planning Panel and T/SWGFEX (see **Appendix A)** were polled during the formulation of these recommendations in order to prioritize their order of presentation within the report. The primary Survey Questions to which each theme derived its response is noted at the beginning of each thematic grouping.

I. Develop Analytical and Investigative Products, Equipment, and Techniques

Survey Questions 12, 15, 18, 19, 20, 21, 22, 26, 27, 29, 30, 31, 54, 55, 60, 62, 66, 73, 74, 75, 76, 88, 89, 90, 91, 92, 93, 94, 94, 96, 97, 98, 99, and 100

A. *Technology Transfer and Development of New Instrumentation for Field and Laboratory Detection and Analysis of Ignitable liquids and Explosives*

1. Needs and Problems Identified

a. Both Fire Debris and Explosives Analysis have benefited from the transfer of technology from other forensic or analytical applications.

b. In some instances, the nuances of separating the analyte from the background interferences have not permitted technology transfer.

c. Advances in analytical chemistry, digital imaging, robotics, and data recording are presenting new tools and technology every day.

d. Forensic Laboratories are confronted with workloads and budgets that do not allow them to explore and validate these new technologies and thus the benefits of technology transfer are often delayed.

e. Competitive grants to research and apply new technology to the analysis of fire debris and explosives and the processing and sampling of fire and post-blast scenes are needed.

f. The specific areas of interest described in the survey instrument and between planning panel members are:

1) Development and validation of instrumentation that will be capable of indicating the probability match of ignitable liquids recovered from a fire scene to ignitable liquids on the person or in the possession of a suspect or victim. In short, the development of “DNA” analysis for fire debris is desired. Examples of instrumentation currently used in other analytical areas that may have an application are: two-dimensional gas chromatography with mass spectral detection (GC x GC/MS); Stable Isotope Ratio Mass Spectroscopy; Gas Chromatography with tandem mass spectral detection (GC/MS^n) or Fourier Transform Ion Cyclotron Resonance Mass Spectroscopy.

2) Development and validation of “expert system” software for GC/MS that can rapidly compare data from case samples with a reference library of ignitable liquid standards to form probability match lists. Examples of data from the reference standards that can be cross-

referenced and compared with unknowns are: target compound retention time, target compound mass spectra, target compound ratios, single ion profiles, and summed ion profiles.

3) An expert system that could be linked between laboratories willing to share their libraries would be an advanced application of this project.

4) Development and validation of additional and new technologies and methods that can identify both inorganic and organic explosives using, but not limited to: Time of Flight (TOF) GC/MS; Raman Spectroscopy; High Performance Liquid Chromatography-Fourier Transform Infrared Spectroscopy (HPLC-FTIR); Capillary Electrophoresis (CE); CE with Mass Spectral Detection (CE/MS); High Performance Liquid Chromatography with Mass Spectral Detection (HPLC/MS); Atmospheric Ionization Mass Spectrometry; or Ion Chromatography-Mass Spectrometry (IC-MS).

5) Development and validation of derivatization procedures and methods for alternative methods of analysis. Not all laboratories possess the same pieces of equipment and technology. Some instruments can confirm the identification of an analyte, so long as it is the type of molecule that the instrument can "see." This would seek to determine standard methods and techniques for converting certain analytes from one form to another so that alternate instrumentation may be used. For example: conversion of cations to organic salts for analysis by GC/MS or the use of ligands in CE/MS.

6) Continue development of field portable (hand-held) instruments for field analysis of explosives, explosive residues and components, and ignitable liquids. Standardize development of new methods and techniques for field analysis using existing hand-held instrumentation. Candidates in limited use or with significant potential for this type of development include: Raman Spectroscopy; X-Ray Florescence; Micro Cantilever Sensors; Ion Mobility Spectroscopy; Differential Mobility Spectroscopy, Chemiluminescent Detection (EGIS); and GC/MS.

7) Development, testing, and validation of field portable instruments or sensors for explosives, mounted on existing robotic platforms so that they, and not personnel, are sent into "hot" zones to examine and report on the presence of ignitable liquids, or explosives. These field instruments may be capable of either rendering an analysis on site or sending the raw data via wireless communication to a remote laboratory for examination.

8) Develop, test, and validate tools for investigators at a scene such as an affordable hand-held x-ray unit that could allow investigators to "see" the interior of melted and deformed items. Another example is

the development of instruments and tools for scene documentation and laser mapping using GPS markers with the capability of having the data automatically downloaded into computer modeling software (FDS for Fire modeling).

9) Development, testing, and validation of scene "toolboxes" and training kits along the line of the Israeli or Australian models which allow their field agents to process the scene quickly and efficiently.

2. Suggested Solutions

a. NIJ grant solicitations for research into the development of new instrumentation, technology, methods, and sensors for the analysis of fire debris and explosives and the processing and sampling of fire and post-blast scenes as described above.

b. The implementation of technology transfer from techniques and methods not currently used in fire debris or explosion analysis and field investigations would be given preference.

c. The final reports from any funded projects must completely describe how the new technology is applied to fire or explosion analysis or scene investigations and provide comparative data of the new technology's efficiency versus the existing technology as well as the cost effectiveness of the new technology.

3. Implementation Strategy

a. Utilize T/SWGFEX to provide a pool of subject matter experts to review the solicitations and grant application proposals from which they would provide recommendations to NIJ for final consideration.

b. Once projects are selected, funded, and complete, ensure that the results are delivered to the relevant community through publication of the research and/or presentation at professional seminars and symposia.

c. Provide a link to the research results/papers through the T/SWGFEX Website http://ncfs.ucf.edu/twgfex/index.html.

B. *Expansion and Creation of Databases Relevant to Fire Debris and Explosives Analysis*

1. Needs and Problems Identified

a. The existing Ignitable Liquids Reference Collection (ILRC, http://ilrc.ucf.edu/search.php) created by T/SWGFEX contains over 440 ignitable liquids. Each has been analyzed by Gas Chromatography-Mass Spectroscopy and this data as well as manufacturers' and chemical information is available in a publicly accessible Website. Each item is also available as a physical sample that can be sent to a laboratory in order to analyze the ignitable liquid on their instrumentation.

b. More materials such as mixtures of ignitable liquids, various levels of deterioration of ignitable liquids, matrix contributions of ignitable liquids, and pyrolysis products are needed to expand the database.

c. T/SWGFEX is currently engaged in the construction of a similar database for explosives where data from various explosives analyzed by different instruments are also in a searchable format. Due to security issues, the content and method of access to this database requires additional consideration.

d. Additionally, the question of the compositional consistency between pre- and post-blast explosives is not fully known.

2. Suggested Solutions

a. Expand the ILRC by adding more samples of different ignitable liquids, mixtures, and various deterioration curves.

b. Promote and encourage the use of the database by analysts.

c. Continue the T/SWGFEX project to design, create, and post a similar explosives database (without a corresponding reference collection of materials for purchase).

d. Submit an NIJ grant proposal to study the compositional consistency of pre- and post-blast explosives in various environments and add the data to the explosives database.

3. Implementation Strategy

a. Increase funding to the T/SWGFEX **Ignitable Liquids Reference Collection (ILRC)** sub-committee to bring the members of the groups together more frequently to review and categorize data, design database improvements, and plan for further expansion.

b. Increase funding to NCFS to add additional staff for preparing ignitable liquid mixtures, deteriorated levels of ignitable liquids, extraction of matrices, and preparation of pyrolysis products.

c. Increase funding to purchase more ignitable liquids, matrices, instrumentation, and storage materials.

d. Increase the funding to the T/SWGFEX **Explosives Database** sub-committee to bring the members of the group together to complete their review and categorization of the data. Then the group would design the final version of the database for implementation.

e. Increase funding to purchase instrumentation, explosives, range time, personal protective equipment, and storage materials.

f. Increase the funding to the solicitations in order to add additional staff for analysis of explosives and explosives residues and database input and maintenance.

C. *Alternatives and Improvements to Fire Debris Extraction Techniques*

1. Needs and Problems Identified

a. Many of the ASTM methods used to extract fire debris, particularly Passive Headspace Concentration ASTM E1412, require the use of an adsorbent and a solvent. The adsorbent used most often in the United States is activated charcoal/carbon membrane. The solvent most often employed in desorbing the adsorbent is carbon disulfide due to its extreme efficiency in desorbing the trapped ignitable liquids.

b. Activated charcoal/carbon of the correct quality and orientation is only available from a limited number of sources.

c. Carbon disulfide is a dangerous and risky solvent (e.g., flammable, explosive, toxic, carcinogenic, etc.). Less dangerous alternatives such as diethyl ether, pentane, and blends have not proven to be as efficient as carbon disulfide in their desorption ability and may have their own hazards.

d. Active Forensic Laboratories have little time nor resources for conducting experimental casework to find alternatives to the adsorption matrix or the desorption solvent/procedure.

e. Projects to examine, document, and assess alternate adsorption media and desorption solvents and procedures are needed. This would increase the supply and availability of adsorption media and reduce the risk of or eliminate the use of dangerous chemicals in the desorption process.

2. Suggested Solution

a. NIJ grant solicitations for projects to explore alternatives to activated charcoal/carbon membranes as adsorption media focusing on both the efficiency of adsorption and the availability of the alternate media from a variety of resources.

b. NIJ grant solicitations for projects to explore alternatives to the use of chemical solvents currently used in desorbing adsorption media, focusing both on the efficiency of desorption and the reduction of hazards associated with the use of solvents.

c. NIJ grant solicitations for projects to explore alternatives to the use of either adsorption media or desorption solvents such as direct vapor headspace acquisition and injection, thermal desorption media, or cryogenic focusing.

d. The final reports from any funded projects must completely describe the alternative technique and provide comparative data of the following: the new technology's efficiency versus the existing technology; the cost effectiveness of the new technology; and how the new technology will address the need to archive any ignitable liquids extracted from the samples for later analyses. The implementation of technology transfer from techniques and methods not currently used in fire debris analysis would be encouraged.

3. Implementation Strategy

a. Utilize T/SWGFEX to provide a pool of subject matter experts to review the solicitations and grant application proposals from which they would provide recommendations to NIJ for final consideration.

b. Once projects are selected, funded, and complete, ensure that the results are delivered to the relevant community through publication of the research and/or presentation at professional seminars and symposia.

c. Provide a link to the research results and papers through T/SWGFEX http://ncfs.ucf.edu/twgfex/mission.html.

D. *Improvements to Recognition, Sampling, and Preservation of Bombing Evidence*

1. Needs and Problems Identified

a. A bombing scene contains the remains and residues of the explosive device. Unlike most other crime scenes the evidence has been forcefully dispersed over a wide area. Determination of the optimum areas for collection of samples is often difficult.

b. The selection of evidence must also consider the container in which the explosive residues will be preserved until they are to be tested. The various available containers are not the same. Some are porous and will permit the loss of volatile components. Some are so non-porous that volatile components will off-gas and build pressure in the container. Some are caustic and can corrode and breach metal or paper containers. In addition, some residues may dissolve plastic. The decision of which container to use to preserve the evidence is one of the first that can greatly affect the eventual ability of the laboratory to test the evidence and must be made with great care.

c. New explosives present new challenges. Triacetonetriperoxide (TATP) is becoming the explosive of choice with terrorists and anarchists due to the simplicity of preparing it. Its volatility, shock sensitivity, and tendency to succumb to rapid entropy are issues that affect finding and preserving it.

d. Research and training into the optimum areas within a bombing scene for selection of a sample and into the optimum containers for the preservation of various explosives is needed.

e. Research and training into the proper methods for preservation of TATP and other volatile explosives residues is needed.

f. A concise guide for the use and limitations of field instruments and presumptive identification kits would assist investigators in the selection of samples for more intensive laboratory testing.

2. Suggested Solution

a. NIJ grant solicitations for research into probability sampling in a bombing scene seeking to determine the positive hit return rate depending on distance from the crater and the value of various witness surfaces.

b. NIJ grant solicitations into determining the optimum containers for preservation of various explosive residues measuring the retention of the residue within the container without deterioration of the residue or container.

c. NIJ grant solicitations into the hazards and potential for preservation of peroxide based and highly volatile, unstable, or reactive explosives. Can it be done? How? In addition, for how long?

d. Development and distribution of a guide to the proper use and limitations of field instruments and presumptive testing kits.

e. The final reports from any funded projects must completely describe how the new technology is applied to fire or explosion analysis or scene investigations and provide comparative data of: the new technology's efficiency versus the existing technology as well as the cost effectiveness of the new technology.

3. Implementation Strategy

a. Utilize T/SWGFEX to provide a pool of subject matter experts to review the solicitations and grant application proposals from which they would provide recommendations to NIJ for final consideration.

b. Utilize T/SWGFEX to research and create a guide to the proper use and limitations of field instruments and presumptive testing kits. This may require sufficient funds for obtaining the kits (purchase, rental, or lease) as well as travel and lodging for the researchers to meet.

c. Once projects are selected, funded, and complete, ensure that the results are delivered to the relevant community through publication of the research and/or presentation at professional seminars and symposia.

d. Provide a link to the research results/papers through T/SWGFEX at http://ncfs.ucf.edu/twgfex/mission.html.

E. *Basic Instrumentation Improvement for Under-Funded Laboratories*

1. Needs and Problems Identified

a. A few laboratories are using gas chromatography with flame ionization detection (GC/FID) for analysis of fire debris. While this is certainly an adequate technology, it is not the technology of preference as seen in this survey or the results from the various proficiency testing organizations. Currently, fire debris analysis primarily utilizes gas chromatography with mass spectral detectors (GC/MS) in the analysis of extracts from fire debris. The nature of ignitable liquids and the interference chemicals co-extracted from the background matrices can often only be determined by the use of GC/MS.

b. Smaller, under funded laboratories often cannot afford the approximately $100,000 to purchase a GC/MS and train personnel. They must rely on the less expensive technology available with GC/FID. GC/FID, while valid for many samples, cannot provide the level of efficiency and accuracy of analysis as provided by GC/MS on those samples that are "borderline." Additionally, the identification of some ignitable liquid mixtures as well as single components requires mass spectral data.

c. Current Coverdell grants[28] are often targeted to different forensic disciplines or are not sufficient to cover the required costs.

d. In order to provide the highest level of analysis currently available, laboratories performing fire debris analysis should be using GC/MS.

2. Suggested Solutions

a. Establish a funding source whereby a maximum of twenty (20) laboratories per year for three years can receive $85,000 toward the purchase of a GC/MS and $5,000 to cover the training (registration, lodging, and travel) of two personnel with the stipulation that 100% of its fire debris samples must be analyzed on the instrument.

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[28] Coverdell Forensic Science Improvement Grant Program, http://www.ojp.usdoj.gov/nij/topics/forensics/nfsia.

b. Secure an additional $10,000 to be provided to each grantee to purchase extended preventive maintenance and repair service agreements with the instrument manufacturers.

3. Implementation Strategy

a. Utilize T/SWGFEX to assist NIJ with the creation of the grant application and with screening and recommendations of grantees.

b. Utilize the existing GC/MS of Fire Debris as the primary training venue for the grant recipients to send at least two persons from each laboratory for training.

F. *Access to Existing Federal Databases and Information on Fire and Explosives Issues and Materials*

1. Needs and Problems Identified

a. Federal agencies, particularly the Federal Bureau of Investigations (FBI, http://www.fbi.gov), the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATFE, http://www.atf.treas.gov), and the United States Fire Administration (USFA, http://www.usfa.dhs.gov), have and maintain various databases and reference material collections on fires and explosions.

b. Local and state agencies desire access to these databases in order to be able to cross-reference the items they find in casework with the larger reference collection of the federal agencies. They can take the data they develop on the composition of various materials and compare their results to the federal reference materials. The issue is that more often than not, these databases and materials are not accessible to the local and State agencies. In some instances the databases and materials are available, but not through a single resource.

2. Suggested Solutions

a. Use the resources of NIJ to encourage a meeting between the federal agencies and NCFS with representatives of T/SWGFEX to discuss the mechanism of how certain individuals may be permitted access to the various databases and materials.

b. Use the resources of NIJ to arrange a meeting between the United States Fire Administration and the BATFE to discuss placing links to the National Fire Incident Reporting System's reports on fire in the United States and the Bomb Data Center.

3. Implementation Strategy

a. Convene a meeting between the Director of NCFS, NCFS Technical Managers and staff, Chair of T/SWGFEX, Chairs of appropriate T/SWGFEX sub-committees, and representatives of the FBI, BATFE, and USFA to determine and agree on the databases and materials to be accessed.

b. Determine/define the limitations and modes of access, which would maintain the appropriate levels of security.

G. Fire and Explosion Computer Modeling

1. Needs and Problems Identified

a. Computer fire modeling has improved significantly since its inception. Its key limitation has always been the ability of the program to factor in all the various parameters and the accuracy of the parameters. Many of the references needed (e.g., heat flux, specific gravity, thermal inertia, heat transfer rate, etc.) may exist in various resources. They need to be accumulated into a single source. For many materials, this data does not exist.

b. Obtaining this data is beyond the budget and capabilities of most state or local agencies. Federal agencies such as the BATFE Fire Research Laboratory and the National Institute of Science and Technology (NIST, http://www.nist.gov) may have the equipment and laboratory space, but may need additional personnel and access to the materials themselves. Essentially what is needed is a facility with a cone calorimeter to burn items such as different brands and types of chairs, sofas, clothing, mattresses, tables, furnishings, etc.). Once the data is collected, it would be entered into a searchable database. This would allow investigators performing computer fire modeling to have access to more data to estimate the fuel load and model the fire.

c. Once the data from reference materials are available, the parameters specific to a scene must be input. Scene mapping tools, which could automatically input the data at the scene, may permit on-scene modeling, which would allow investigators to assess the validity of their observations and information from interrogations. If this was possible while on-scene, it would allow the investigator to acquire more precise and accurate information from which a scientifically based conclusion may be drawn.

d. Similar modeling programs and research has not been completed for the dynamics of an explosion. Basic research and modification of some fire modeling software may be possible. If it can be developed this would prove to be an advance for the timeliness and accuracy of post-blast investigations.

2. Suggested Solutions

a. Establish a partnership between NCFS, T/SWGFEX, BATFE, and NIST so determine the feasibility of conducting the necessary testing at the BATFE or NIST facilities and to determine if T/SWGFEX members could be utilized to perform any assistance during the actual testing.

b. Use the resources of T/SWGFEX to create and input data into a single source database as described.

c. NIJ grant solicitations for development or adaptation of scene documentation cameras and instruments so that collected data can be directly loaded into computer modeling software.

d. NIJ grant solicitations for the development or adaptation for fire modeling programs to Explosion Modeling Programs.

3. Implementation Strategy

a. Utilize T/SWGFEX to provide a pool of subject matter experts to review the solicitations and grant application proposals from which they would provide recommendations to NIJ for final consideration.

b. NIJ would provide funds for the purchase of materials (e.g., furnishings, floor coverings, clothing, other objects, etc.) to be burned in order to collect data. It may also include travel and lodging for the researchers to assist at BATFE Fire Research or NIST.

c. Utilize T/SWGFEX to research and create the searchable database of fire modeling data. This may require sufficient funds for obtaining reference materials, software, and or hardware, as well as travel and lodging for the researchers to meet.

d. Once projects are selected, funded, and completed, ensure that the results are delivered to the relevant community through publication of the research and/or presentation at professional seminars and symposia.

e. Provide a link to the database and research results/papers through the T/SWGFEX Website.

H. *Selected ILRC Reference Materials for Forensic Laboratories*

1. Needs and Problems Identified

a. Laboratories performing fire debris analysis must compare the data generated by submitted evidence to data generated by reference standards analyzed on their own instrumentation in order to follow the guidance of the American Society for Testing and Materials E1618.

b. The survey revealed that some laboratories are not following this basic precept for quality and proper analysis of ignitable liquids.

c. For an individual laboratory to create a collection of ignitable liquids (including all the various classifications and ranges of ASTM E1618 described ignitable liquids) the expense would be significant and storage would become a problem. Not only would storage space be needed, but also it would impose a requirement for additional flammable and combustible storage cabinets to be purchased and installed.

d. This may be an untenable expense for some local and state laboratories.

2. Suggested Solutions

a. The NIJ with the National Forensic Science Technology Center (NFSTC, http://www.nfstc.org) has attempted to address this by sending fire debris validation kits to various laboratories, which included ignitable liquids from a commercial vendor.

b. For laboratories without the basic collection of ignitable liquids, provide a selection of twenty reference standards from the ILRC (which will include one ASTM Test Mix, one Gasoline, and three each [light, medium, and heavy] from the remaining ASTM classes) to be prepared and transferred to a maximum of 200 Forensic Laboratories.

c. Of those 200 laboratories selected, some may have the basic ignitable liquid resources and would prefer to use the twenty new standards to expand their “libraries.”

d. T/SWGFEX will prepare an application to be completed by forensic laboratories wishing to receive this collection of reference materials. T/SWGFEX will prepare a select panel of forensic laboratory directors to review the applications and select the laboratories to which the reference collections will be sent.

3. Implementation Strategy

a. Identify appropriate NIJ solicitation to fund the cost of preparing the applications, distributing the applications, reviewing the applications, preparing the reference standards, and shipping the reference materials.

I. *Internal Standards Research*

1. Needs and Problems Identified

a. Some forensic laboratories add a chemical as an internal standard to fire debris samples or the solvent used to extract the fire debris.

b. This ostensibly provides quality assurance information that is useful.

c. Some laboratories do not follow this procedure arguing that adding even an inert material to a sample changes the sample.

d. Objective research needs to be conducted to establish whether this procedure adds or detracts from the value of analyses.

2. Suggested Solutions

a. Solicit applications for grants to study this practice and issue a report.

3. Implementation Strategy

a. Solicit grant proposals *via* the normal NIJ process to specifically, "research and report on the value and role of the use of internal standards in fire debris analysis."

b. Once completed, post the report on the NIJ Website and link to http://ncfs.ucf.edu/twgfex/mission.html, the T/SWGFEX Website.

c. Have the research presented as a paper to the T/SWGFEX symposium, The American Academy of Forensic Sciences (AAFS, http://www.aafs.org) annual meeting, or other relevant scientific meetings[29] and symposia.

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[29] Mid-Atlantic Association of Forensic Scientists (http://www.maafs.org), Midwestern Association of Forensic Scientists (http://www.mafs.net), Northwest Association of Forensic Scientists (http://www.nwafs.org), Southern Association for Forensic Scientists (http://www.southernforensic.org), and the Southwestern Association of Forensic Scientists (http://www.swafs.us).

J. *Development of Gasoline "Taggants"*

1. Needs and Problems Identified

a. The goal of most forensic testing is to associate evidence from a scene with evidence from the possession of a suspect.

b. Ignitable liquids do not lend themselves to this type of comparison as they are usually extracted from debris or matrices after they have been burned and weathered.

c. As a result, the extracted ignitable liquid will have lost many of its components and will have added compounds pulled from the matrix and the burning of the matrix (pyrolysis products).

d. Current instrumentation does not sufficiently characterize the remaining compounds so that probability matches between samples can be made.

2. Suggested Solutions

a. Convene a meeting with NIJ, T/SWGFEX and representatives from academia, the petroleum refiners, and petroleum marketers to discuss the potential of adding combinations of inert and stable chemicals with high boiling points that can be added to gasoline as a marker of its manufacturer or distributor.

b. Obtain agreement from gasoline refiners and marketers on participation in this program as a way of assisting the forensic community and fighting crime.

3. Implementation Strategy

a. If determined to be feasible, use the group to design an implementation strategy by first determining the markers to be used, the amounts to be incorporated, the analytical methodology for "seeing" them (which may be different from the GC/MS of ignitable liquids) and assigning them to refiners and marketers.

b. Encourage and applaud refiners and marketers.

c. Monitor compliance with this voluntary program by having samples submitted to a laboratory specified by S/TWGFEX for analysis.

II. Improve Communications, Contacts, and Cooperation

Survey Questions 10, 12, 15, 16, 24, 68, 69, 84, 85, 86, and 87.

1. Needs and Problems Identified

a. Currently, most professionals in fire and explosion investigations and analyses are segmented into communities within either the investigative or the laboratory subgroup. There is additional segmentation of the sub-groups by specialties and geography. All of these divisions and convoluted pathways give rise to unsatisfactory levels of communication and can cause some practitioners to become isolated.

b. These professionals have identified a need for cross-communication. Among the reasons, is a need to determine the expertise of other members across and within the forensic science and investigative communities. They also need to contact other professionals in the field to promote finding solutions to problems and gathering information. This information exchange enhances the professionalism and competence of the individual. This information may sometimes be sensitive and should not be freely accessible to all members of the public. Direct contact allows for a greater exchange of pertinent information on techniques, methods, and equipment.

c. Some forensic laboratories having a small one-person fire debris or explosives analysis section may not have a second expert on site available to perform peer review of casework, a necessary component of providing quality analyses.

2. Suggested Solutions

a. A centrally available listing of professionals in fire or explosion scene investigation and fire or explosion debris analysis is needed to provide a secure method of contact between the members of the relevant communities. This will enhance communication between the members of the scientific and investigative communities and promote a free exchange of ideas.

b. This listing should include curriculum *vitae* of the individual's areas of expertise as well as contact information in the event that one-to-one contact is desired.

c. The contact list should also indicate if the listed professional would be available to assist other professionals in specific areas such as peer review of casework.

d. An annual meeting/symposium, which would offer training in multiple topics of fire debris and explosives analysis and fire and post-blast investigations.

3. Implementation Strategies

a. Promote and continue to subsidize the Technical Working Group for Fire and Explosives/Scientific Working Group for Fire and Explosions (T/SWGFEX) organization, which has an existing membership of leading experts from forensic analytical laboratories and scene investigations in both fires and explosions.

b. Promote the evolution of T/SWGFEX so that it will move from a subsidized subsistence to one that can support itself.

c. Promote attendance at annual T/SWGFEX symposia and enhance its quality through targeted presentations on topics, resources, and experts defined in other sections of this report.

d. The National Institute of Justice (NIJ) should facilitate T/SWGFEX in creating and posting a comprehensive listing of professionals in the field(s) of fire and explosion analysis and investigation with *curriculum vitae* of expertise and contact information.

e. Poll the professionals listed to determine if they would be willing to provide advice and direction without a financial cost. This could be for scientific peer review of data or for the exchange of experience and/or opinions on the utility of equipment. The core to begin this project should be T/SWGFEX members as they are already part of an organization, which has at its core the desire to merge the two communities.

f. T/SWGFEX would establish a sub-committee to design and build this list and ensure the accuracy of the information concerning the people on it.

g. The T/SWGFEX committee would design the template for listing a participant's professional qualifications.

h. This would effectively create a clearinghouse of analysts willing to perform peer review for those laboratories not currently doing peer review.

i. Once listed, the individual would be given access to the T/SWGFEX list serve. Listing would not automatically place them as members of T/SWGFEX.

j. Other individuals and organizations would be contacted through their publications and meetings to explain the benefits of being listed.

k. This already existing list serve would provide a free Internet link for professionals. This strategy would only require its expansion and publication of its existence once the pertinent protocols are established.

III. Enhance and Standardize Qualifications and Training

Survey Questions 7, 8, 10, 11, 12, 32, 56, 57, 59, 71, 72, 88, and 89.

A. *Near and Long Term Education and Training of Analysts and Investigators*

1. Needs and Problems Identified

a. Formal Education Assistance

1) Investigators and analysts who seek to better themselves and become more adept at their profession are often in a precarious position.

a) Most work full time and are at a point in their lives where they do not have the additional resources to pay for a formal degree even if they can find the time.

b) Some are located in areas where no provider of a relevant degree is available.

c) Some on-line degrees are available, but will not be subsidized by their employers and the individual is back to the problem of resources.

2) Subsidy of individuals seeking formal degrees has been attempted in the past by some governments only to find that some individuals abused the program.

3) Safeguards would be necessary to mitigate this additional consideration.

b. Symposia and Seminars

1) Scene Investigators

a) International Association of Arson Investigators (IAAI, http://www.firearson.com) annual meeting.

b) International Association of Bomb Technicians and Investigators (IABTI, http://www.iabti.org) annual meeting.

2) Analytical Chemists and Forensic Scientists

3) American Academy of Forensic Sciences (AAFS, http://www.aafs.org) annual meeting.

4) Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy (Pittcon, http://www.pittcon.org)

5) Other National/Regional forensic science conferences, meetings, and symposia[30].

6) Investigators/Analysts

7) The only symposia which have deliberately attempted to blend presentations germane to investigators and analysts from both the fire and explosion communities have been the ones produced by T/SWGFEX (http://ncfs.ucf.edu/twgfex/symposium.html). Even those have not appealed to all due to venue, format, and the availability of speakers.

c. Continuing Education

1) There are a variety of commercially available training programs available in a wide variety of topics.

2) Some organizations provide free training classes *via* the Internet.

a) For fire investigators and bomb technicians most of these no-cost on-line seminars are quite good and fulfill many of their needs.

b) For laboratory analysts, very few no-cost symposia are completely relevant to their positions in the forensic laboratory and most are limited to specific instrumental techniques.

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[30] Mid-Atlantic Association of Forensic Scientists (http://www.maafs.org), Midwestern Association of Forensic Scientists (http://www.mafs.net), Northwest Association of Forensic Scientists (http://www.nwafs.org), Southern Association for Forensic Scientists (http://www.southernforensic.org), and the Southwestern Association of Forensic Scientists (http://www.swafs.us). See the **AAFS Website** (http://www.aafs.org) for contract information for other national/regional forensic science-related organizations as well as dates/times for upcoming national/region meetings.

3) Many commercial training programs on DVD, tape, or CD cover subjects so broadly that they only have limited applicability to the needs of the fire and explosion community.

d. Interactive training

1) An essential component to insert into as many of the selected opportunities as possible is to encourage the interaction between analysts and investigators.

2) The more that one can understand about the capabilities and limitations of the other, the better they can interact with each other.

3) Interactive experiments and short cross-training experiences in the basic aspects of each other's work are desired.

4) Accessibility to each other in a broad network across state, local, and federal lines is desired and has the potential to improve the quality of investigations and analyses by simply reducing any perceived or real isolation (by relatively small and remote units).

2. Suggested Solutions

a. Formal Education

1) Contact those schools known for providing quality on-line and non-conventional degree programs to determine if any have a residency requirement (on campus for a set period or number of hours). Ensure that their programs can be completed either entirely on-line or wholly on weekends and evenings. List these programs and contacts and make them the priority programs for the following scholarships.

2) Establish and fund a scholarship program where ten (10) investigators per year are selected for enrollment into a Bachelor or Master's Degree program in Law Enforcement, Criminal Justice, Fire Science, Forensic Science, or a related and germane field. Fund only the tuition costs for a maximum of four years and the minimum number of credit hours required to obtain the degree. All other costs are to be borne by the individual selected.

3) Establish and fund a scholarship program where ten (10) analysts per year are selected for enrollment into a Graduate Certificates and

Degree program in Chemistry, Fire Science, Forensic Science, or a related and germane field. Fund only the tuition costs for a maximum of three years and the minimum number of credit hours required to obtain a Master's or Doctoral degree. All other costs are to be borne by the individual selected.

4) Require that any persons selected for this program reimburse the funding agency for any costs incurred should the individual opt to discontinue the program prior to completion.

5) Require that any person selected for this program remain employed by the same agency through the completion of the program and two years thereafter.

b. Symposia and Seminars

1) Secure solicitations for the registration, travel, and lodging costs for a maximum of ten (10) individuals per year to attend a fire, bombing, analytical, forensic seminar, or symposium where they have been accepted to provide a workshop, paper, or presentation.

2) Promote attendance of the T/SWGFEX symposia by subsidizing the costs for meeting space/venue; speaker honoraria; travel/lodging costs for speakers, hosts, staff, and organizers.

a) Require that the T/SWGFEX symposium seek an equivalent balance between speakers and presentations germane to investigations and analysis as well as fire and explosions.

b) Set aside a portion of the symposium where individuals from either the analytical or the investigative communities may present papers regarding original research or unusual cases.

c. Continuing Education

1) Include some of the topics identified in the survey as targeted presentations or workshops to be included in the T/SWGFEX symposium.

2) Create instructional presentations specific to the needs of the fire and explosion communities for no-cost distribution on DVD or download *via* the Internet.

d. Interactive Training

1) Develop solicitations that include the resources to coordinate experimental fires and explosions conducted around the nation so that more than just local or limited agency personnel can participate. This is necessary as it is becoming more difficult to meet all the regulatory and statutory requirements for conducting these "live" experiments. A special effort to determine the capabilities of the BATFE Fire Training Center should be made.

2) Create a protocol for contacting an organizing agency to determine if they would like assistance in the set-up and data gathering and if they will allow observers to attend.

3) Determine a level of assistance that may be made available to the organizing agency: data gathering, recording, consumables, and personnel.

4) Use available resources to identify laboratories willing to host guests to shadow the fire debris or explosives analytical process for a maximum of three days.

3. Implementation Strategies

a. Formal Education

1) Utilize T/SWGFEX to research and create lists and links to the schools that meet the above criteria and post such lists and links on the T/SWGFEX Website.

2) Utilize T/SWGFEX to research and create scholarship application forms that will assess the applicant's experience, work history, existing education, potential to complete a formal program, financial need, and geographic distribution.

3) Utilize T/SWGFEX to review completed applications and provide a listing of top candidates to NIJ for final selection.

4) Utilize T/SWGFEX to create the attendant promissory forms and to monitor the progress of selected candidates.

b. Symposia and Seminars

1) Utilize T/SWGFEX to research and create symposia and seminar scholarship application forms that will ask which seminar or symposium the applicant wishes to attend. The application form would additionally assess the applicant's experience, work history, existing education, training need, and geographic location.

2) Utilize T/SWGFEX to review completed applications and provide a listing of top candidates to NIJ for final selection.

3) Utilize T/SWGFEX to create the attendant promissory forms and to monitor the progress of selected candidates.

4) Utilize T/SWGFEX to review completed applications and provide a listing of top candidates to NIJ for final selection.

5) Utilize solicitations to distribute funds to pay the selected attendee's travel and registration in advance and to reimburse the attendee for hotel and meals after completion of the seminar or symposium.

6) Support financially efforts to continue to sponsor T/SWGFEX's Symposium.

7) Determine if a change of venue would increase attendance and, if changed, the increased costs of logistics for managing it remote from Orlando, Florida.

8) Topics suggested in the survey, which would be directly applicable to the T/SWGFEX.

9) Speakers should be targeted and solicited who are involved in the development of new technology and instrumentation in the analysis of fire and explosives.

10) Presentations on TATP and other peroxide based and homemade explosives, including manufacture, handling, use, mis-use, and analytical procedures.

11) Scene investigation workshops for both fire and explosives that will promote interaction and idea sharing between investigators and analysts.

12) Develop a session for investigators in explaining the various ASTM classes of ignitable liquids, examples, and why they are used.

13) A session of the use of polarized light microscopy (with an accompanying DVD) and its use in explosives analysis.

c. Continuing Education (CE) – This will require considerable financial support by NIJ in the development of recorded short courses that can be made available by either DVD or on-line.

1) Utilize T/SWGFEX to research and create recorded sessions on the following topics. The initial presentation could be made on-site at NCFS, in a laboratory, at an experimental scene, or an explosives range. This footage would be incorporated into the DVD and online products and may require a legal disclaimer that all methods, parameters, and possibilities may not have been included:

a) Polarized Light Microscopy Of Explosives.

b) Following Fire Debris Evidence Through The Laboratory: Extraction, Analysis, And Interpretation For The Investigator.

c) Following Explosives Evidence Through The Laboratory: Extraction, Analysis, And Interpretation For The Investigator.

d) Understanding ASTM Ignitable Liquid Classifications And Why They Are Used.

e) Organic Chemistry of Fire Debris Analysis: Molecular Composition of Ignitable Liquids and Materials at a Scene; Combustion Reactions and Products; Analytical Procedures for Organic Species.

f) Gas Chromatography/Mass Spectroscopy of Ignitable Liquids and Pyrolysis Products.

g) The Making Of Ignitable Liquids: From Crude Oil Through The Refinery To Commercial Product.

h) Fundamental Fire Scene Investigation According To The NIJ Research Report – *Fire And Arson Scene Evidence: A Guide For Public Safety Personnel* (June 2000).

i) Fundamental Post-Blast Scene Investigation According To The NIJ Research Report – *A Guide For Explosion And Bombing Scene Investigation* (June 2000).

j) Advanced Fire Scene Investigation.

k) Advanced Post-Blast Scene Investigation.

l) Fire Dynamics.

m) How To Be An Effective Expert Witness (One Each For Fire Investigations, Post-Blast Investigations, Fire Debris Analysts, And Explosives Analysts).

n) The Instruments And Methods For Analyzing Explosives.

o) The Collection And Preservation Of Evidence (One Each For Fire Scenes And Post-Blast Scenes).

p) Investigating Potential Electrical Fires.

q) The Training, Use, And Value Of Canines In The Fire (Or Explosion) Scene.

r) Using A Disruption Scenario To Create The "Post-Blast" Scene: Considerations Of Positioning, Comparison Sampling, And Evidence Collection.

s) The When, Where, And How To Of "Render Safe."

t) Interpretation Of Fire Debris Analysis Data.

u) Extraction And Sample Preparation Methods In Explosives Analysis.

v) Report Writing For Accuracy And Validity: Scientific And Legal.

w) How Explosives And Pyrotechnics Are Manufactured.

x) IED's And Homemade Explosives – Recognition And Construction.

d. Interactive Training

1) Use T/SWGFEX to identify ongoing opportunities where experimental fires and explosions are being conducted around the nation. Special effort to coordinate with the BATFE Fire Training Center should be made a priority.

2) Contact the organizing agency to determine if they would like assistance in the set-up and data gathering and if they will allow observers to attend. Assist the organizing agency with the cost of consumable supplies.

3) Maintain a cache of measuring devices and sensors relevant to collecting data on temperature, wind direction, humidity, pressure wave, available oxygen, and heat flux at specified locations. Augment this cache with miniature cameras that can be placed into the experimental environment to collect images during the experimental event.

4) In addition to the cache, T/SWGFEX members must be trained in data recording and camera set-up and so that they can operate the cache of equipment at any experimental scene.

5) Provide funds for travel, lodging, and meals for up to fifteen (15) investigators and analysts to attend these events.

6) Use T/SWGFEX to identify laboratories willing to host guests to shadow the fire debris or explosives analytical process for a maximum of three days.

7) Provide funds for travel, lodging, and meals for up to fifteen (15) investigators or analysts.

B. Fire Dynamics

1. Needs and Problems Identified

a. Much has been done to develop our understanding of the dynamics of a fire scene. A training program has been developed by NCFS and the United States Fire Academy (USFA) offers a two-week class on the subject.

b. While there is some information, research, and references on the dynamics of an explosion or the logistics of a post-blast scene, there is currently no comprehensive program describing the dynamics of an explosion scene.

2. Suggested Solutions

a. Utilize T/SWGFEX to develop a program of training in the dynamics of the explosion scene.

b. Conduct additional research necessary as to fill any gaps in knowledge.

3. Implementation Strategy

a. Issue NIJ grant solicitations for fundamental research as it can be applied to the dynamics and physics of explosions.

b. Utilize T/SWGFEX to provide a pool of subject matter experts to review the solicitations and grant application proposals from which they would provide recommendations to NIJ for final consideration.

c. Utilize T/SWGFEX to write and incorporate existing data and information with developed research into a comprehensive program guide on explosion dynamics.

d. Once created, ensure that the program is delivered to the relevant community through publication of the research and presentation of the program.

e. Provide a link to the portions of the program, which can be made publicly available on T/SWGFEX Website.

IV. Expand Access to Existing Information on Instrumentation and Equipment

Survey Questions 12 and 31.

1. Needs and Problems Identified

a. Forensic laboratories have limited budgets for purchasing instrumentation.

b. There are multiple vendors for each instrument.

c. Each laboratory will have certain specifications for the instrument that are of a higher priority to them than may be held by another laboratory.

d. The task of contacting each manufacturer, reading and sorting the multiple specifications, and comparing the germane specifications to aid in selection of the instrument for purchase is formidable and daunting.

2. Suggested Solution

a. Gather information on instruments, their specifications, literature, and contact information and place it in a single location where it can be accessed by any laboratory.

b. Set up the information on technical specifications in a format that will allow comparison of specifications between instruments.

c. Be certain to design the listing so that the information is taken directly from manufacturer's information and that the listing is entirely objective.

d. Encourage the inclusion of manufacturers in designing the database or spreadsheet and the technical specifications it should contain.

3. Implementation Strategy

a. Survey forensic laboratories on the types and manufacturers of instruments they currently use and would like to obtain.

b. Contact each manufacturer for brochures and technical specifications for their instruments.

c. Have T/SWGFEX (and other relevant experts) review the literature to determine those technical specifications identified as being critical for comparing one instrument with another.

d. Have T/SWGFEX create a database or spreadsheet, listing each instrument by type and the specifications of each so that side-by-side comparisons can be made.

e. Post this spreadsheet on the T/SWGFEX Website for public access to the comparison information.

f. List on a single site, within the T/SWGFEX Website, the web links, addresses, and telephone numbers for instrument manufacturers and their representatives.

g. In a separate T/SWGFEX database or spreadsheet, list observations, cautions, and operational suggestions by instrument manufacturer, instrument type, and application.

V. Promote Consistency in Terminology, Methods, and Techniques

Survey Questions 12, 15, 24, 25, 31, 78, 79, 80, 81, 82, and 83.

A. *Glossaries for Fire and Explosions*

1. Needs and Problems Identified

a. A glossary to promote consistency of terms relevant to fire and explosion investigation and forensic analysis was identified as being desirable.

2. Suggested Solutions

a. Utilize the existing glossaries created by T/SWGFEX and posted on their Website.

3. Implementation Strategies

a. Create a clearly identifiable folder on the T/SWGFEX Website containing a professional version of these Guides. Have a link to this site from the NIJ and NCFS Websites.

b. Send copies of the glossaries to members of the T/SWGFEX list serve with the web link as well.

c. Send electronic copies of the glossaries and the web link to it to other organizations who serve fire and explosion investigation and analysis communities under the imprimatur of NIJ.

d. Print copies of the glossaries under the imprimatur of NIJ for dissemination at professional meetings to investigators and forensic scientists.

B. *Laboratory Submission Guidelines*

1. Needs and Problems Identified

a. Professionals in the fire and explosion scene investigation and laboratory analyses communities want access to evidence submission guidelines used by other agencies.

2. Suggested Solutions

a. Contact members of T/SWGFEX who represent laboratories across the United States, Canada, and Australia for electronic versions of their submission guidelines in PDF format. For those with only hard copies, send them to NCFS to be scanned into digital format.

3. Implementation Strategies

a. Create a folder of evidence submission Guides and Criteria under the T/SWGFEX Website (with links to it in the NIJ and NCFS Websites) where the electronic versions are posted by country>state/province>county/municipality.

b. Have a separate area where private organization criteria can be posted so long as advertisement has been redacted.

C. *Resources and Best Practices in Analysis and Investigations*

1. Needs and Problems Identified

a. Analytical techniques for fire and explosives analyses are available from a variety of resources. For fire debris analysis, the American Society for Testing and Materials (ASTM, http://www.astm.org) has created authoritative resources for both the extraction of ignitable liquids from debris and the identification of those same ignitable liquids by gas chromatography (with either a mass spectral or flame ionization detector). These standards have recently been made available by the National Institute of Justice to all public forensic laboratories.

b. For explosives analysis, the same authoritative references do not exist. Several agencies have protocols, methods, and techniques they are willing to share. T/SWGFEX has posted some guides and references on explosives and others are currently in development. The techniques to be used depend greatly on the instrumentation and resources available within each laboratory. Some laboratories may only have access to wet chemical or polarized light microscopy techniques.

c. The respondents to the survey have identified a need for access to more reference materials, protocols, guides, and macro programs. They desire these to be easily accessible within a single source. They desire similar information for both fire debris and explosives analysis. Survey respondents desire a single source to list the various combinations of instrumental protocols (e.g., columns, flow rates, ion trap temperatures, temperature programs, etc.) for both fire debris and explosives analysis. Essentially they want a listing and links to the "best" methods and techniques. At the same time, they would also like a listing of the techniques and methods, which have documented deficiencies. If possible, the limits of detection, which have been scientifically validated, should be included for the various techniques. Lastly, the guides should be written to address the fact that all laboratories are not similarly equipped and that some laboratories will only have access to basic equipment and resources.

2. Suggested Solutions

a. Use a single Website to create a reference folder with links to commercial sources of guides and standards such as ASTM and NFPA as well as the free guides and standards posted by T/SWGFEX.

b. Poll the membership of T/SWGFEX as well as experts outside the group for the instrumental techniques, protocols, references, instrumental parameters, and guidance they would recommend as well as any cautions they may offer.

c. Review and update existing bibliographies posted on the T/SWGFEX Website in both fire debris and explosives analysis. Add to each reference a list of keywords pertinent to the article.

d. Have the T/SWGFEX organization complete the Fire Debris Report Writing Guide and Post-Blast Materials Identification Protocol.

e. Have the T/SWGFEX organization create new guides:

   1) Standardizing the process of burning comparison and control samples to produce pyrolysis products

   2) Defining the minimum requirements and describing the techniques for polarized light microscopy of explosives

   3) Describing the techniques of wet chemistry and thin layer chromatography in explosives analysis

3. Implementation Strategies

a. Utilize existing and select sub-committee(s) of T/SWGFEX to review the suggestions by its membership and from other experts to create a “best practices” guide for both fire and explosives analyses (taking care not to infringe on the copyright of any other organization). Rely heavily on the T/SWGFEX resources, which are already publicly posted and encourage the completion of those in development.

b. Post this guide along with links to ASTM, NFPA, and others on the T/SWGFEX, NIJ, and NCFS Websites.

c. Print copies of this guide for dissemination at professional meetings attended by both fire debris and explosives analysts.

d. Utilize a separate sub-committee of T/SWGFEX to review and research the bibliographies and update them with newer references. The group will also data mine the keywords from each reference.

e. Post the revised bibliographies in web instrument where the references can be searched by author, title, or keyword.

f. Post links to resources where these reference items may be obtained.

D. *Canine Use in Post-blast Environments*

1. Needs and Problems Identified

a. Canines have been trained to expose the presence of explosives hidden in baggage and packages and to indicate if individuals have explosives residues on their clothing or bodies.

b. Most canines trained in explosive detection are trained to alert to intact non-reacted explosives.

c. Canines, which have been trained to alert to certain ignitable liquid residues, have proven themselves as invaluable tools for determining the areas within a scene, which have the highest probabilities for containing ignitable liquids.

d. Post-blast scenes are not the same as fire scenes in many aspects. One primary aspect, which affects a similar use of canines, is that in fire scenes the ignitable liquids used as accelerants are primarily stationary, remaining in the areas where first deposited. In a post-blast environment, the explosive and its residues may be forcefully dispersed over a large area.

e. Each post-blast investigation is unique. The same sets of circumstances and investigative parameters do not occur in each situation.

f. The increased and improved use of canines to aid in determining the best sampling areas in post-blast scene is desired.

2. Suggested Solutions

a. Development and standardization of protocols for the post-blast usage of canines.

b. Post the developed protocols in a secure environment.

c. Existing and new research into the optimum sampling areas of post-blast sites is needed. Incorporate this research into the training of canines and their handlers.

d. Set up and execute field experiments to gather data which can be applied to the training of these canines.

3. Implementation Strategies

a. Convene a gathering of experts in the handling of canines, explosives canines, analytical chemists, bomb technicians, and bombing scene investigators.

b. Charge the group with gathering and collating all existing protocols on the use of canines in post-blast scenes.

c. Charge the group with developing additional protocols, training guides, and field exercises to promote the improved proficiency of post-blast canines.

d. Support the group by incorporating them into T/SWGFEX so that the benefits of access to related experts is expedited, development of required materials is on-going, and training *via* the T/SWGFEX annual symposium can continue.

e. Have NIJ, or one of its partners, act to create and track canine proficiencies as a national and central clearinghouse. This will improve documentation and records for canine results.

f. This strategy for NIJ to track canine proficiencies as a national and central clearinghouse should additionally be expanded to fire debris canines.

Appendix A.1 Participants, State, and Local

National Needs Assessment Planning Panel

- **James Crippin**
  - Western Forensic Law Enforcement Training Center (Pueblo, Colorado)
- **Dennis Hilliard**
  - Rhode Island State Crime Laboratory (Kingston, Rhode Island)
- **J. Ron McCardle, Major**
  - Florida Division of State Fire Marshal (Tallahassee, Florida)
- **P. Mark L. Sandercock, PhD.**
  - Royal Canadian Mounted Police (Edmonton, Alberta, Canada)
- **Sharee Booke Wells**
  - Alabama Department of Forensic Sciences (Birmingham, Alabama)
- **Lisa Windsor**
  - Tucson Police Department Crime Laboratory (Tucson, Arizona)
- **Carl Chasteen** (Project Manager and Principal Author)
  - Florida Division of State Fire Marshal (Havana, Florida)

Appendix A.2 Participants, State, and Local (*continued*)

National Needs Assessment Sub-Committee Members

- **Judy Hoffman**
  - Montana Forensic Science Division (Missoula, Montana)
- **Kim Freeland**
  - Rhode Island State Crime Laboratory (Kingston, Rhode Island)
- **Mary Williams**
  - The National Center of Forensic Science (Orlando, Florida)
- **Jimmie Oxley**
  - University of Rhode Island (Kingston, Rhode Island)
- **Wendy Norman**
  - Royal Canadian Mounted Police (Ottawa, Ontario)
- **Graham Rankin**
  - Marshall University (Huntington, West Virginia)
- **Mike Sigman**
  - The University of Central Florida (Orlando, Florida)
- **Joe Powell**
  - South Carolina Law Enforcement Division (Columbia, South Carolina)
- **Jim Vose**
  - Vermont Department of Public Safety (Waterbury, Vermont)

- **Vince Desiderio**
  - New Jersey State Police Office of Forensic Sciences (Hamilton, New Jersey)
- **Kristen McDonald**
  - New York City Police Crime Laboratory (New York, New York)
- **Jerry Rudden**
  - Tennessee State Fire Marshal (Nashville, Tennessee)
- **Frank Doyle**
  - Federal Bureau of Investigation (Retired) (San Ramon, California)
- **Dennis Chapman**
  - Iowa State Police Crime Laboratory (Ankenny, Iowa)
- **Jess Dunn**
  - Iowa State Police Crime Laboratory (Ankenny, Iowa)
- **Doug Williams**
  - United States Fire Administration (Emmitsburg, Maryland)
- **Jeffery Jagamin**
  - Washington State Patrol Crime Laboratory (Tacoma, Washington)
- **Tammy White**
  - Florida State Fire Marshal (Fort Myers, Florida)

Appendix A.3 Participants, State, and Local (*continued*)

The T/SWGFEX Executive Committee

- **James Crippin, Chair**
  - Western Forensic Law Enforcement Training Center (Pueblo, Colorado)
- **Clyde Liddick,** Vice Chair
  - Pennsylvania State Police (Harrisburg, Pennsylvania)
- **Dennis Chapman,** Executive Board
  - Iowa State Police Crime Laboratory (Ankenny, Iowa)
- **Dennis Hilliard,** Executive Board
  - Rhode Island State Crime Laboratory (Kingston, Rhode Island)
- **Doug Williams,** Executive Board
  - United States Fire Administration (Emmitsburg, Maryland)
- **Sherrie Thomas,** Executive Board
  - Bureau of Alcohol, Tobacco, Firearms, and Explosives (Atlanta, Georgia)
- **Ingrid Dearmore,** Executive Board
  - Washington State Patrol Crime Laboratory (Marysville, Washington)
- **Tracey Thompson,** Assistant Director
  - Western Forensic Law Enforcement Training Center (Pueblo, Colorado)

Appendix A.4 Participants, State, and Local (*continued*)

The National Center of Forensic Science (NCFS)[31], Orlando, Florida

- Carrie Whitcomb, Director
- Stephen Allen, Technical Manager
- Thomas Minnich, Technical Manager
- John Bardakjy, Coordinator, Research Programs/Services
- Christopher Parker, Computer Systems Analyst
- David Galat, Survey Technical Assistant

[31] NCFS is a **National Institute of Justice** (NIJ) program hosted by the **University of Central Florida** (UCF) in Orlando, Florida.

Appendix B. Synopsis of Survey Results

Discussion of Survey Results

This Appendix will provide a synopsis of the results of the survey. **Questions 1** through **15** are the *demographic, general,* and *professional development* sections. This will allow the reader to understand more about the identity and qualifications of the respondents to the survey. As you will see, the respondents were from a broad spectrum of both public and private agencies. The remaining questions of the survey instrument (**Questions 16** through **100**) contain the full results of the survey. The reader is encouraged to cross-reference both the synopses provided and the full survey with the various recommendations made by the **Needs Assessment Committee.**

Four-hundred and seven (407) responses to the survey were received. Public sector agencies provided 307 respondents (75.43%) and private organizations provided 93 respondents (22.85%). Seven (7) respondents (1.72%) did not indicate if their agency was public or private. A breakdown of all public agency respondents indicates that city employees were the largest group with 170 respondents (41.77%). The remaining public respondents are: county employees – 70 (17.12%); state employees – 52 (12.78%); and federal employees – 15 (3.69%).

An examination of the respondents by discipline found that most individuals work in multiple disciplines. For example, a person may perform fire debris analysis for 50% of their time, explosives analysis for 10%, supervise others 20%, and teach for 20%. Thus, this individual would have entered responses into those questions germane to four of the six disciplines. Other examples of an individual responding to multiple disciplines are possible. This is the reason respondent totals were different from the 407 respondents.

In order to gain a better understanding of each discipline, it was more useful to extract the raw input data and use SPSS software to examine cross-relationships. With this approach the “0 – 10%” grouping for each discipline must be excluded since there is no method to ascertain if the respondent was referring to “0%, “10%”, or any percentage in between. For this section of the report, it will be consistently assumed that most respondents would divide their activities into approximate 10% blocks and would mark 10% or higher when identifying their activities.

One hundred twelve (112) respondents indicated they performed fire debris analysis for more than 10% of their work time. Of these, 59.82% (67) performed fire debris analysis from 10 to 40% of their time. Only 16.97% (19) worked as fire debris analysts from 40 to 70% of the time. Surprisingly, 23.21% (26) indicated they were engaged in fire debris analysis from 70 to 100% of their time. This is seen in **Table 1**. In **Table 2**, another way to examine the 112 fire debris analysis respondents shows that 24.11% (27) work in private organizations and 75.89% (85) work in public agencies. The public agency grouping can be sub-divided into city 30.36% (34), county 16.96% (19), state 24.11% (27), or federal 3.57% (4) as is seen in **Table 3.**

Making the same breakouts as above, but placing the data in tabular form:

Discipline	Total	10 to 40% of time		40 to 70% of time		70 to 100% of time	
		Percent	Number	Percent	Number	Percent	Number
Fire Debris Analysis	112	59.82	67	16.97	19	23.21	26
Explosives Analysis	68	91.18	62	5.98	4	2.94	2
Fire Scene Investigation	292	38.36	112	16.44	48	45.21	132
Bomb Scene Investigation	144	91.67	132	3.47	5	4.86	7
Supervisory	128	56.25	72	11.72	15	32.03	41
Training or Teaching	149	83.89	125	12.08	18	4.03	6

Table 1: Percent Of *Time* A Discipline Is Performed By A Respondent

Discipline	Total	Private		Public	
		Number	Percent	Number	Percent
Fire Debris Analysis	112	27	24.11	85	75.89
Explosives Analysis	68	15	22.06	53	77.94
Fire Scene Investigation	292	80	27.38	212	72.06
Bomb Scene Investigation	144	36	25	108	75
Supervisory	128	26	20.31	128	79.69
Training/Teaching	149	40	26.85	109	73.15

Table 2: Comparison Of The *Number* And *Percent* Of Private *Vs*. Public Respondents By Discipline

Discipline by Public Sector Agencies	Total	City		County		State		Federal	
		No.	Per.	No.	Per.	No.	Per.	No.	Per.
Fire Debris Analysis	85	34	30.36	19	16.96	27	24.11	4	3.57
Explosives Analysis	53	25	36.76	12	17.65	11	16.18	5	7.35
Fire Scene Investigation	212	141	48.29	43	14.73	19	6.51	9	3.08
Bomb Scene Investigation	108	54	37.5	32	22.22	16	11.11	6	4.17
Supervisory	128	47	36.72	29	22.66	20	15.63	6	4.69
Training/Teaching	109	53	35.57	27	18.12	23	15.44	6	4.03

Table 3: *Number* and *Percent* of Respondents Working in Public Sector Agencies *by Discipline*

Question 3 of the survey, "List the number of employees (including you) in your laboratory or unit involved in fire debris or explosives analysis, scene investigation, and/or reporting for each of the following categories," sought to determine the average number of individuals in the various responding agencies. The degree of variation between responding agencies is reflected in the standard deviation noted in **Table 4.**

Position	Average per Respondent	Standard Deviation
Analyst/Scientist	2.00	3.81
Lab Supervisor/Manager	0.80	2.30
Scene Investigator/EOD	6.62	15.04
Scene/EOD Supervisor	2.28	5.27

Table 4: Average Number of Personnel per Agency By Job Type

For **Question 4**, the respondents were requested to indicate the number of employees having specific years of experience from 0 to more than 30. The posting of this survey item failed to include a choice for 15 to 20 years. Even with this anomaly however, charting the responses received shows that the respondent's organizations have individuals with a broad level of experience (See Figure 1). The bell shape of the curve (minus the data for 15 to 20 years) would indicate that 10 to 15 years of experience is typical. A potentially disturbing phenomenon is the rise in the number of respondents who indicate they have a significant number of employees with more than 30 years experience. This could potentially indicate a significant loss of experience as these individuals retire and should increase the emphasis on training and continuing education of those who remain.

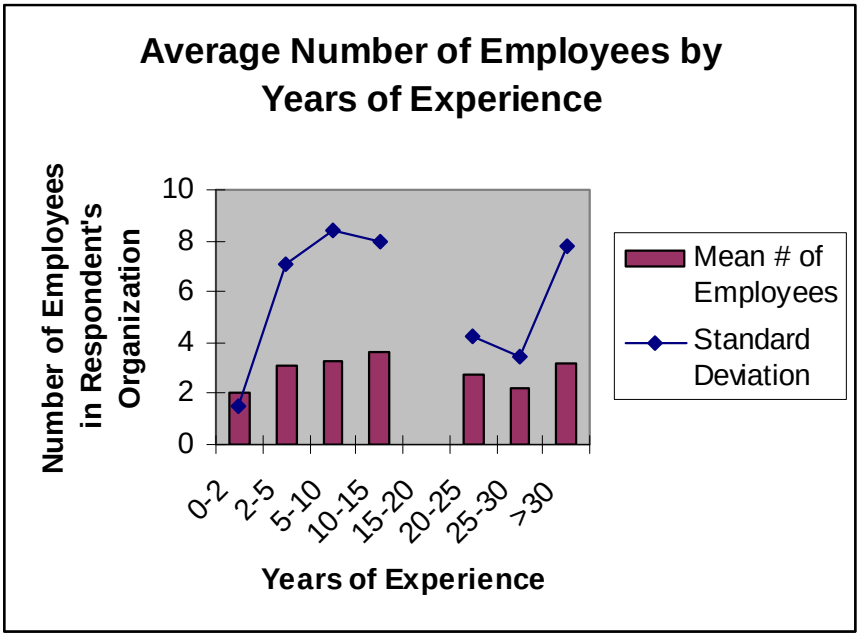


Figure 1: Graph of the Average Number of Employees Per Agency By Years of Experience

Question 5 sought to determine the level of education of employees within the respondent's organizations. The responses would seem to indicate that most respondent's organizations are populated primarily with high school graduates and very few with Bachelor's and advanced degrees. Because this data set did not separate those with a primary duty in investigations from those with a primary duty in forensic analysis, it is likely skewed. Forensic Laboratories typically require a minimum of a Bachelor's degree in a natural science in order to be employed while it is common for investigative agencies to have a high school diploma as the minimum requirement. Regardless of this, however, it should be noted that the numbers having Master's and Doctoral degrees drop significantly. This may be an indication of the need for more formal educational opportunities for both investigators and analysts.

The responses to **Question 6**, "Indicate the number of times you testified in court in 2006" are not surprising. Those who testified only one (1) to five (5) times comprise 80% (256 of the 320 responding to the question). Those indicating six (6) to ten (10) times comprise 10.9% (35 of 320) and those indicating eleven (11) to fifteen (15) comprised 4.1% (15). Thus 95% of the 320 respondents to this question testify fewer than fifteen (15) times in 2006. Compared to other forensic disciplines this is very few. The reasons are anecdotal yet will be reflected in other answers found in this survey. In many areas of the nation, prosecution for fire and or bombings are rare. The main reason is that these cases are largely composed of circumstantial evidence. Even the forensic evidence rarely points to a perpetrator and typically only proves that a crime was committed. Thus, prosecutors identify the amount of work to be done on these cases to be inordinate with their chances for conviction and are thus willing to plea the case before it goes to court or are unwilling to prosecute. The discussion among the planning panel members and T/SWGFEX indicates that in jurisdictions having a dedicated prosecutor, who has received active training from both investigators and forensic laboratory personnel, the rate of cases proceeding to prosecution and eventual conviction is higher.

As we move into **Part B** of the survey, we sought to determine information regarding the professional development of the respondents. **Question 7,** "Which, if any, of the following professional development activities will your laboratory or agency pay (in part or in full) for employees to attend (check all that apply)", received responses from 390 individuals. The most encouraging response was that only 6.2% (24) respondents indicated that their employer would not pay for any courses, seminars, conferences, or symposia. If a conference, seminar, or symposium were held in the same state or province as the respondent, 86.9% (339) indicated their agency would be willing to assume at least a portion of the costs. Another 80% (312) respondents indicated support from their agency to attend local, state, or regional professional association meetings. The remaining six choices are broken down as:

- Seminars of courses held off site – 70% (273)
- Conference, seminar, or symposium were held outside the same state or province – 62.6% (244)
- Seminar or course held on site – 60% (234)
- Classes held at a local university – 52.1% (203)
- On-line classes from an accredited university – 42.1% (164)
- Conference, seminar, or symposium were held outside of home country – 12.3% (48)

Question 8 attempted to determine the level of funding typically provided by an organization for an employee. 375 of the respondents provided an estimate to this question. A level from $501 to $2000 was indicated by 41.6% of the respondents. The level from $2001 to $5000 per employee was indicated by 24.2%. At the opposite extremes were those agencies that provided either no funding, 8.8% of respondents, or over $5000, 8.3% of respondents. Considering the cost of travel, hotels, and registration fees, the funding levels indicated would tend to limit the training and educational opportunities for the vast majority of respondents. Question 9, in anticipation of this result, asked respondents the likelihood of the individual's ability to assume the costs of their own training. If an individual were asked to pay for 100% of the costs, 65.4% of respondents said that it would be unlikely to never. At 75% of cost, the number indicating unlikely to never dropped to 61.3%. For 50% of the cost for training, the number of respondents dropped further to 40.8%. In fact at 50% of the costs, the shift indicated that the majority of respondents, 59.2%, would assume part of the training costs. If they were asked to pay for 25% of the training costs, the number indicating a positive response raises to 80.2%. Obviously the percentage of respondents who indicated their level of participation in training as extremely likely to absolutely if they were not asked to pay for any training costs rose to 85.4%.

Continuing Education Course	Primary Rank	Secondary Rank	Tertiary Rank
EOD Range Time (Training with EOD personnel)	7	4	1
Fire Scene Evidence Collection, Preservation, and Packaging	7	4	5
Explosives Scene Collection, Preservation, and Packaging	7	4	NA
Fire Dynamics (including Chemistry and Physics)	7	4	5
Petroleum Refining Processes	1	4	3
Ignitable Liquid Classification System	4	7	NA
Electrical circuitry and fire	7	4	5
Testifying as an Expert Witness	7	5	4
Explosives Manufacturing Processes	7	4	5
IED recognition and construction	7	4	5
Computer Fire Modeling	7	4	5
Gas Chromatography	4	1	2
Mass Spectral Interpretation	1	4	3
Raman Spectroscopy for Explosives	1	4	NA
X-Ray Analysis Techniques (Diffraction, Fluorescence, Energy Dispersive)	7	1	4
Ion Chromatography	1	3	4
Capillary Electrophoresis	1	3	4
Fourier Transform Infrared Spectroscopy	1	4	3
Advanced Organic Chemistry for Fire Debris Analysis	1	4	7
Advanced Topics in the Chemistry of Organic Explosives	1	4	7
Advanced Topics in the Chemistry of Inorganic Explosives	1	4	7
Forensic Fire Scene Examination	7	5	NA
Forensic Explosive Scene Examination	7	5	4
Communication and Cooperation between Investigators and Analysts in Fires	7	4	5
Communication and Cooperation between Investigators and Analysts in Explosions	7	NA	NA

Table 5: Ranking of Continuing Education Courses

Question 10 is logically in the "Professional Development" section and the information it provides is of particular use to the sub-committees charged with investigation of the training needs. An issue, raised when the task group met to discuss survey results, is that the responses of the forensic analysts are not separate from those of the respondents with investigations as their primary focus. Because more investigators responded, these measures are skewed. In order to attempt to glean the best information, the probability density plot of the responses for each "continuing education" topic must be carefully examined. If we ascribe the major peak in each as being weighted primarily by the investigators, then any secondary (and in some instances a tertiary) peak would be indicative of the rankings by the analytical community. The complete question for #10 is, "Rate how interested you would be in taking each of the following types of continuing education courses (1-7 where 1 = Never, 4 = Likely, and 7 = Absolutely). Creation of a tabular display of the responses where the probability is measured at more than 0.15 is seen in **Table 5.**

Those with the primary ranking at 7 with secondary and tertiary rankings of 4 or lower are courses which would be most desired by investigators (marked in tan). Those with a primary ranking of seven with secondary and tertiary rankings above 4 would appeal to both investigators and analysts (marked in pale blue). Those with a primary ranking of 1, but with a secondary and tertiary ranking of 4 or higher would appeal most to analysts (marked in light turquoise). The key anomalies to this ranking begin with the last listing, "Communication and Cooperation between Investigators and Analysts in Explosions." It appears to be ranked as a "7" by all respondents and thus would appeal to everyone. Next the "Ignitable Liquid Classification System" with a primary ranking of 4 but a secondary of 7 with no tertiary ranking would also tend to be a course which would have strong attendance by both investigators and analysts.

Training and continuing education continued under **Question 11** when the respondents were asked to identify "training/classes that you feel would be helpful to you in order to do your job better." A review of the inputs, excluding several that were redundant to courses already listed, and condensing similar items provided the following list of additional topics of interest:

- Vehicle, Heavy Equipment, And Recreational Vehicle Fires
- Death Scenes And Investigations
- Quality Assurance In The Laboratory – Reducing Interferences And Eliminating Contamination
- Digital Photography And Image Management
- Appliance Fire Investigations: Electrical And Gas
- Watercraft And Underwater Investigations
- Data/Document Management And Writing Reports
- Complex Scene Management
- Effect Of Fire Suppression And Overhaul On Fire Scene Evidence
- Interview And Interrogation Techniques Including Kinesics

- Hazardous Materials Recognition And Sampling
- Latent Prints In Fires And Bombings
- Live Experimental Fires And Explosions: Investigation And Evidence Collection
- Laser Documentation And Computer Aided Design For Crime Scene Documentation
- Wildland Fire Investigations
- Objectivity And Avoiding Bias: Using The Scientific Method
- Forensic Accounting And Financial Analysis In Fires With Fraud Implications
- Case Law Studies And Review Pertaining To Fire And Bombings
- Safety At Fire And Bombing Scenes – Awareness Of Acute And Chronic Dangers
- Reading And Comprehending The Technical Report
- Military Ordnance Recognition
- Spontaneous Combustion Fire Investigation
- Surveillance
- Chemical Incendiaries And Hypergolic Mixtures
- Serial Arson Investigations – Recognition And Techniques
- Legal Liability And Spoliation In The Fire Scene

Resource	Mean Ranking
Comprehensive Listing Of People Working In The Field (Private And Government)	5.20
Create A Secure Internet Link For E-Mail And Information Exchange Between Professionals	5.70
Establishment Of A Collection Of Sample Laboratory Reports	4.95
Creation Of A Glossary Of Analytical, Explosives, And Fire Debris-Related Technology	5.42
Creation Of Information Templates For Evidence Submission	5.08
Establishment Of A Collection Of Methods And Protocols For Analytical Techniques	5.28
Establishment Of Databases Of Reference Materials For Analytical Techniques	5.27
Creation Of A National Database For Tracking Bombing Matters	5.16
Creation Of A National Database For Tracking Arson Matters	5.73
Establishment Of A National Resource Database (For Lab Equipment, Expertise, Etc.)	4.99
Establishment Of A National Explosives Formulation Database	4.82
Creation Of A Bulletin Board For Communication Between Explosives Analysts	4.78
Creation Of A Bulletin Board For Communication Between Fire Debris	5.26
Creation Of A Library Of Manufacturers' Literature	5.55
Database Of Explosives Analyst Training Manuals And Materials	5.19
Information center for inter-agency training exercises	5.65

Table 6: Ranking of Initiatives for the Fire and Explosion Communities (Investigative & Analytical)

Under **Question 12**, the Needs Assessment Task Groups wanted to determine both whether certain initiatives would be well met by the fire and explosion community and whether the community was aware that some initiatives already existed. It asked the respondents to rank the resource along a scale from 1 - "Not at all" to 7 – "Very Important." The results are in table 6.

While **Table 6** indicates the average ranking for all these initiatives is above the mid-point of the ranking scale, the top five (5) resources desired are:

- Creation of a national database for tracking arson matters (5.73).
- Create a secure Internet link for E-mail and information exchange between professionals (5.70).
- Information center for inter-agency training exercises (5.65).
- Creation of an library of manufacturers' literature (5.55).
- Creation of a glossary of analytical, explosives, and fire debris-related technology (5.42).

Questions 13 and **14** sought to determine if agencies provide employees with the opportunity to conduct "research" and if so, the time allowed. Of the 375 respondents who answered this question, 54.1% indicated that they were allowed to conduct research. The averages for the four (4) categories of research are:

- Fire Debris Analysis 57.12 hours
- Explosives Analysis 49.8 hours
- Fire Scenes 146.30 hours
- Explosives Scenes 121.92 hours

Topic	Ranking
Sufficiency of explosives and fire debris publications provided by your laboratory	3.60
Interest in receiving a library of ignitable liquid standards on a regular basis	4.98
Interest in receiving a library of pyrolysis standards on a regular basis	4.75
Importance of national standards for report writing	4.90
Importance of a specific protocol for wording of both positive and negative samples	4.91
Importance of a national database for chromatographic data for ignitable liquids	5.28
Importance of a national source for ignitable liquid standards	5.52
Interest in participating in the fire and explosives debris analysis technical working group	4.90

Table 7: Ranking of "Sufficiency, Importance, or Level of Interest"

The last question in the Demographics and General Section**, Question 15,** asked respondents to rank the sufficiency, importance, or level of interest (from 1 = "Not at all" to 7 = "Very") on eight (8) topics. The most important to the respondents, as seen in Table 7, is the maintenance of both a national database and source for ignitable liquids. Fortunately these resources are already provided through the NCFS and T/SWGFEX. The explosives and fire debris publications provided by agencies to their employees was ranked the lowest and clearly shows that more references are needed in the field.

The first grouping, **Questions 16** through **32** are primarily for Fire Debris Analysts. Some allow an assessment of the typical workload, some allow assessment of the methods and quality control employed, and others the importance of certain classes essential for the field.

Question 16 divides the work typically done by an agency into fire debris samples versus ignitable liquids. Though the analyst uses the same standards to make a determination, the distinction is in how the samples are submitted and processed.

Agency	1 to 50	51 to 100	101 to 250	251 to 500	501 to 750	751 to 1000	1001 to 2000	> 2000
Private	8	2	2	3	0	0	2	1
City	15	2	0	0	0	0	0	0
County	5	3	5	0	0	3	0	0
State	4	3	5	3	3	0	0	2
Federal	2	0	0	0	1	0	0	0
Total	34	10	12	6	4	3	2	3

Table 8: No. of Respondents Indicating the Number of Debris Samples Worked by their Agency

An examination of **Table 8** indicates thirty-four (34) respondents from all five sectors indicate that their agencies processed fewer than fifty (50) fire debris samples in 2006. In fact, the vast majority of agencies (56) processed fewer than 250 fire debris samples in 2006. Only thirteen (13) agencies indicated that they processed from 251 to 1000 samples. None were City laboratories and the majority were from State laboratories (6). Only three (3) Private and two (2) State respondents indicated their laboratories processed more than 1001 fire debris samples in 2006. Both of the state laboratories indicated they processed more than 2000 samples in 2006.

Agency	1 to 50	51 to 100	101 to 250	251 to 500	501 to 750	751 to 1000	1001 to 2000	> 2000
Private	8	2	2	3	0	0	0	0
City	14	1	0	2	0	0	0	2
County	8	2	2	0	0	0	0	0
State	11	3	3	1	1	0	0	1
Federal	0	0	1	0	1	0	0	1
Total	41	8	8	6	2	0	0	4

Table 9: No. of Respondents Indicating the No. of Ignitable Liquid Samples Worked by their Agency

Table 9 shows forty-one (41) respondents from four of the five sectors indicate that their agencies processed fewer than fifty (50) ignitable liquid samples in 2006. Again, the majority of agencies (57) processed fewer than 250 ignitable liquid samples in 2006. Only 8 agencies indicated that they processed from 251 to 750 samples. None of the agencies indicated processing 751 to 2000 samples. Two City, one State, and one

Federal laboratory indicated they processed more than 2000 ignitable liquid samples in 2006.

Passive headspace sampling using activated charcoal/carbon was indicated as the fire debris extraction technique of choice by 76.2% of respondents. This was distantly followed by dynamic headspace sampling by 20.2% of respondents. **Question 17** also indicated that very few respondents used Tenax ® (3.6%) or solid phase micro extraction (SPME) (1.2%). When asked about other adsorbents the remaining 8.3% provided answers that indicate that they did not comprehend the question with responses ranging from gauze pads and non-bleached flour to clay chips and sterile pads.

The choice of eluting solvent in **Question 18** indicated that 56.7% of respondents use carbon disulfide. This solvent's efficiency at stripping ignitable liquids from adsorbents is considerable, but presents several safety issues. This may be the reason that 16.4% indicate they use thermal desorption or SPME. Another 16.4% of respondents indicate the use of pentane, which has been touted as a safer alternative to carbon disulfide. Surprisingly, 9.0% indicated the use of diethyl ether that has its own significant health hazards. Dichloromethane, which has health hazards as well, was indicated by 7.5%. The only solvent identified by the remaining 6.0% of respondents indicated a 1:1 mixture of carbon disulfide and pentane.

The use of an internal standard either added to the debris during extraction or to the solvent was indicated by only 15.1% and 15.2% of respondents respectively as indicated in **Questions 19** and **20**. For those adding an internal standard to the debris, it appears that the use of 3-phenyltoluene is the most common. There is not a common internal standard indicated for those who add it to their solvent. With the vast majority of respondents not indicating the use of an internal standard, the practice should be in question. While it is common practice in many other fields of analytical chemistry, the question is why fire debris analysts do not use it.

Question 21 assesses the usage of various types of instrumentation employed in fire debris analysis. The scale is 1 = Never and 7 = Exclusive. Clearly at an average rating of 6.08 the most common instrumental method is gas chromatography with mass spectroscopy (GS-MS). This is followed by Gas Chromatography with Flame Ionization Detection (GC-FID) at a rating of 2.29. GC-FID has been shown not to be as effective or efficient in the analysis of fire debris as GC-MS. This may indicate a problem with getting the GC-MS technology to some laboratories.

Split solvent injection mode (69.4%) with analysis on a 100% polydimethylsiloxane column (58.8%) or 5% phenylmethylpolysiloxanne: 95% polydimethylsiloxane were parameters indicated in Questions 22 and 23. These responses were expected and are anecdotally accepted as being the most common in use by the relevant community.

Quality Assurance/Quality Control measures are necessary to provide acceptable levels of dependability when performing chemical analyses. Forensic analysis of fire debris should not be an exception. Question 24 assessed the commonality of certain of these QA/QC procedures where the scale was 1 = Never and 7 = Exclusive:

QA/QC Technique	Ranking
ASTM 1387 test mix or similar mixture	5.09
Internal Standards (e.g., 3-phenyltoluene)	2.90
Solvent Blanks	5.68
Apparatus Blanks (e.g., strips, glassware)	5.16
Recovery Checks (e.g., simulated case extractions)	3.19
Peer Review	5.72
Other: (specify)	5.50
Validation kits (NFSTC)	
Proficiency Tests	
Ignitable Liquid Reference Materials	

Table 10: Ranking of QA/QC Techniques

As seen in Table 10, Peer Review ranked as the most common measure followed closely by the use of solvent blanks. Apparatus blanks and the use of the ASTM E1387 test mix also ranked above 5.

Question 25 sought to determine the level of conformance to the provisions in various ASTM methods. Again the scale is 1 = Never and 7 = Exclusive:

Standard #	General Topic	Rank
ASTM-E 1387-01	Analysis by GC-FID	4.00
ASTM-E 1618-06	Analysis by GC-MS	5.69
ASTM-E 1385-00	Extraction by Steam Distillation	2.03
ASTM-E 1412-00(2005)	Extraction by Passive Headspace	5.00
ASTM-E 1413-06	Extraction by Dynamic Headspace	2.08
ASTM-E 1388-05	Simple Headspace	3.33
ASTM-E 1386-00(2005)	Solvent Extraction	4.12
ASTM-E 1492-05	Receiving and Handling Evidence	5.03
ASTM-E 1459-92(2005)	Evidence Labeling and Documentation	5.00

Table 11: Ranking of Conformance to ASTM Guides

The analytical method of most common use is again confirmed as GC-MS, but GC-FID ranked higher than expected as is seen in Table 11. Of the extraction techniques, the use of Passive Headspace as the most common was also confirmed. The fact that solvent extraction ranked above “4” would indicate that it is also used by many laboratories. It is disturbing to note that simple headspace was ranked as high as it is, considering that the technique should be limited to screening.

When queried as to new equipment and techniques available to fire debris analysts, 85% of the respondents to **Question 26** indicated "no." Those who responded "yes" were asked to describe the equipment and techniques. The following is a synopsis:

- New software for comparison of data.
- Tandem GC-MS (GC-MS-MS).
- Two-dimensional GC with MS (GC X GC-MS).
- Flash Chromatography.
- Pyrolysis product database.
- Fourier Transform Ion Cyclotron Mass Spectroscopy (FT-ICMS).
- Stable Isotope Ratio MS.
- DART sample introduction.
- Alternative Light Sources (scene investigation).
- GC with Infrared and mass detection (GC-IRMS).
- Time-of-flight GC-MS.

Questions 27 and **28** directly asked respondents to assess the needs of fire debris analysts. Question 27 focused on the short-term needs and **Question 28** on the long term needs. In review of the responses it was noted that there were several responses which were listed in both. The following lists of suggestions were prepared by consolidating similar responses.

Short Term Needs in Fire Debris Analysis:

- Improvements to turnaround for processing evidence.
- More personnel.
- Improved software for analysis and comparison of data.
- More information on pyrolysis products and interference compounds inherent to matrices.
- Improved chromatographic resolution.
- Improved and greater access to reference materials and standards.
- An extraction procedure which can replace the use of carbon disulfide without sacrificing efficiency (solvent free and improved desorption).
- More training for personnel.
- Financial assistance to laboratories.
- Development of a field gas-chromatograph with sufficient ease of use and accuracy to allow high quality presumptive analyses on the scene.
- Place a GC-MS in all laboratories.

Long Term Needs in Fire Debris Analysis:

- Enhanced ability to compare ignitable liquids from separate sources at a level where individualization (similar to DNA analysis) can be made.
- Improve the library search function of the Ignitable Liquid Reference Collection database currently posted on the NCFS database.
- Greater access to extraction and analysis standards and procedures.
- Training in advanced organic chemistry for analysts.
- Enhanced sharing of data between laboratories.
- Seek and promote consistency in wording between reports from various laboratories.
- Greater understanding of the effect of ignitable liquids on bodies.
- Increase understanding and adherence to American Society for Testing and Materials guidelines and test methods.
- Cross-training in the "scientific method" for investigators and analysts.
- Lower cost and more affordable instrumentation.

The responses to **Question 29** were disturbing. The question sought to determine if the respondents used an in-house ignitable liquid reference collection in casework. ASTM E1618 and E1387 both require that analysts compare the data of an unknown against the data of reference materials analyzed on the same instrument. With only 25.4% indicating that they do this in every case and 18.4% indicating "often," it appears that the majority of respondents are not in compliance (18.4% reported "sometimes," and 37.7% reported "never").

Question 30 asked if the respondents used the on-line reference collection data available through NCFS and found that 59.5% of the respondents answered "never" while a scant 1.8% answered "every case." Those responding with "sometimes" made up 28.8% and those who indicated "often" only 9.9%. These responses may be interpreted to indicate that NCFS needs to promote this resource more widely.

Previous questions asked about extraction procedures and instrumentation. **Question 31** asked, "How does your laboratory routinely identify an ignitable liquid in fire debris"? The overwhelming response at 73.2% was "pattern recognition by mass chromatography (extracted ion chromatogram or extracted ion profile)". The next highest at 12.7% was "other." The majority of those responses indicated use of multiple combinations of all of the listed choices. These responses appear to be consistent with the majority responses received on extraction and instrumentation.

The last question specific to fire debris analysts (**Question 32**) asked them to rank the importance of various classes to the training of a fire debris analyst (**Table 12**). It was not noticed until after the return of the surveys that the choice of "Advanced Physics" was listed twice. We will use the responses from the first iteration only, thus the percentages reported here were derived from the analysis of the raw data after redacting the secondary response. The choice of "other" only had four responses and will be discussed later. The ranking was from 1 = "Not Important," to 4 = "Moderate," to 7 = "Extremely." Out of a total of 90 responses, the choice of "Instrumental Analysis" was ranked highest at 6.30, and "Organic Chemistry" was ranked second highest at 6.16 Third was "General Chemistry" at 6.02, ranked by 91 respondents. The table below shows all classes, the rankings, and the number of respondents:

Class	Respondents	Mean Rank (1 to 7)
Other:	4	6.33
Instrumental analysis	90	6.30
Organic chemistry	90	6.16
General chemistry	91	6.02
Analytical chemistry	87	5.88
Advanced organic chemistry	90	5.48
Inorganic chemistry	91	4.67
Introductory physics	90	4.67
Physical chemistry	88	4.25
Advanced physics	87	3.70
Advanced mathematics	87	3.57

Table 12: Ranking of Training Classes for Fire Debris Analysts

As stated earlier, the choice of "other" was input by only four respondents and the mean ranking of 6.33, while technically the highest, was not considered valid in relation to the other classes. While the respondents who entered "other" were not many, the suggestions they listed should be considered. They are: spectroscopy with structural elucidation, combustion gas analysis, digital imaging, and logic.

Explosive	% Yes	% indicating 1 to 50 samples
Intact Low Explosives	44.9%	53.2%
Intact High Explosives	26.0%	32.8%
Intact IED's	35.1%	40.0%
Post-Blast Low Explosives	56.6%	55.4%
Post Blast High Explosives	21.3%	26.2%
Post Blast IED's	42.5%	40.6%
Intact Incendiary Device	48.1%	49.2%
Post-Reaction incendiary	47.4%	45.3%

Table 13: Types and Percent of Analyses Performed by Respondents

Question 33 began the sections specific to explosives analysts. From **Questions 33** to **40** (summarized in the "% Yes" column of **Table 13**), the determination was whether or not the respondent performed the analysis in 2006. **Questions 41** to **48** (summarized in the "% Indicating 1 to 50 Samples" column of Table 13) asked–the respondent to indicate the number of samples processed by their laboratory.

In **Question 49**, respondents were asked to indicate their ranking of the frequency which they utilized various forensic techniques with the scale of 1 = "Never" and 7 = "Exclusive." The following, **Table 14**, is a summary of the responses with the mean from all respondents sorted from highest rank to lowest rank:

Technique	Mean Ranking (1 to 7)
Ignition analysis	3.50
IR	3.20
FTIR	3.17
GC/MS	2.88
SEM-EDX	2.83
Other:	2.70
Microchemical analysis using stereomicroscopy	2.45
Microchemical analysis using PLM	2.42
Spot tests	2.25
IC	2.10
XRF	2.00
Field explosives screening	1.78
TLC	1.76
Raman spectroscopy	1.57
GC/FID	1.46
HPLC	1.46
XRD	1.46
HPLC/MS	1.46
GC/ECD	1.27
CE	1.26
GC/TEA	1.23
ICP	1.21
HPLC/TEA	1.21
IMS	1.21
NMR	1.13
SEM-WDX	1.11

Table 14: Ranking of Explosives Analytical Techniques

The top five (5) responses were Ignition Analysis, Infrared Spectroscopy, Fourier Transform Infrared Spectroscopy, Gas Chromatography with Mass Spectroscopy, Scanning Electron Microscopy with Energy Dispersive X-Ray detection. However, it must be noted that none of the responses ranked above 3.5 and the top three are the only ones above 3.0. The next eight (8) responses in the table are clustered between 2.0 and 2.99. The reason for this is most likely that the sheer variety of explosive compounds and mixtures often require the use of multiple techniques to make a determination.

For **Question 50**, 86% of the respondents indicated that they were not aware of new techniques, instruments, or methods for explosive analysis. In **Questions 51** and **52** respondents were asked to indicate their sense of the short and long term needs for explosives analysis. In review of the responses it was noted that there were several responses which were listed in both. The following lists of suggestions were prepared by consolidating similar responses.

Short Term Needs in Explosives Analysis:

- Education and training in the production of improvised and homemade devices and materials. What is out there?
- Collation and dissemination of comprehensive analytical methods covering multiple analytical techniques. If one is unavailable, what else can be used?
- Basic and Advanced training in the comprehensive analysis of explosives (analytical methods/techniques, compositions, reactions, dynamics).
- Explosive Materials Database and reference collection.
- Financial assistance.
- Digital Imaging Training.
- Improvements to the use of robotics technology.
- Improvements to sample collection.
- Improving field analyses and their value (instruments, presumptive tests, etc.).
- Improvement of communication between analysts and investigators.

Long Term Needs in Explosives Analysis:

- Information and data sharing between agencies with significant resources (federal and some state) and those who are resource challenged.
- Chemical derivatization protocols to allow alternate analytical methods.
- Reduced cost of instrumentation.

Procedure	Mean Ranking (1 to 7)
8095 Calibration Mix A	1.47
8095 Calibration Mix B	1.47
Smokeless Powder (or similar) mixture	3.37
Internal Standard (please indicate):	1.57
Solvent Blank	3.62
Peer Review	3.79
Other:	3.16

Table 15: Ranking of Explosives QA/QC Procedures

Question 53 sought to determine the use of various Quality Assurance and Quality Control procedures and methods in explosives analysis. **Table 15** summarizes the results. The scale ran from 1 = "Never" to 7 = "Exclusive." The only internal standard indicated was 5-nitro-2-fluorotoluene. The primary "other" QA/QC procedures listed were proficiency testing and comparison of unknowns to explosives and chemical standards.

The respondents (82) under **Question 54** indicated that 36.6% "never," and only 37.8% "sometimes" used an internal explosives reference collection in casework. This result was discouraging. The question becomes, how do these analysts assure themselves of an identification without comparative data? **Question 55** regarding the use of an on-line collection of explosives data by the respondents (79) provided more encouraging results. Those who selected "sometimes" (38%) and "often" (34.2%) were the clear majority.

Similar to **Question 32** for Fire Debris Analysts, **Question 56** asked respondents to rank the importance of various courses as part of the education of an explosives analyst. Again the scale ran from 1 = "never" to 7 = "extremely." The results after isolation and examination of the raw data inputs are summarized and sorted from highest to lowest ranking in **Table 16:**

Courses for Explosives Analysts	Mean Ranking (from 1 to 7)
Explosives analysis	6.56
Introduction to explosives	6.40
The chemistry of pyrotechnics	6.33
Chemical analysis of explosives	6.17
Combustion explosions	6.03
Instrumental analysis	6.00
General Chemistry	5.77
Inorganic chemistry	5.60
Analytical chemistry	5.53
Organic chemistry	5.47
Advanced organic chemistry	5.30
Introductory physics	5.07
Physical chemistry	4.77
Advanced physics	4.30
Advanced mathematics	4.17
Other:	6.50

Table 16: Ranking of Importance of Courses of Study for Explosives Analysts

The items indicated under "other" are "blast effect calculations" and "safety"

Question 57 sought to rate additional training and course work in the professional development of an explosives analyst. Again the scale ran from 1 = "never" to 7 = "extremely." The results after isolation and examination of the raw data inputs are summarized and sorted from highest to lowest ranking in **Table B17**:

Training/Continuing Courses	Mean Ranking (1 to 7)
Analytical examination of high and low explosive materials and residues	6.50
Composition of low explosive materials	6.20
Construction of improvised devices	6.13
Recognition of improvised device components	6.11
Manufacturing of explosives	6.00
Construction of military devices (e.g. simulators, rockets, hand grenades)	5.97
Composition of high explosive materials	5.95
Construction of commercial pyrotechnic devices	5.94
Peroxide Based Explosives	5.92
Terminology and vocabulary of explosives	5.85
Range procedures	5.51
History of Explosives	4.88
Other:	5.50

Table 17: ranking of Additional Training for Professional Development of Explosives Analysts

Questions 58 through **69** were designed to assess opinions of those who identified themselves as fire scene investigators.

The first question of this group, **Question 58**, asked them to indicate the number of fire scenes processed in 2006 by all the investigators at their particular location. The largest grouping indicated by the 270 respondents indicated that 48.1% worked from 1 to 50 scenes. Significantly, 15.2% indicated they worked from 51 to 100 scenes, 15.2% indicated they worked from 101 to 250 scenes, and 12.2% indicated they worked 251 to 500 scenes. The number of individuals indicating they worked 501 to > 2000 scenes was only 9.3% of respondents.

The majority of respondents, 94.8%, indicated that they have had formal training in fire scene investigation in **Question 59**. Another majority, 85.1%, indicated that formal training was "very important" in the investigation of fire scenes.

Question 60 asked respondents to identify the types of containers used to secure evidence by percentage of time used. Clean unused paint cans were indicated as being used 78.82% of the time. Glass jars and vials were indicated as being used 21.58% of the time and Nylon bags 16.8% of the time. The items listed in "other" included a number of entries for "Kapak ™" bags and the respondents were unaware that they are included in the "nylon bag" category. There were a significant number of entries stating the use of paper bags. It is hoped that these are used for non-fire debris evidence as they are useless in securing fire debris for ignitable liquid determination.

In **Question 61** respondents were asked to identify the equipment "essential to help you process fire scenes." In **Question 62**, respondents were asked to identify "equipment desirable to help you process a fire scene." All entries were free text entry and not from a pre-set list which led to a significant variety in the responses. The lists of entries were examined and significant repetition and overlap was noted. Many of the responses have been combined, with similar entries being consolidated, and summarized in the lists below:

Equipment *Essential* to Processing Fire Scenes:

- Accelerant Detection Canine team.
- Hand tools (e.g., saws, chisels, hammers, screwdrivers, pry bar, etc.).
- Power tools (e.g., saws, drills, etc.).
- Gloves (both disposable and protective).
- Personal protective and safety equipment (e.g., hard hat, coveralls, respirator, etc.).
- Shovels, rakes, and scoops.
- Cameras (both still and video).
- Screens and sieves.
- Knives (various).
- Tape measure, GPS, laser measuring devices.
- Magnets.
- Fingerprint, trace evidence, and impression evidence kits.
- Heavy debris removal equipment (e.g., forklifts, cranes, bulldozers) depending on the scene.
- Directional and evidence flags.
- Vehicle for transport of tools.
- Gas/hydrocarbon "sniffer"/detector.
- Ultraviolet light source.
- Portable lighting for night work.
- NFPA 921 and other authoritative reference books.
- Brooms and brushes.
- Ladders.
- Generator.
- Circuit Tester/Volt/Ohm meter.
- Information recording tools (e.g., pens, paper, voice recorder, etc.).
- Buckets.
- Water and soap for decontamination and cleaning.
- Laptop with software necessary (e.g., word processing, digital photo archiving, CAD software, etc.).

Equipment *Desired* for Processing Fire Scenes:

- Multigas detector/electronic nose.
- Laser scanners and measuring.
- Panoramic cameras.
- Portable X-Ray units.
- Portable/Handheld chemical identification equipment (e.g., GC-MS, FTIR, Raman).
- Mobile Internet access.
- Advanced scene documentation tools (e.g., laser, CAD, etc.).
- Thermal imaging.
- Fire Modeling software.

Question 62 also asked if the respondent or their agency had access to an accelerant detection canine team. Of the 260 respondents, 69.2% indicated they have access to a canine team. Half of the respondents indicated that such a canine team would be used in only 1 to 20% of their cases. For 22.9% of the respondents the canine team would be used in 21 to 40% of their cases. Only 16.7% of the respondents went so far as to state that canines would be used in 41 to 60% of cases. Thus, very few, 10.4%, would use canines in more than 61% of their cases.

As a corollary, 48% of respondents said they had access to an electronic “sniffer” and 46.4% said they did not. Of the respondents, 31.6% indicated that an electronic “sniffer” would be used in 1 to 20% of their cases. For the grouping of 21 to 40% of cases, the number of respondents dropped to 13.2%. For each of the three remaining groupings, 41 to 60%, 61 to 80%, and 81 to 100% of the time, the number of respondents was evenly distributed with 18.4% of the respondents in each group.

Question 63 asked if the respondent’s agency had a specific criteria for activation of a canine unit. The majority, 67.9%, indicated they did not. The follow up question asked the respondent to describe the criteria. The answers were considerably varied and the reader is directed to the Vista ™ survey in the appendix.

Only 33.3% of respondents indicated their agency tracked the usage of the accelerant detection canine in each investigation (**Question 64**). Only 28.1% of respondents indicated that the canine’s positive to negative hit rate was tracked (**Question 65**). Skipping to Question 67, 72.8% of respondents think they would benefit by having access to a national/international database of certified accelerant detection canine teams.

When asked if investigators had access to other forensic laboratory tests in addition to fire debris/ignitable liquid analyses, 57.1% of the respondents answered "no" in **Question 66**. Only a very slight majority of respondents (50.4%) indicated they had access (on-scene, by telephone, or email) to a fire debris analyst/scientist for consultation while working a scene (**Question 68**). In **Question 68a**, 61.5 % of the respondents who indicated that they had access to a scientist indicated that in 2006 they called upon this expertise 1 to 5 times. In **Questions 69** and **69a**, 91.7% of the respondents who answered that they did not have access to a scientist, indicated that this type of access would be desirable. They further ranked the importance of this access using the scale of 1 = "Not at all" to 7 = "Very" with 29% of respondents ranking this service at 7 ("very" desirable). For rankings of 5 or 6, 26.2% and 22.1% respectively indicated a positive level of importance.

Questions 70 through **89** were designed to be specific to Explosion/Bomb scene investigators. Of the 157 respondents to **Question 70**, 87.3% indicated they worked from 1 to 50 cases in 2006. On the issue of having received formal training, 76.8% of the respondents to **Question 71** answered "yes" and in **Question 72**, 83.2% indicated that formal training was "very" important in the investigation of bombing crime scenes.

Question 73 assessed the types of sampling containers used to package debris collected from explosives scenes and found that clean unused paint cans were used by 62.1% of the respondents in 61 to 100% of their cases. For 1 to 20% of their cases, 49.0% of the respondents used glass jars and vials and 47.1% used nylon bags. The remaining types of containers commonly indicated in the "other" selection were various paper evidence bags.

The results for **Question 74** on the equipment "essential to help you process bombing scenes" are the same as for Questions 61 and 62 with the following additions:

- Explosive Ordnance Disposal suits (Bomb Suits).
- X-Ray machine.
- Disruptors.
- Metal detector.
- Explosives swab kits.
- Presumptive explosives identification wet chemical kits.
- Robots for unmanned approach and entry.
- Non-sparking tools.

Question 75, that asked which equipment is "desirable," is also similar to the responses in **Questions 61** and **62** with the following additions:

- Better evidence preservation and sampling technology (includes vapor sampling and preservation).
- Explosives Detection Instruments for field use (e.g., Ion Mobility Spectroscopy, Raman Spectroscopy, FTIR spectroscopy, etc.).
- Portable wet chemical explosives identification kits.
- Mobile Command Center.
- Equipment that can elevate the investigator above the scene.
- Bomb Component Blanket.
- Blast Modeling Software.

Question 76 asked if the respondents used the equipment they listed and 85.2% replied "yes." **Question 77** asked respondents what training was desired. The following are the training/classes listed by respondents (after consolidation and sorting):

- Advanced post-blast training with "hands-on" experience at a "live" experimental scene.
- The chemistry of explosives.
- Bomb scene evidence sampling, collection, and preservation.
- Scene excavation.
- Recognition of the blast effects of high or low order explosives on various scenes (as a method to assess presumptively the type used upon arrival at a scene).
- Using advanced scene documentation equipment.
- WMD scene investigation.
- Anti-terrorism training.
- Partnering with federal agencies for on-scene experience.
- Basic EOD for the fire service.
- Using mapping tools and documentation to prepare a land survey of a scene.

Under **Question 78**, 64.4% of respondents indicated they had access to and used an explosives detection canine. For **Question 79**, 53.7% of the respondents indicated that they used a canine explosives detection team from 1 to 20% of the time. Only 16.3% indicated using such a team for 81 to 100% of the time. The respondents to **Question 80** indicated that 62.8% did not have a specific criteria for calling out the canine team. The follow- up question asked the respondent to describe the criteria. The answers were considerably varied and the reader is directed to the Vista ™ survey in the appendix.

Only 37.1% of respondents indicated their agency tracked the usage of explosives detection canines in each investigation (**Question 81**). Only 30.6% of respondents indicated that the canine's positive to negative hit rate was tracked (**Question 82**). In **Question 83**, 69.3% of respondents think they would benefit by having access to a national/international database of certified explosives detection canine teams.

When asked if investigators had access to forensic laboratory experts for consultation in explosives while investigating a bombing scene, 52.4% of the respondents answered "no" in **Question 84**. In **Question 85**, 76.5 % of the respondents who indicated that they had access to a scientist, indicated that in 2006 they called upon this expertise 1 to 5 times. In **Question 86**, 96.1% of the respondents who answered that they did not have access to a scientist, indicated that this type of access would be desirable. For **Question 87**, they further ranked the importance of this access using the scale of 1 = "Not at all" to 7 = "Very" with 46.4% of respondents ranking this service at 7 ("very desirable). For rankings of 5 or 6, 14.5% and 20.5% respectively indicated a positive level of importance.

Question 88 asked respondents to estimate the number of scenes containing various types of explosives which they worked in 2006. The vast majority either did not work that type of device or the number of incidents was few (between 1 to 20), see **Table 18.**

Scenes Containing:	Percent indicating "0"	Percent indicating "1 to 20"
Intact Explosives	40.00%	50.40%
Intact IED	51.90%	40.50%
Post Blast Explosives	39.30%	56.40%
Post Blast IED	52.30%	43.10%
Intact Incendiary Device	35.00%	60.70%
Post Reaction Incendiary Device	39.40%	53.30%

Table 18: Estimate of the Number of Scenes with Specific Types of Explosives

Question 89 sought to determine the number of times that a respondent was called upon to "render safe" a device and the methods used to accomplish the task. **Table 19** provides a synopsis of the data:

Render Safe Method	"0" occasions	"1 to 20" occasions
Hands on	54.30%	43.20%
Remote Cutter	75.00%	22.20%
Disrupter	28.30%	46.70%
Other	57.80%	33.33%

Table 19: "Render Safe" Method and the Number of Occasions Used

It must be additionally noted that another 13% of respondents used the Disruptor from 21 to 50 times and 8.7% indicated Disruptor use from 51 to 100 times.

Questions 90 through **100** were designed to assess laboratory research needs. Many of the questions asked respondents to write their opinions and comments as free entries instead of simply checking a box. Those with free entries were examined, and insofar as possible, were consolidated by combining similar comments and opinions. Answers which were flippant or not relevant to the laboratory analysis of fire debris or explosives were not considered.

Question 90 was one of these questions. It asked, "What major breakthrough in the area of ignitable liquid or explosives analysis would have the most impact on the area of forensic science (think big the sky is the limit)?" The following is the synopsis of the written responses:

- A simple to use, portable, cost effective, validated instrument that can reliably produce presumptive identifications of ignitable liquids from samples (with minimal sample preparation) while at the scene. Portable GC-MS instruments were suggested.

- A simple to use, portable, cost effective, validated instrument that can reliably produce presumptive identifications of explosives from samples (with minimal sample preparation) while at the scene. Portable GC-MS or IMS instruments were suggested.

- Instrumental software that can reliably match data from unknowns to library reference standards and can provide a realistic probability index of a match against a specific ASTM class of ignitable liquid.

- Research instrumental methods, software, or new instruments that will allow the exclusion of interfering compounds and pyrolysis products so that only ignitable liquid components are seen.

- The introduction of taggants or chemical markers in ignitable liquids that will not be destroyed or altered by fire and will allow identification of the specific ignitable liquid and identify the manufacturer or brand of ignitable liquid.

- Instrumentation and/or software that will allow a probability match of ignitable liquids found at a scene to ignitable liquids in the possession of the suspect or from specific sources. DNA for fire debris analysis.

- Improved and low or no cost access to a database listing relevant scientific research (for fire debris and explosives analysis) which has been peer reviewed and published. The ability to obtain specific articles at low or no cost without the need to subscribe to the publication is also requested.

- Research into the source determination of explosive residue compounds found in a sample versus the same compounds inherent or produced in the scene. For example, could stable isotope ratio MS tell you if the nitrate anion found in a soil

sample has the same ratios as the nitrate anion from different sources. These may be the fertilizer previously added to the soil or the black powder in the possession of the suspect. Other instrumentation may work as well and could be used so long as there was a differentiation.

- Federal financial support to provide low or no cost portable instruments for on-scene testing (Ion Mobility Spectroscopy, portable Raman, portable FTIR, etc.).

- Research into alternate extraction technologies which would reduce the presence of background interferences (supercritical fluid extraction for example).

- A single comprehensive analytical technique for identifying any compound (organic or inorganic) extracted from explosive residue (Fourier Transform Ion Cyclotron Mass Spectroscopy was suggested as an existing technique which needs research).

- Research into the persistence of ignitable liquids on footwear or tracked by footwear onto different substrates.

- Research into the deterioration rates of various ignitable liquids based on variables such as time of exposure, temperature, air flow over the ignitable liquid, and the absorptive protection provided by various matrices.

- Video documentation of the investigation or analysis which could be used to show the jury exactly what was done by an investigator or analyst.

- Prepare and distribute testing kits that can be used to assess initially the identity of explosives or ignitable liquids at a scene.

- Determine the likelihood of determining DNA from evidence in a fire or bombing.

- Research into the differentiation of terpenes found inherent to natural wood versus those found in commercial solvent products.

- Research into the use of alternate light sources as tools to aid in determining the areas with ignitable liquids in fire scenes.

- RSP of HME's or PBE's. Not spray misting but actual RSP methods.

Question 91 asked the respondents to rank several research areas in terms of whether the research area would have "a significant impact on ignitable liquid or explosives analysis." The scale for ranking is 1 = "not likely," 3 = "is possible," 5 = "is probable," and 7 = "extremely likely." Table 20 lists the research area then indicates the percentage of respondents who selected a ranking of 5, 6, or 7.

Research Area	% Ranking "5"	% Ranking "6"	% Ranking "7"	Total of 5, 6, & 7
New Analytical Methods	28.70%	11.10%	30.60%	70.40%
New and Improved Databases	23.40%	16.20%	40.50%	80.10%
New Data Analysis Methodology	27.80%	7.40%	32.40%	67.60%
New Standards	24.10%	4.60%	24.10%	52.80%
Sample archiving practice/method	19.40%	8.70%	30.10%	58.20%

Table 20: Ranking the potential Impact of Areas of Research in Ignitable Liquid & Explosion Analysis

Once the totals for the rankings of 5, 6, or 7 are viewed, the respondents indicated that "New and Improved Databases" followed by "New Analytical Methods" and "New Data Analysis Methodology" are the areas "probable" to "most likely" to have an impact.

For 93.0% of the 115 respondents to **Question 92**, the need for additional research "in the area of explosives disposal/disruption" is clearly "yes." In **Question 94**, the ranking of "the importance of an analyst's knowledge of the fate and transport of explosives in the environment as related to forensic casework" was ranked at "7" or "urgent" by 36.9% of respondents and at "5" or "very important" by 26.2%. When asked about the push to lower detection limits in the analysis of explosives (**Question 95**), 64.5% of the respondents ranked the subject from "is very important" to "urgent."

In **Question 93**, the respondents were asked to indicate "the most significant improvement on the efficiency of useful sample collection at the fire and explosive scenes." The response with the highest percentage (36.3%) was "New field instrumentation/sensors to aid in sample selection." The second highest response (32.7%) indicated the need for "Training of sample collection personnel."

Question 96 is another free entry question that asked fire and explosives analysts to identify their greatest challenges. The list is below.

- Maintaining a turnaround time (from the submission of the samples to the issuing of a report) that is low enough to allow the report to be useful while the investigation is open, yet long enough to insure proper and adequate analysis and evaluation.

- Obtaining training and education at a professional level that is affordable to an agency with budget considerations and can be scheduled to avoid a hardship on the agency.

- Receiving adequate and appropriate comparison samples from the scene. This promotes being able to determine if the trace ignitable liquid in the sample was inherent to the matrix/scene or foreign to the scene (an accelerant).

- Budget restrictions to negate the ability to purchase equipment or hire more personnel. As a result, many of us are forced to use obsolete equipment.

- Inadequate staffing levels to meet the workload.

- Communication and cooperation between the investigators and analysts and from one agency to another. Roadblocks to sharing information with peers.

- Advising investigators of the best and worst areas for sample collection in the scene with a follow-up on proper and adequate packaging and preservation of the samples collected.

- References and a better understanding of pyrolysis products. A pyrolysis product database.

- Having the research, data, and references to allow a determination of the presence of an explosive though many of the post-blast residues are individually considered inherent to a scene or innocuous.

- Working with prosecutors to train them in our capabilities and more importantly, our limitations. Keeping open dialogue with prosecutors or other attorneys so they fully understand what you can and cannot say when on the stand. Encouraging pleas when appropriate and pursuing prosecutions when justified.

- Having access to ignitable liquid reference standards. Knowing about new petrochemical products that could be used as accelerants. Open communications with the petrochemical industry.

- Not being able to make probability match comparisons between samples from a scene and a suspect with the same level of certainty as DNA analysts.

- Awareness and familiarity with NFPA 921 so that it does not become a tool to attack the work that you did, but rather a source to show that you were objective.

- Inadequate funding for research into fire and explosion dynamics as well as analytical methods and instruments.

- How to assess the reputation and objectivity of experts brought in to conduct an investigation or analysis.

- Proper scene security and preservation until the public investigator can conduct his investigation. Timeliness of transferring the scene from public to private investigation.

- Awareness and training in new legal issues which affect the investigation, analysis, and testimony.

- Availability of forensic engineers to public agencies for investigation of electrical fires.

- Raising the forensic and scientific awareness and training of investigative personnel. Teaching the “scientific method” as applied to investigations.

- Raising the national standards on bomb squads to ensure that only properly trained and adequately equipped squads are working.

- Greater understanding and information on the identification of peroxide based explosives.

- Greater understanding and awareness of trends and procedures in homemade explosives and improvised devices. Staying one step ahead of the bomb makers.

- Understanding and support by those outside of the agency or laboratory that may not be knowledgeable about the particulars of your job. Getting administrators and politicians to not attempt to micro-manage areas outside of their expertise. Getting them to treat and trust the agency/laboratory representative as then subject matter expert and avoid second guessing them.

Question 97, "What area(s) of your investigation analysis is (are) most frequently challenged in court?", asked respondents to list up to three (3) items. The varied answers required considerable review and consolidation. The following table represents not only the consolidation but also a sorting of the frequency of similar responses as interpreted by the Needs Assessment Committee. The most common responses are listed first:

Expertise/Qualifications - Including accreditation and/or personal Certification(s)

- Origin and Cause (i.e., elimination of all other potential causes).
- Selection, Collection and packaging of the evidence.
- Choice of analytical methodology/Quality of the analysis.
- Identification of a suspect/motive/intent.
- Chain of Custody.
- Significance and relevance of findings or results.
- Interpretation of laboratory data and formulation of results for report (GC-MS or other instrumental data).
- Education and training received (i.e., type, amount, and relevance).
- Documentation of the scene.
- Assessing the potential for contamination of the sample.
- Connecting the suspect and the evidence.
- Where the ignitable liquid originally came from.
- Knowledge of NFPA 921.
- General Expertise in the field.
- Bias for employer/client.
- Consideration of the contribution from pyrolysis/matrices.
- Hesitance of prosecutor to proceed to trial.
- Use and significance of a canine.
- Completeness/quality of written report.
- Spoliation.
- Determining the explosive potential of devices.
- How long the ignitable liquid was there before the fire.
- Ability to compare recovered ignitable liquids.
- Determination of the source of ignition.
- How the type of explosive was determined.
- Possible electrical causes.
- Overall investigative process.
- Quantification of the amount of ignitable liquid found or used.
- Gunshot residue analysis.
- Engineers.
- Initial and over all assessment of scene.

The significance of Daubert/Frye standards when introducing a new analytical method, technique, or instrument into a laboratory was ranked by respondents on a scale of 1 = "not at all," 3 = "fairly important," 5 = "very important," and 7 = "urgent" in **Question 98**. The majority (26.2%) ranked the issue as 5, "very important." The second highest percentage of respondents (21.5%) ranked this issue at 7, "urgent." The third highest percentage (15%) ranked the issue at 6 which would be between "very important" and "urgent." If we total the percentage of responses ranking this issue above 5 or "very important," the total is 62.7% and the significance is clearly seen.

Question 99 asked respondents if the creation of a "new practices" review panel comprised of academic and practicing forensic scientists would facilitate the implementation of new methods in the view of the courts. The majority of respondents were ambivalent on this issue as 56.3% responded "possibly." It must be noted however that a full 38.1% of respondents answered a definitive "yes" and only 5.6%a definitive "no."

The last query, **Question 100**, asked if laboratory analysts are interested in collaborating with university researchers to implement new and/or field methods. Again the majority of respondents (46.6%) answered "possibly. This time however, 23.3% answered "no" and 30.2% answered "yes."

The above synopses lists and tables were assembled in an attempt to clarify how the Needs Assessment Committee viewed the results. Even among committee members there may be disagreement as to the significance or interpretation of the data. The reader is urged to review the full survey results included in the attached appendix.

Please be aware that additional or differing opinions concerning the results of the survey are possible. The opinions contained herein were developed by consensus by the Needs Assessment Committee members and representatives of T/SWGFEX.

Appendix C. Tables of Survey Questions

Their Relationships to Planning Sub-Committees

Q #	Analytical Methods Fire Debris	Analytical Methods Explosives	Technology Fire Debris	Technology Explosives	Training for Fire Debris	Training for Explosives	General and Demographics
A	Demographics and General Questions						
1							
2							
3							
4							
5							
6							
B	Professional Development						
7							
8							
9							
10							
11							
12							
13							
14							
15							
C	Fire Debris Analysis Casework						
16							
D	Fire Debris Analysis Analytical Methods						
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
E	Fire Debris Analysis Data Interpretation						
29							
30							
31							
32							

Table C1: Questions 1 To 32 And Their Relationship To Planning Sub-Committees

Q #	Analytical Methods Fire Debris	Analytical Methods Explosives	Technology Fire Debris	Technology Explosives	Training for Fire Debris	Training for Explosives	General and Demographics
F	**Explosives Analysis Casework**						
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
G	**Explosives Analytical Methods**						
49							
50							
51							
52							
53							
H	**Explosives Data Interpretation**						
54							
55							
56							
57							
I	**Fire Scene Investigation**						
58							
59							
60							
61							
62							
63							
64							
65							
66							
67							
68							
69							

Table C2: Questions 33 To 69 And Their Relationship To Planning Sub-Committees

Q #	Analytical Methods Fire Debris	Analytical Methods Explosives	Technology Fire Debris	Technology Explosives	Training for Fire Debris	Training for Explosives	General and Demographics
J	**Explosives Scene Investigation**						
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							
80							
81							
82							
83							
84							
85							
86							
87							
88							
89							
K	**Laboratory Research Topics**						
90							
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							

Table C3: Questions 70 To 100 And Their Relationship To Planning Sub-Committees

Appendix D. Vista ™ Survey Results and Survey (see following pages)

Survey Results
& Analysis

for

Survey of Forensic Laboratories and Scene Investigation

Account: NCFS

Monday, September 17, 2007 10:09:46 AM

Vista™ Survey System

Introduction

This report contains a detailed statistical analysis of the results to your survey named *Survey of Forensic Laboratories and Scene Investigation*. The results analysis includes answers from all respondents who took your survey in the 94 day period from Wednesday, June 13, 2007 to Friday, September 14, 2007 inclusive.

Report Contents

This report is divided into four sections:

1. Introduction
2. Results Analysis
3. Questionnaire
4. Notes

The **Introduction** (this section) contains an overview of the report structure.

The **Results Analysis** section contains a summary and statistical analysis of the results to each question in your survey.

The **Questionnaire** section lists all questions in your survey's questionnaire. This is provided as a reference to help you interpret the Results Analysis.

The **Notes** sections contains definitions of key terms and tips on how to interpret your results.

Confidence Intervals

Wherever possible, results are presented with an indication of the results accuracy. Usually this is presented in the form of a confidence interval. It is important when reviewing survey results to make sure that any action you plan is based only on statistically significant results.

Correlation Analysis

In preparing the results analysis, the report generator has examined all questions in pairs to see if there are any correlations between answers. Whenever a significant correlation is found, it is noted. This information can be valuable in determining what demographic or experience characteristics tend to drive key measures such as overall satisfaction.

Results Analysis

Survey name:	Survey of Forensic Laboratories and Scene Investigation
Start date:	Wednesday, June 13, 2007
End date:	Friday, September 14, 2007
Number of respondents:	407

Filter:
Include all respondent's answers.

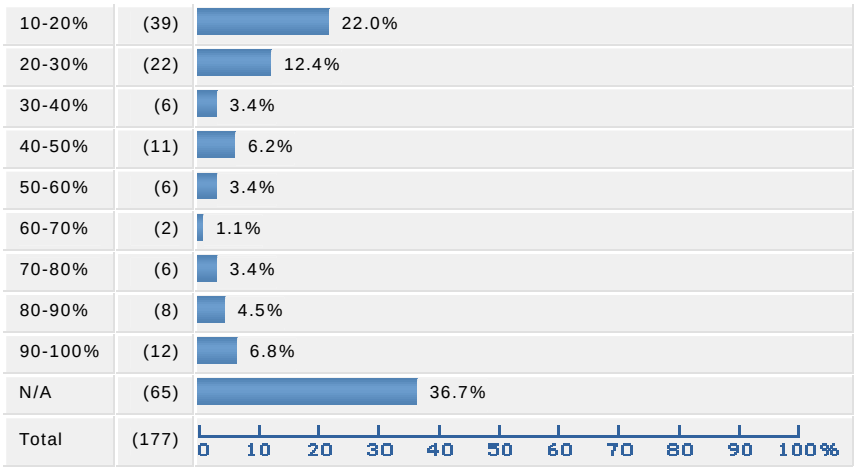
i) Because this survey is posted in a variety of locations, we ask that you fill and submit only one version. We also ask that you only complete answers to those questions that pertain to you. If a question does not pertain to the work you performed in 2006, please leave it blank.

1) **Part A. Demographics and General Questions**

Indicate the type of work you do and assign a percentage of time in that activity (if you perform in multiple areas please indicate):

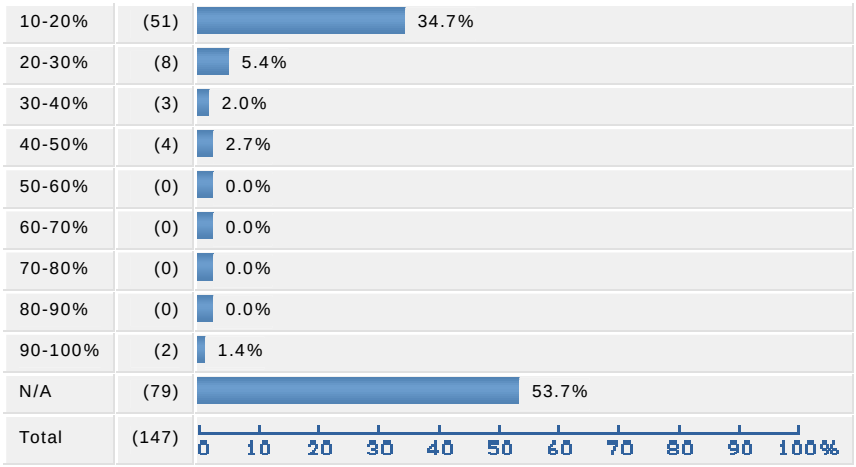
Job Title / Percentage of Time

1a) Fire Debris Analyst



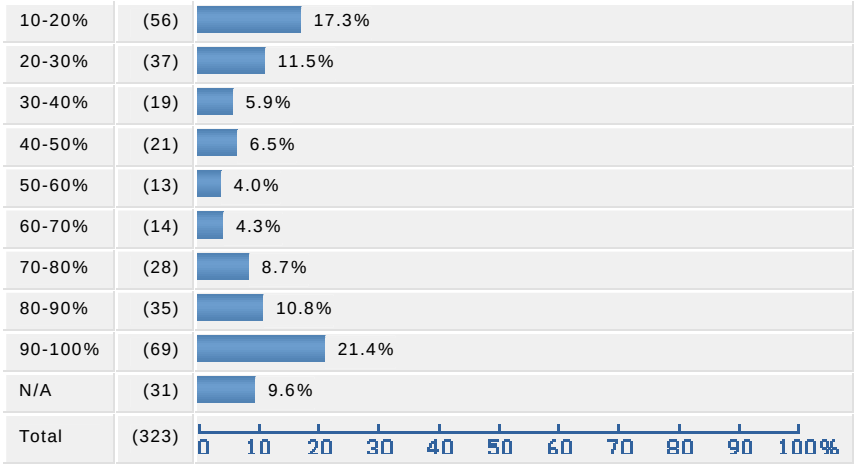
An answer to this question is not required and 230 of 407 respondents chose not to answer.

1b) Explosive Debris Analyst



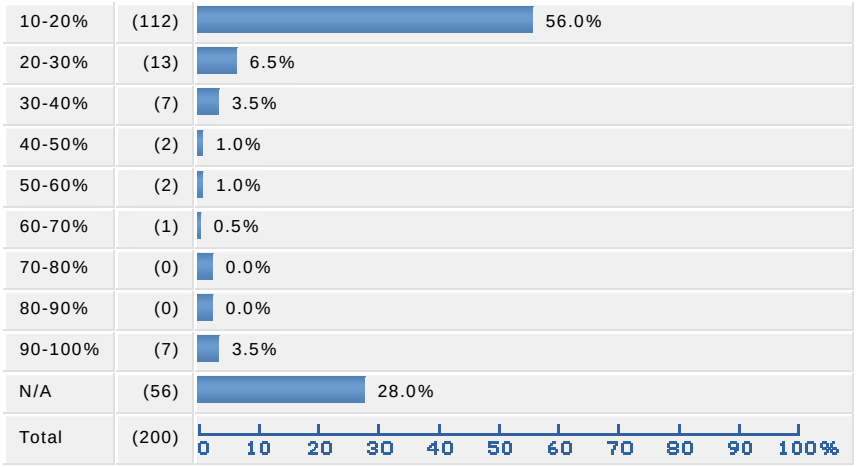
An answer to this question is not required and 260 of 407 respondents chose not to answer.

1c) Fire Scene Investigation



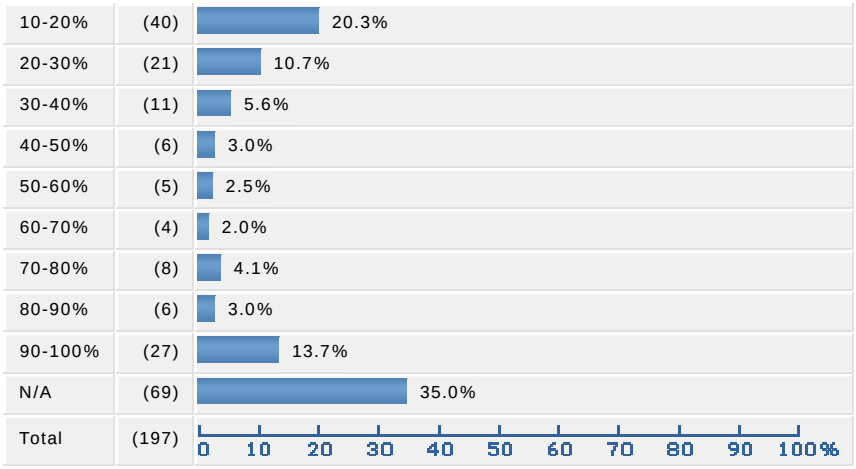
An answer to this question is not required and 84 of 407 respondents chose not to answer.

1d) Explosives (Post Blast) Investigation



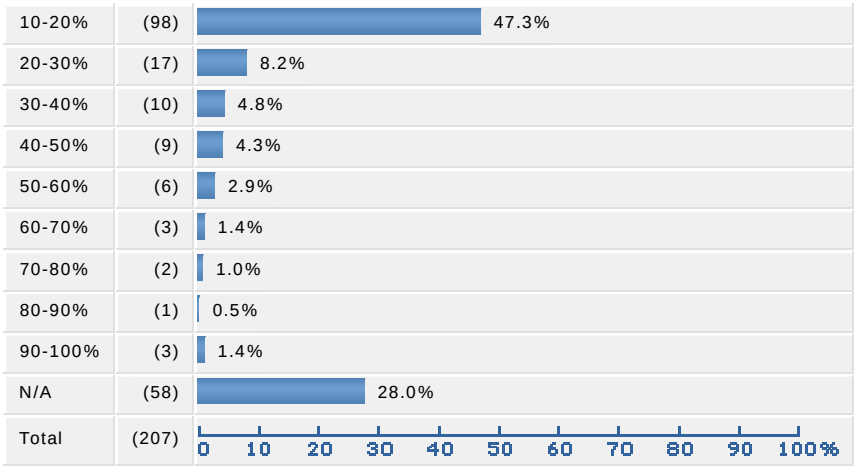
An answer to this question is not required and 207 of 407 respondents chose not to answer.

1e) Supervisor/Administrator for either Laboratory Analyses or Scene Investigations



An answer to this question is not required and 210 of 407 respondents chose not to answer.

1f) Academic/Teaching



An answer to this question is not required and 200 of 407 respondents chose not to answer.

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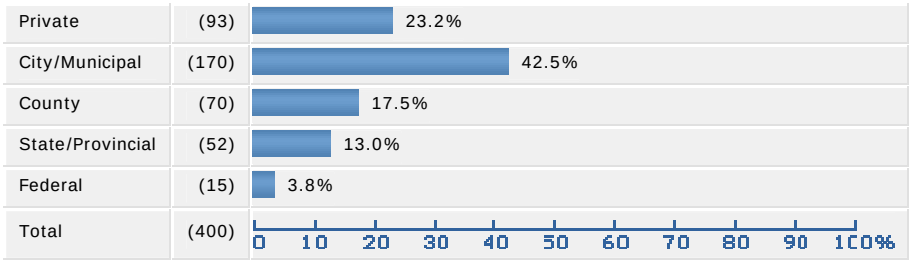
2) Indicate the type of organization for which you work (check one):



An answer to this question is not required and 7 of 407 respondents chose not to answer.

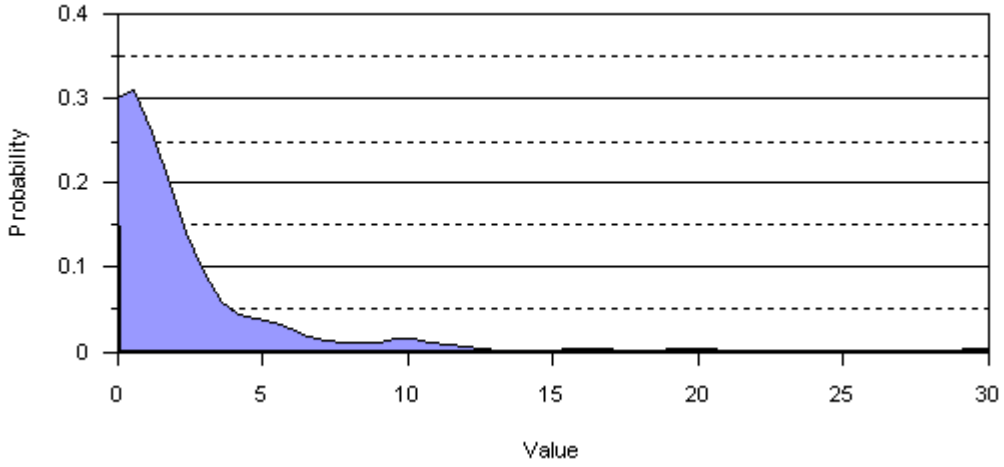
---

3) List the number of all employees (including you) in your laboratory or unit involved in fire debris or explosives analysis, scene investigation, and/or reporting for each of the following categories:

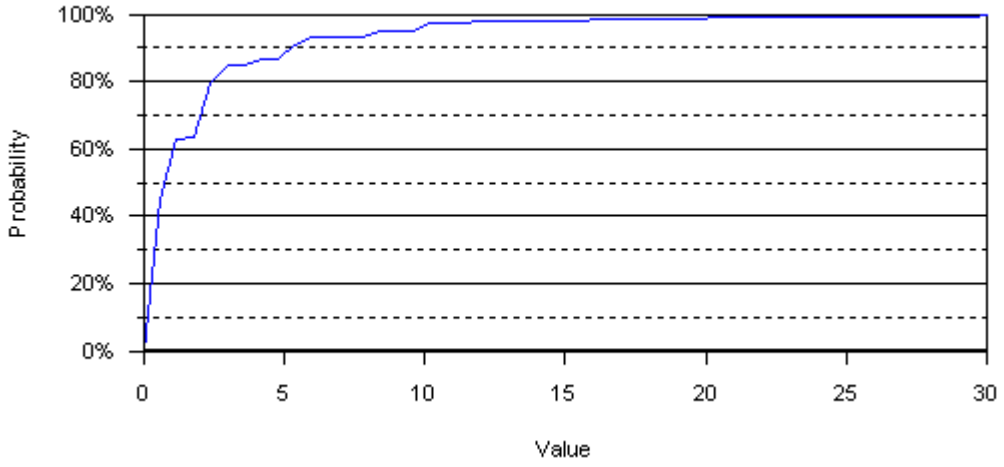
Position / Number of Employees

3a) Analyst /Scientist

Probability Density Function



Cumulative Distribution

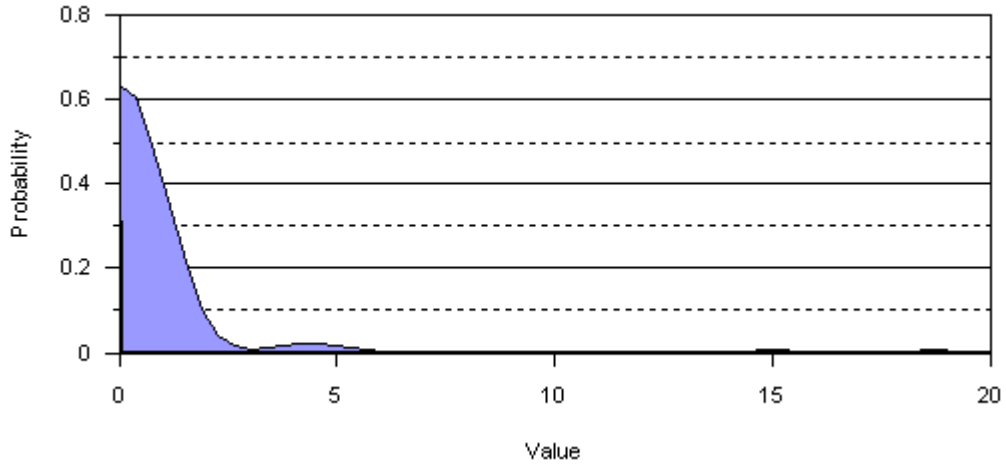


Average:	2.00
Standard Deviation:	3.81
Minimum:	0.00
Maximum:	30.00

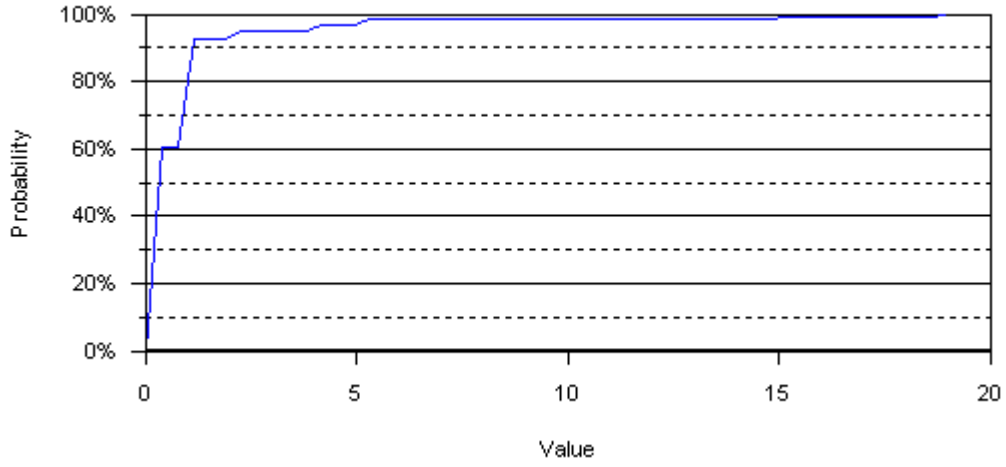
An answer to this question is not required and 257 of 407 respondents chose not to answer.

3b) Lab. Supervisor/Manager

Probability Density Function



Cumulative Distribution

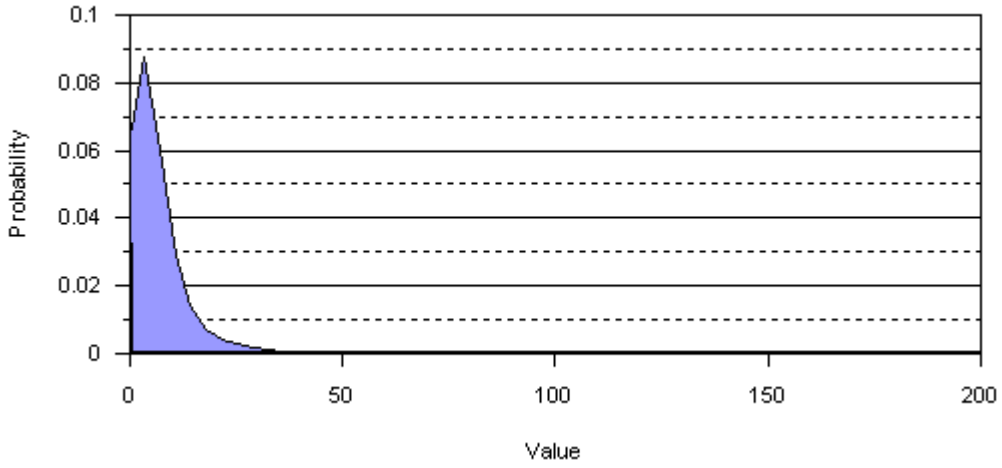


Average:	0.80
Standard Deviation:	2.30
Minimum:	0.00
Maximum:	19.00

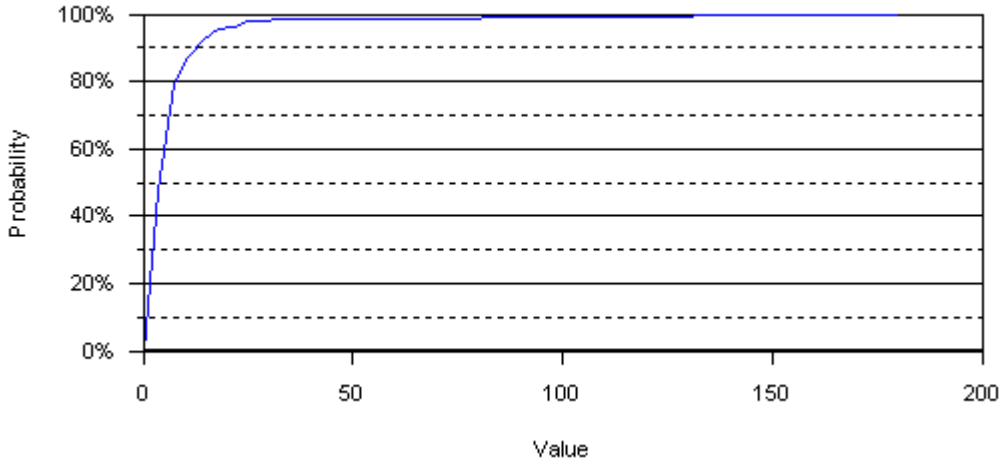
An answer to this question is not required and 285 of 407 respondents chose not to answer.

3c) Scene Investigator/EOD

Probability Density Function



Cumulative Distribution

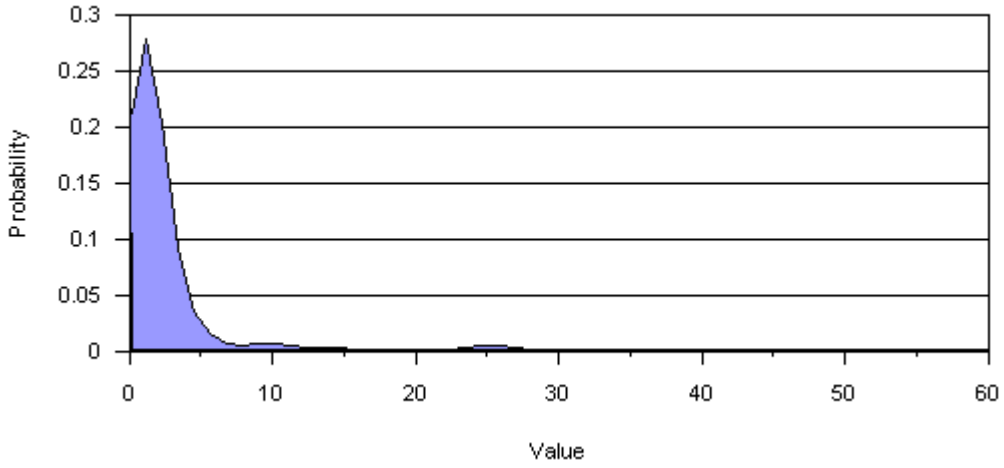


Average:	6.62
Standard Deviation:	15.04
Minimum:	0.00
Maximum:	180.00

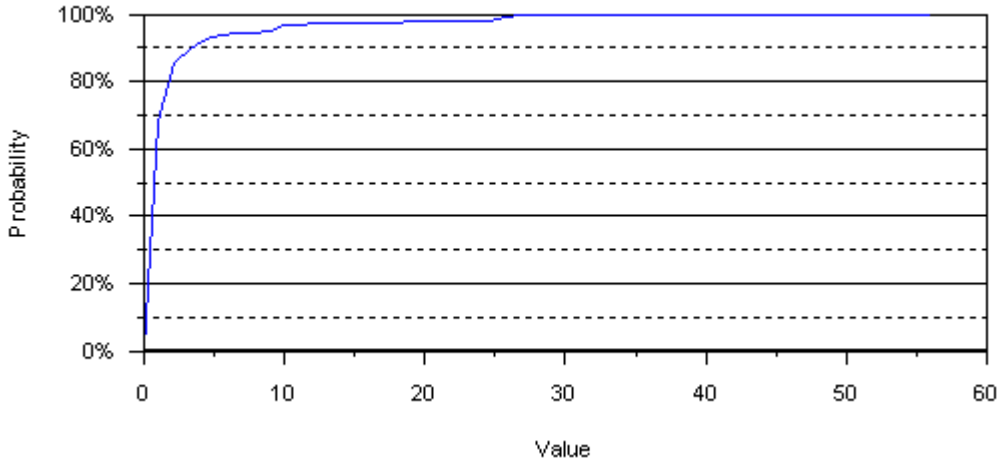
An answer to this question is not required and 83 of 407 respondents chose not to answer.

3d) Scene/EOD Supervisor

Probability Density Function



Cumulative Distribution



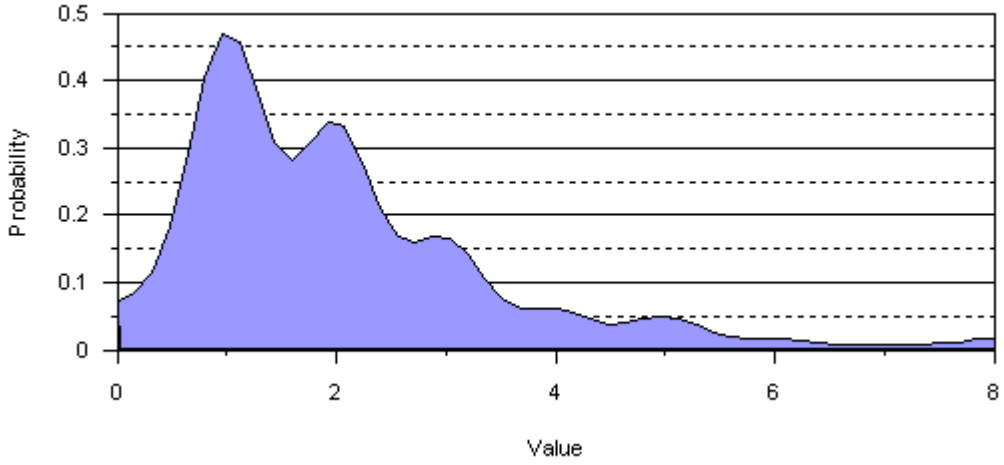
Average:	2.28
Standard Deviation:	5.27
Minimum:	0.00
Maximum:	56.00

An answer to this question is not required and 204 of 407 respondents chose not to answer.

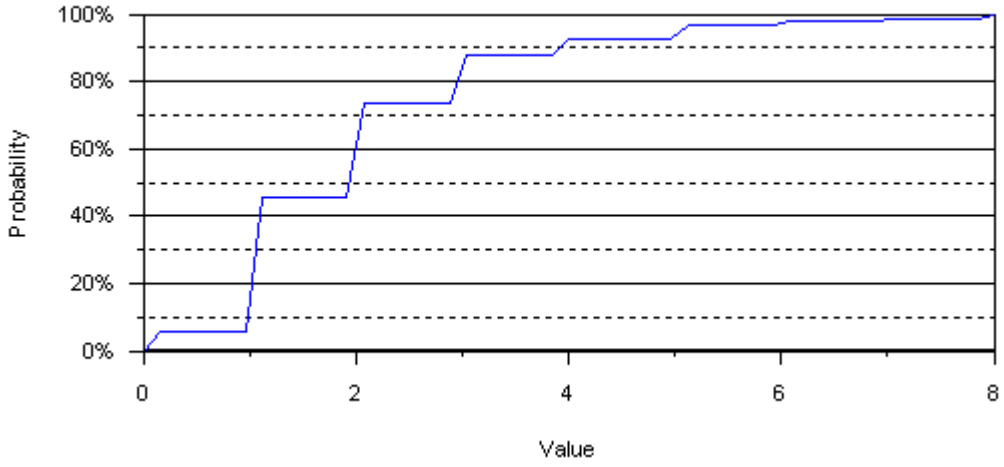
4) Years of Experience in this field / Number of employees

4a) 0-2

Probability Density Function



Cumulative Distribution

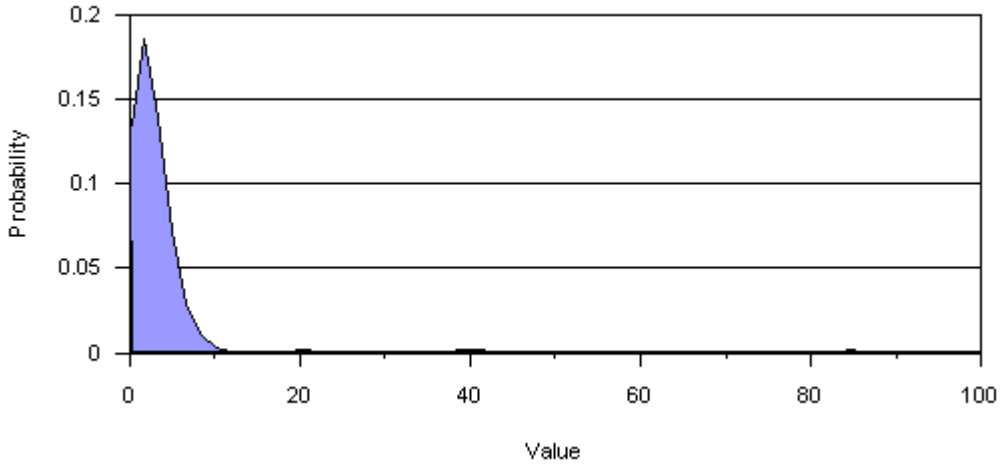


Average:	2.02
Standard Deviation:	1.49
Minimum:	0.00
Maximum:	8.00

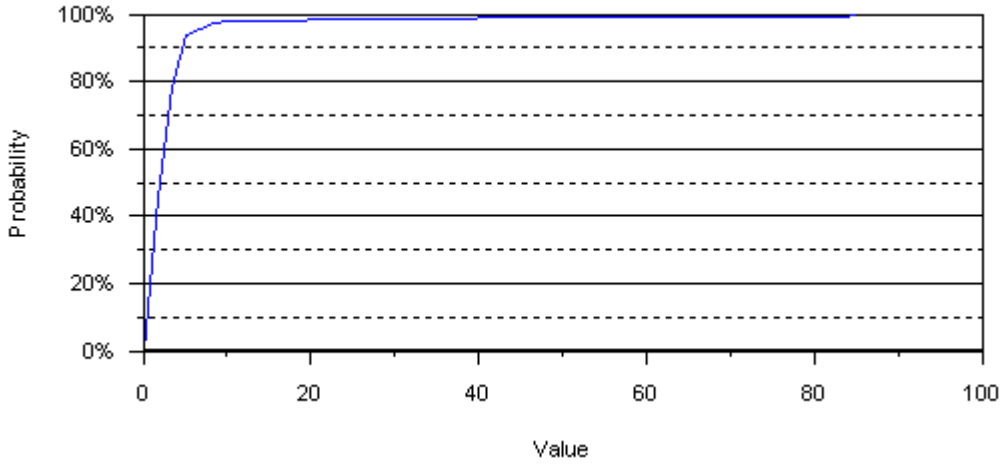
An answer to this question is not required and 262 of 407 respondents chose not to answer.

4b) 2-5

Probability Density Function



Cumulative Distribution

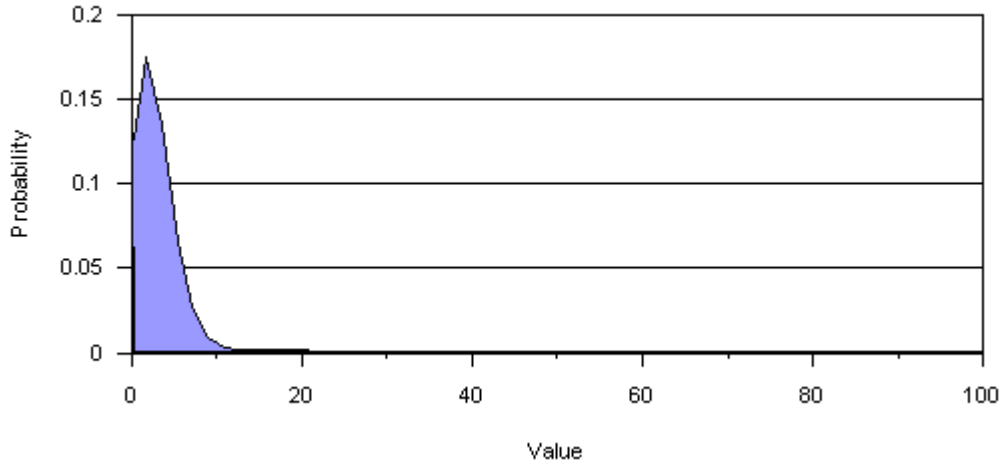


Average:	3.07
Standard Deviation:	7.50
Minimum:	0.00
Maximum:	85.00

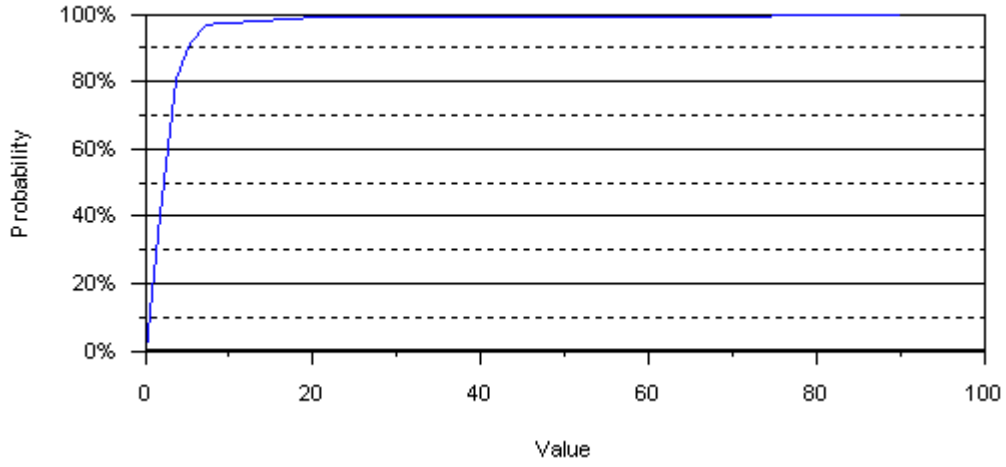
An answer to this question is not required and 247 of 407 respondents chose not to answer.

4c) 5-10

Probability Density Function



Cumulative Distribution

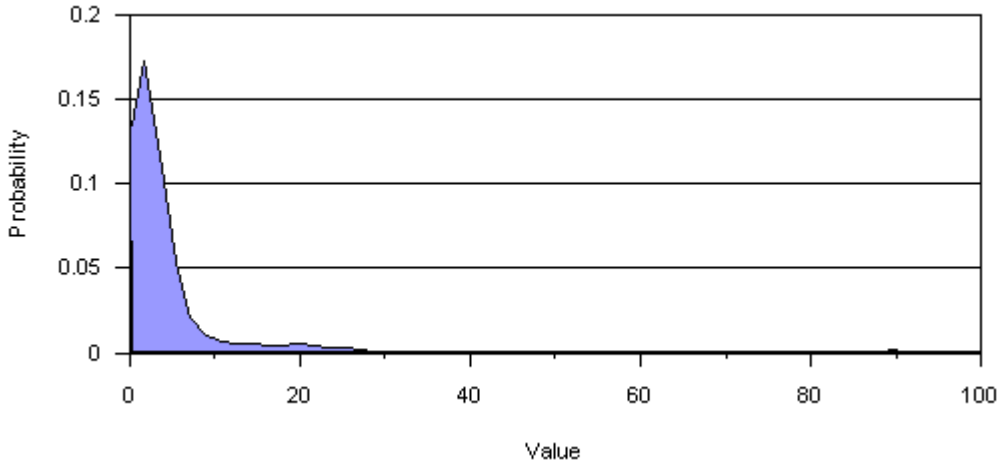


Average:	3.27
Standard Deviation:	8.42
Minimum:	0.00
Maximum:	90.00

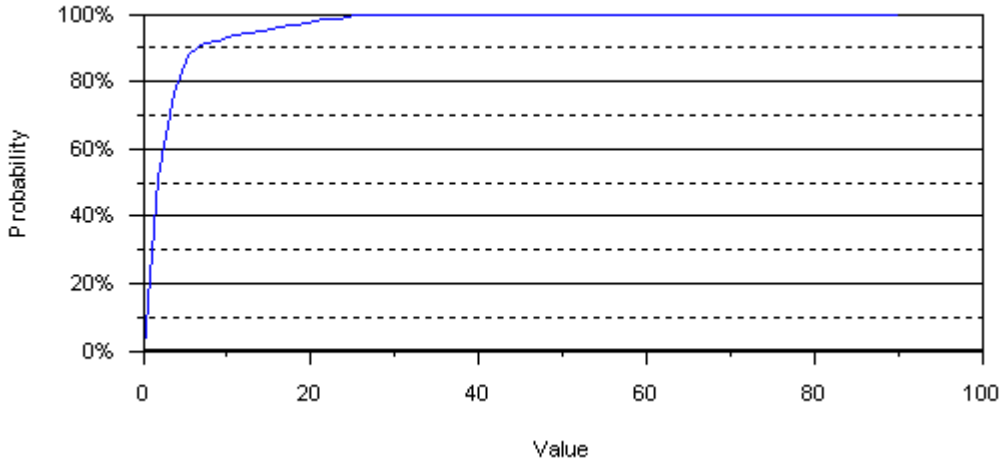
An answer to this question is not required and 211 of 407 respondents chose not to answer.

4d) 10-15

Probability Density Function



Cumulative Distribution

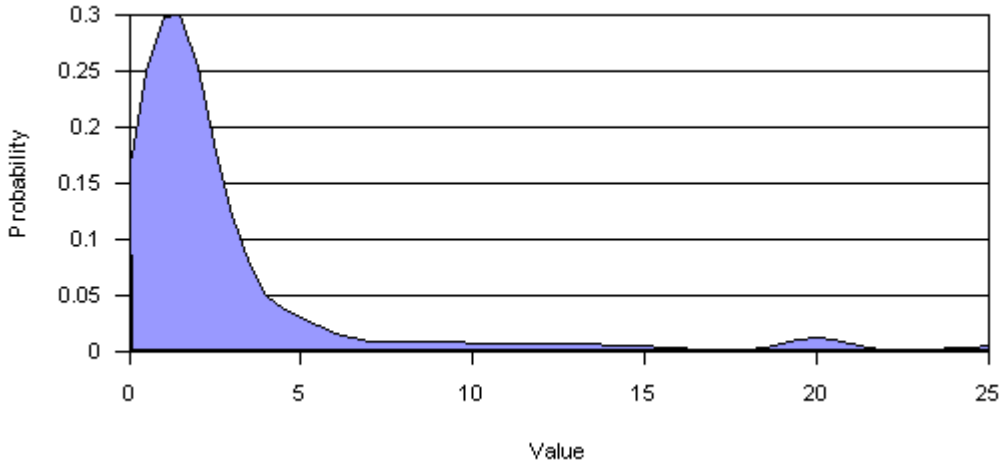


Average:	3.61
Standard Deviation:	7.99
Minimum:	0.00
Maximum:	90.00

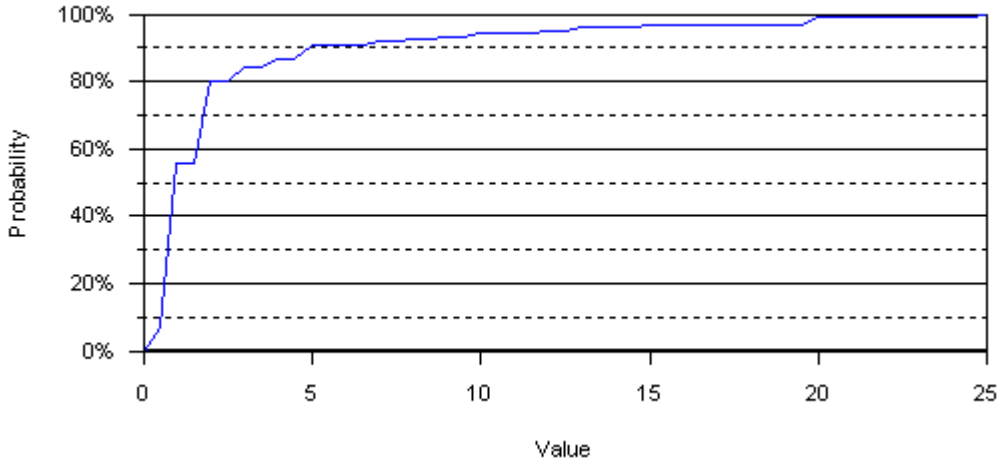
An answer to this question is not required and 238 of 407 respondents chose not to answer.

4e) 20-25

Probability Density Function



Cumulative Distribution

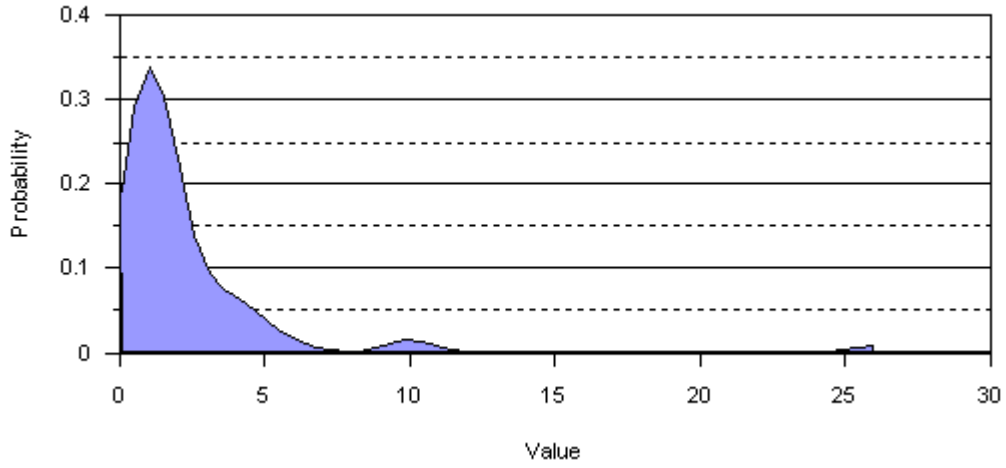


Average:	2.73
Standard Deviation:	4.24
Minimum:	0.00
Maximum:	25.00

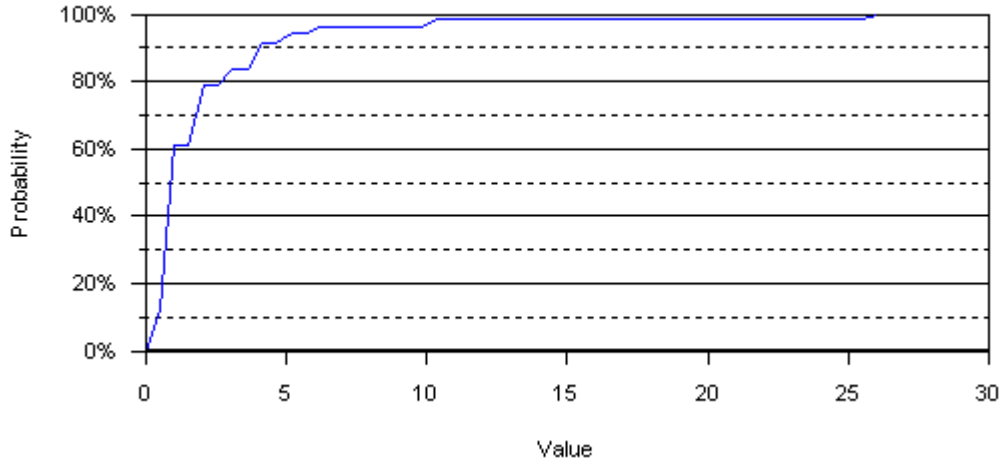
An answer to this question is not required and 286 of 407 respondents chose not to answer.

4f) 25-30

Probability Density Function



Cumulative Distribution

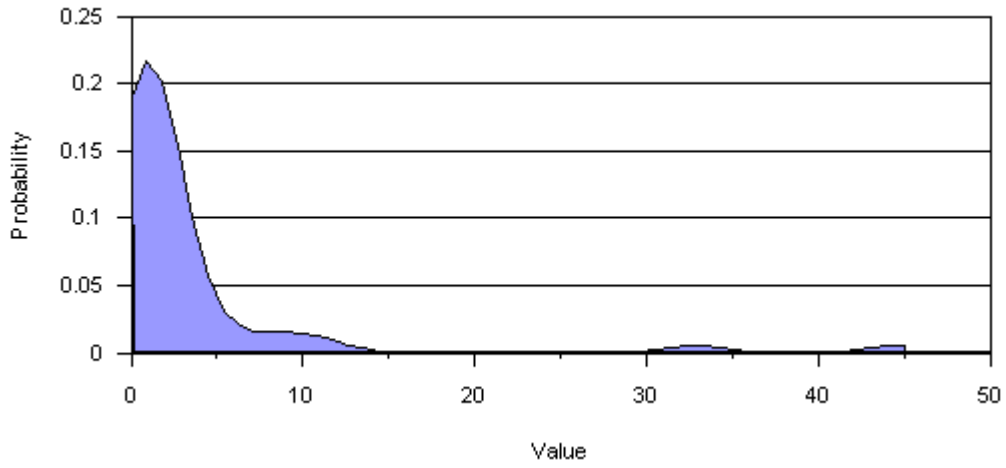


Average:	2.17
Standard Deviation:	3.43
Minimum:	0.00
Maximum:	26.00

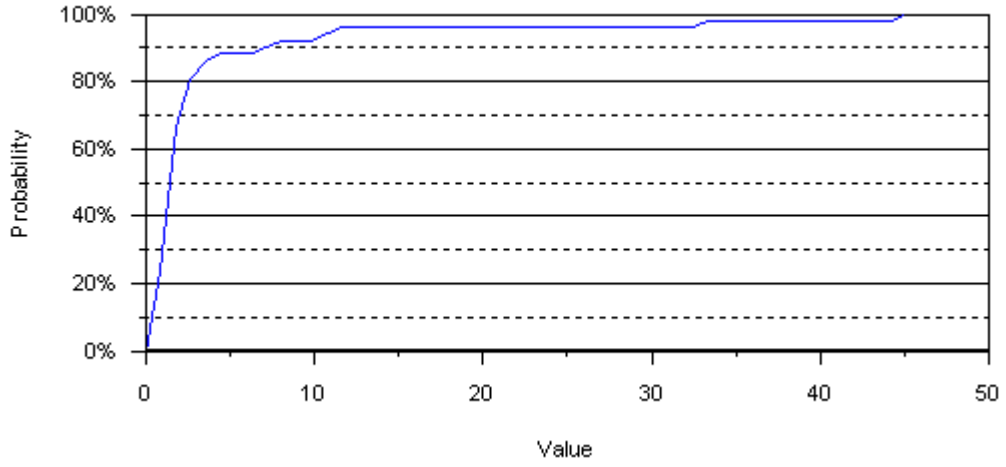
An answer to this question is not required and 335 of 407 respondents chose not to answer.

4g) >30

Probability Density Function



Cumulative Distribution



Average:	3.20
Standard Deviation:	7.77
Minimum:	0.00
Maximum:	45.00

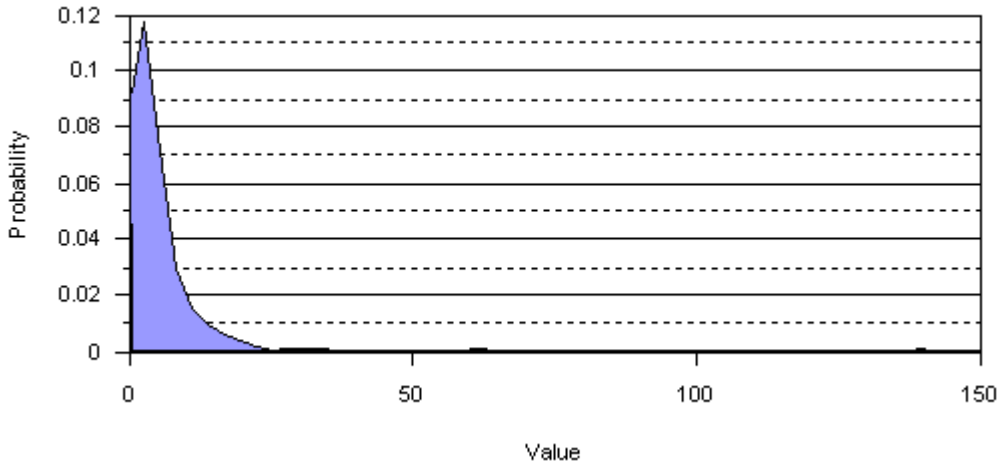
An answer to this question is not required and 356 of 407 respondents chose not to answer.

5) List the number of all employees (including you) in your laboratory or unit involved in fire debris or explosives analysis, scene investigation, and/or reporting for each of the following categories:

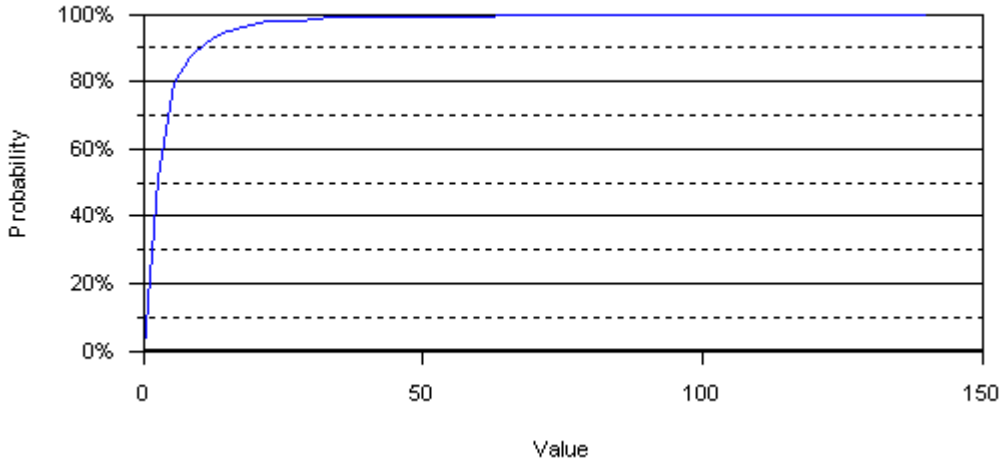
Highest Education attained by each employee / Number of Employees:

5a) High School

Probability Density Function



Cumulative Distribution



Average:	5.01
Standard Deviation:	11.72
Minimum:	0.00
Maximum:	140.00

An answer to this question is not required and 216 of 407 respondents chose not to answer.

5b) 2-3 year degree / diploma

- X
- 1
- 1
- 2
- 10
- 2
- 6
- 1
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- 4
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- 3
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- 8
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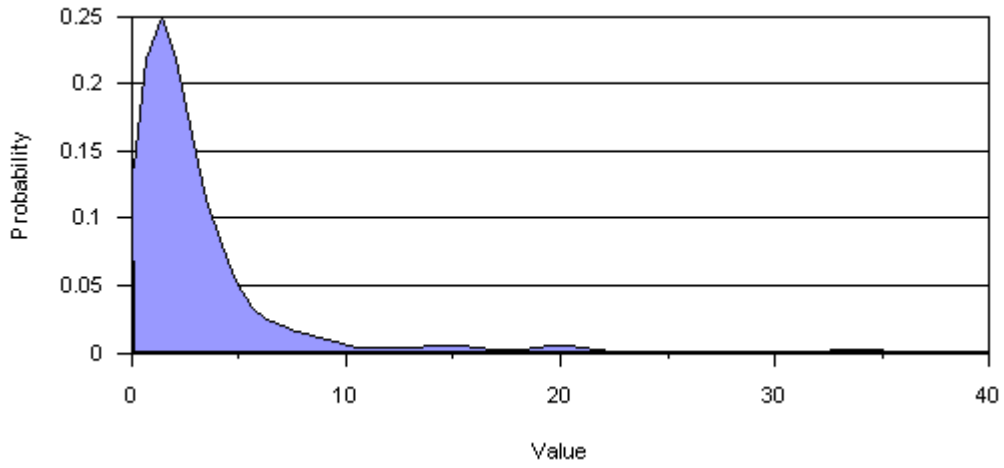
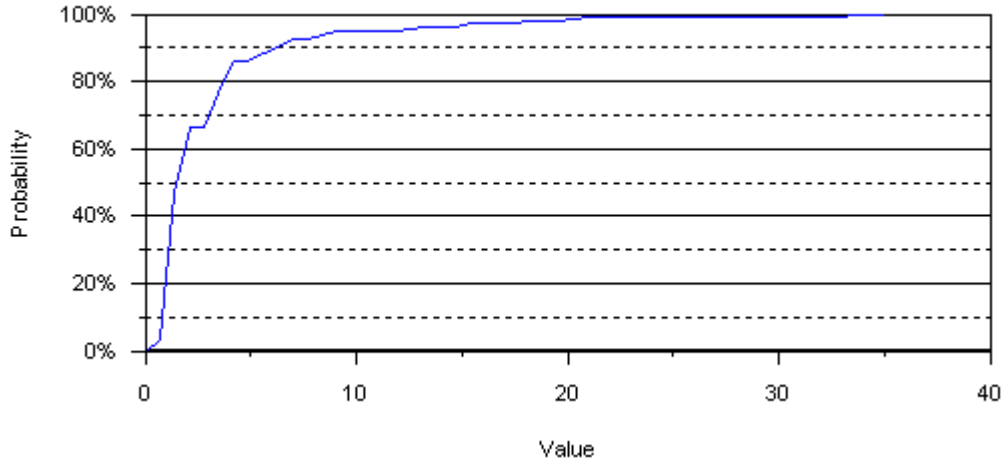
An answer to this question is not required and 199 of 407 respondents chose not to answer.

5c) 4 year BA or BS or BSc

Probability Density Function



Cumulative Distribution

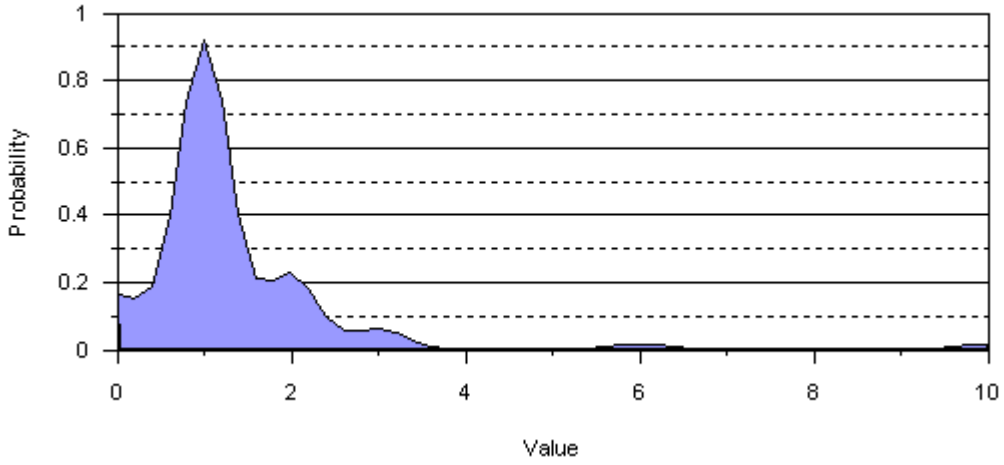


Average:	3.09
Standard Deviation:	4.46
Minimum:	0.00
Maximum:	35.00

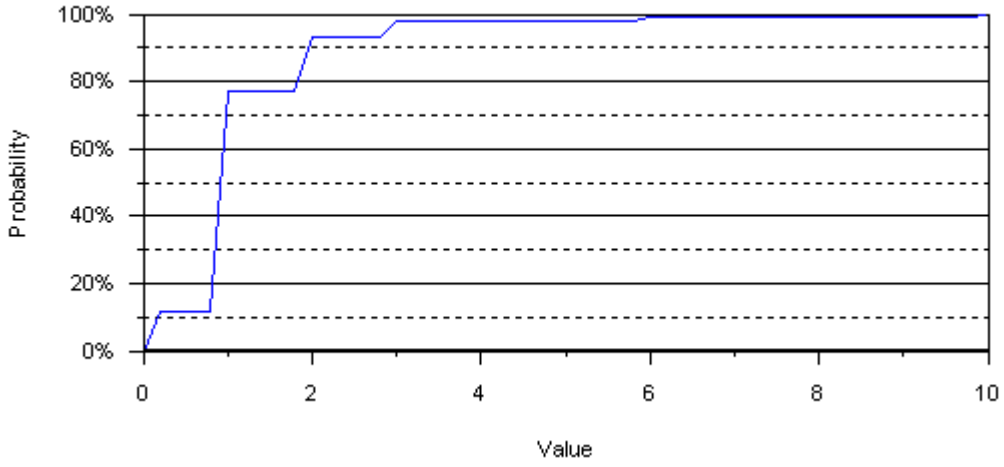
An answer to this question is not required and 179 of 407 respondents chose not to answer.

5d) Master's degree

Probability Density Function



Cumulative Distribution

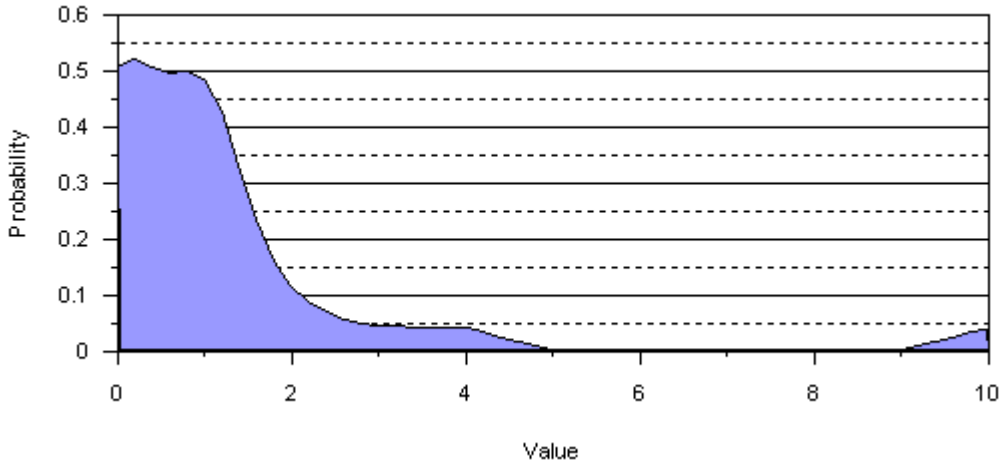


Average:	1.30
Standard Deviation:	1.27
Minimum:	0.00
Maximum:	10.00

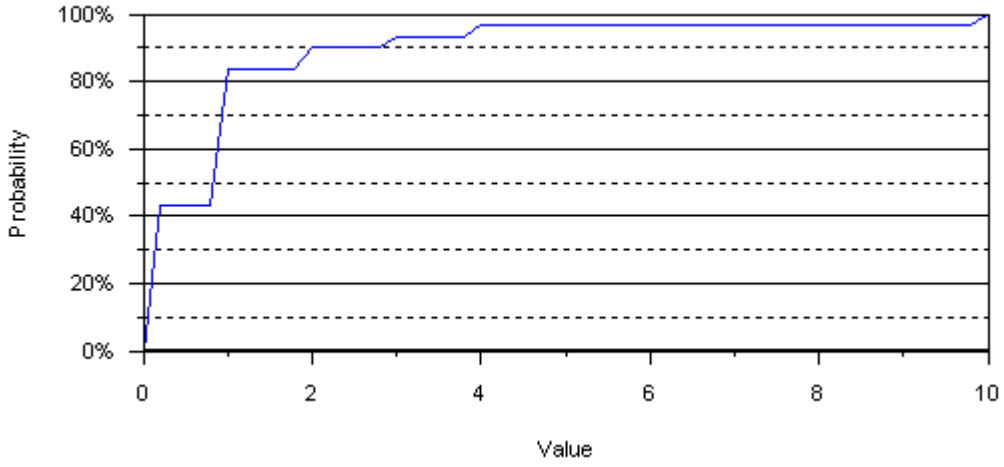
An answer to this question is not required and 320 of 407 respondents chose not to answer.

5e) PhD

Probability Density Function



Cumulative Distribution



Average:	1.10
Standard Deviation:	1.94
Minimum:	0.00
Maximum:	10.00

An answer to this question is not required and 377 of 407 respondents chose not to answer.

6) Indicate the number of times you testified in court in 2006

1-5	(256)	80.0%
6-10	(35)	10.9%
11-15	(13)	4.1%
16-20	(4)	1.2%
21-30	(5)	1.6%

31-40	(3)	0.9%
41-50	(1)	0.3%
>50	(3)	0.9%
Total	(320)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 87 of 407 respondents chose not to answer.

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ii) **Part B. Professional Development (Check an answer only on those questions which apply to you)**

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7) Which, if any, of the following professional development activities will your laboratory or agency pay (in part or in full) for employees to attend (check all that apply):

local/state/regional professional association meeting	(312)	80.0%
conference, seminar, or symposium held within the state/province	(339)	86.9%
conference, seminar, or symposium held outside the state/province	(244)	62.6%
conference, seminar, or symposium held outside home country	(48)	12.3%
seminar or course held off-site	(273)	70.0%
seminar or course held on-site	(234)	60.0%
classes held a local university	(203)	52.1%
on-line classes from an accredited university	(164)	42.1%
employer does not offer to pay for courses, seminars, or for conference/symposium attendance	(24)	6.2%
Total	(390)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 17 of 407 respondents chose not to answer.

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8) On average, in 2006 what level of funding support did your agency provide for your continuing education/training/professional development? (This includes tuition, registration, travel, lodging, meals, and incidentals.)

No funding provided	(33)	8.8%
$1 to $500	(63)	16.8%
$501 to $1000	(69)	18.4%
$1001 to $1500	(38)	10.1%
$1501 to $2000	(49)	13.1%
$2001 to $2500	(33)	8.8%
$2501 to $3000	(27)	7.2%
$3001 to $4000	(20)	5.3%
$4001 to $5000	(11)	2.9%
>$5000	(32)	8.5%
Total	(375)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 32 of 407 respondents chose not to answer.

---

9) Rate your level of interest (along the following scale) in attending college level courses if: (1-7 where: 1 = Never, 4 = Likely, 7 = Absolutely)

9a) You had to pay 100% of the costs

1	(121)	33.5%
2	(76)	21.1%
3	(39)	10.8%
4	(59)	16.3%
5	(23)	6.4%
6	(7)	1.9%
7	(36)	10.0%
Total	(361)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 46 of 407 respondents chose not to answer.

9b) You had to pay 75% of the costs

1	(92)	26.7%
2	(61)	17.7%
3	(58)	16.9%
4	(68)	19.8%
5	(25)	7.3%
6	(15)	4.4%
7	(25)	7.3%
Total	(344)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 63 of 407 respondents chose not to answer.

9c) You had to pay 50% of the costs

1	(68)	19.4%
2	(29)	8.3%
3	(46)	13.1%
4	(96)	27.4%
5	(56)	16.0%
6	(25)	7.1%
7	(31)	8.8%
Total	(351)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 56 of 407 respondents chose not to answer.

9d) You had to pay 25% of the costs

1	(45)	12.9%
2	(11)	3.2%
3	(16)	4.6%
4	(63)	18.1%
5	(63)	18.1%
6	(79)	22.7%
7	(71)	20.4%
Total	(348)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 59 of 407 respondents chose not to answer.

9e) You had to pay 0% of the costs

1	(21)	5.9%
2	(1)	0.3%
3	(7)	2.0%
4	(11)	3.1%
5	(12)	3.4%
6	(22)	6.2%
7	(282)	79.2%
Total	(356)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 51 of 407 respondents chose not to answer.

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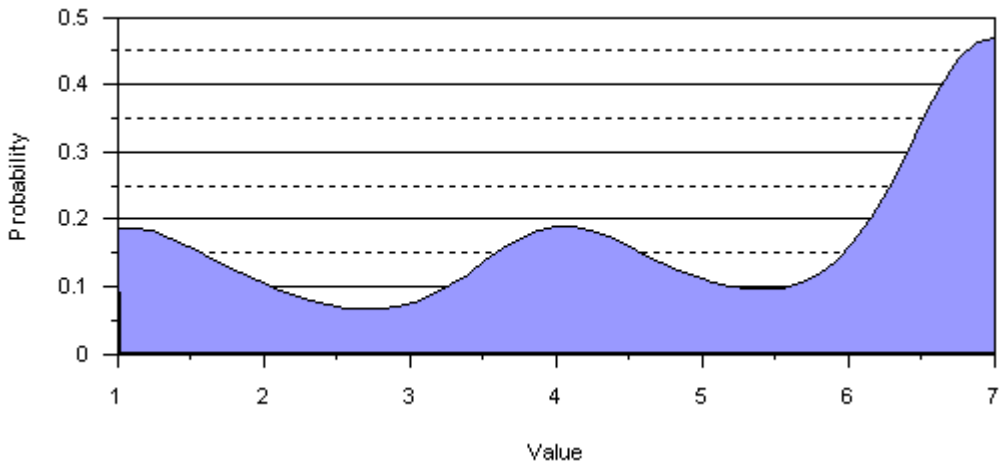
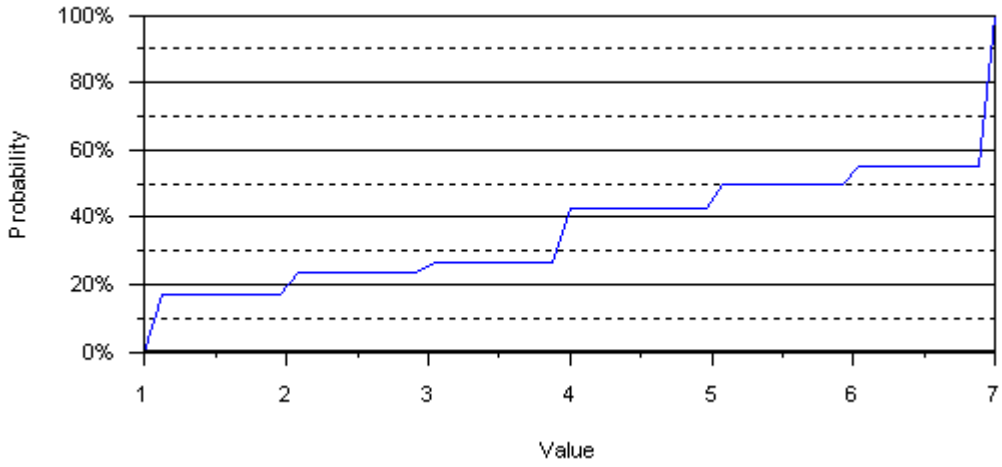
10) Rate how interested you would be in taking each of the following types of continuing education courses: (1-7 where: 1 = Never, 4 = Likely, 7 = Absolutely)

10a) EOD Range Time (Training with EOD personnel)

Probability Density Function



Cumulative Distribution

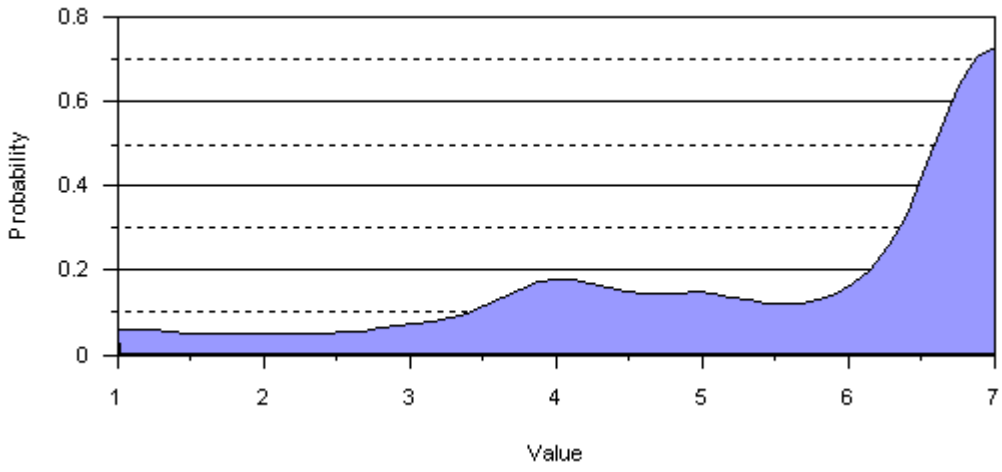


Average:	4.86
Standard Deviation:	2.33
Minimum:	1.00
Maximum:	7.00

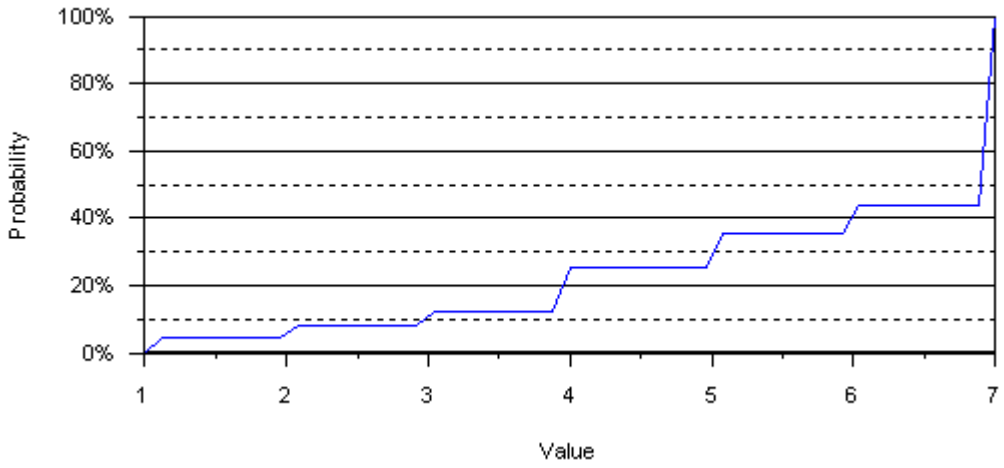
An answer to this question is not required and 52 of 407 respondents chose not to answer.

10b) Fire Scene Evidence Collection, Preservation, and Packaging

Probability Density Function



Cumulative Distribution

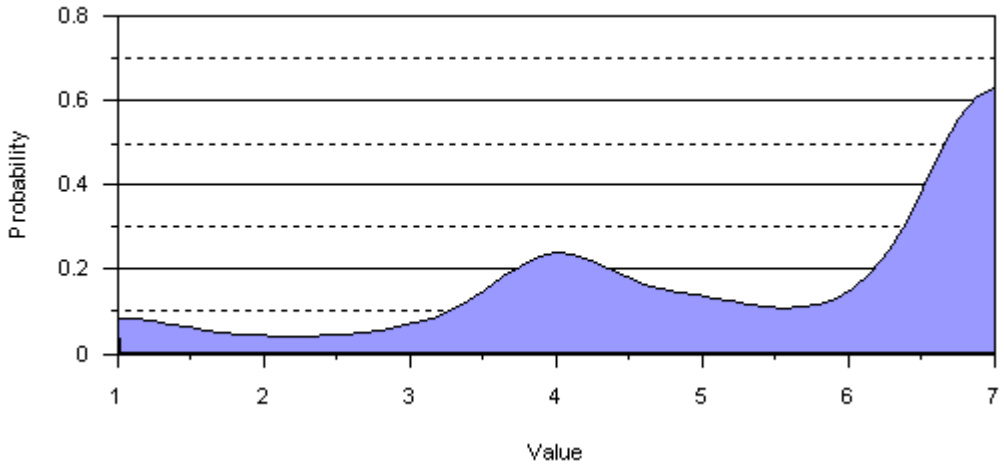


Average:	5.70
Standard Deviation:	1.78
Minimum:	1.00
Maximum:	7.00

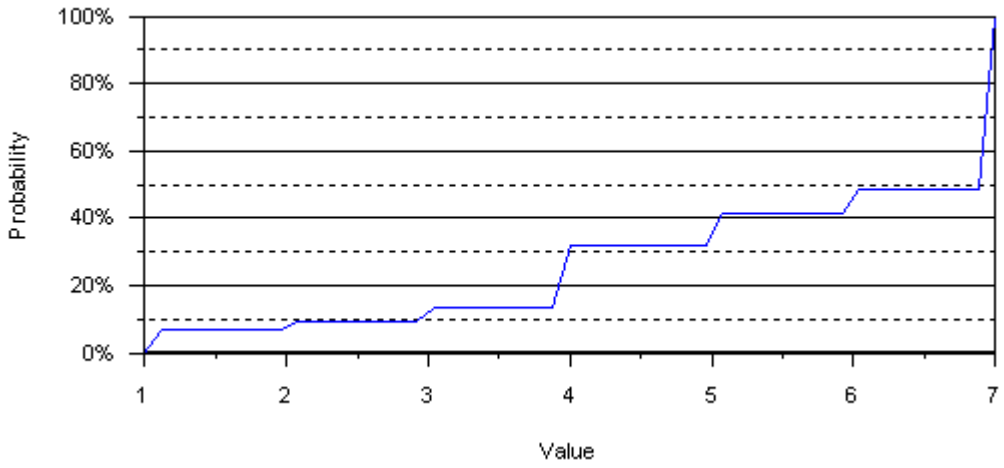
An answer to this question is not required and 30 of 407 respondents chose not to answer.

10c) Explosives Scene Collection, Preservation, and Packaging

Probability Density Function



Cumulative Distribution

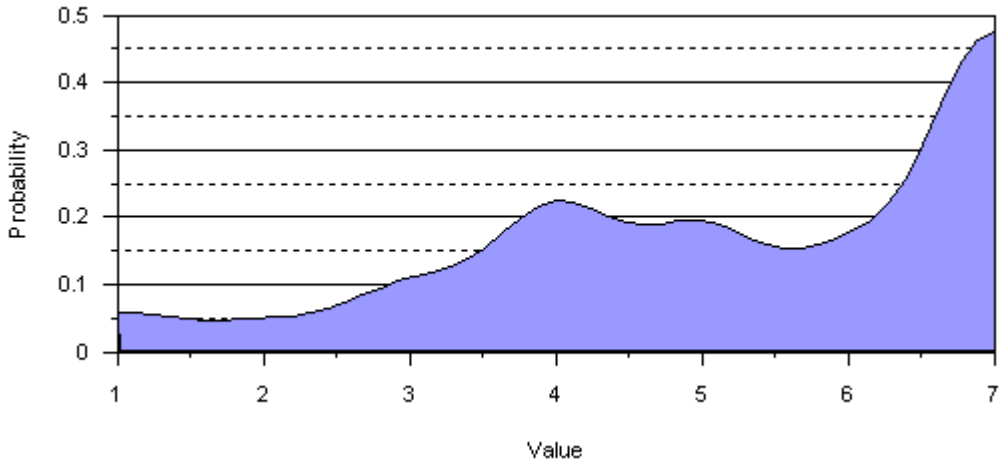


Average:	5.49
Standard Deviation:	1.89
Minimum:	1.00
Maximum:	7.00

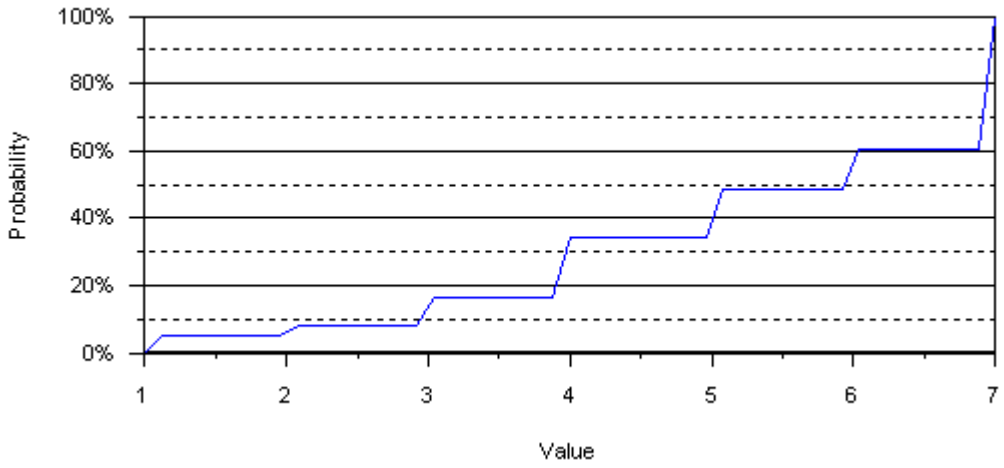
An answer to this question is not required and 36 of 407 respondents chose not to answer.

10d) Fire Dynamics (including Chemistry and Physics)

Probability Density Function



Cumulative Distribution

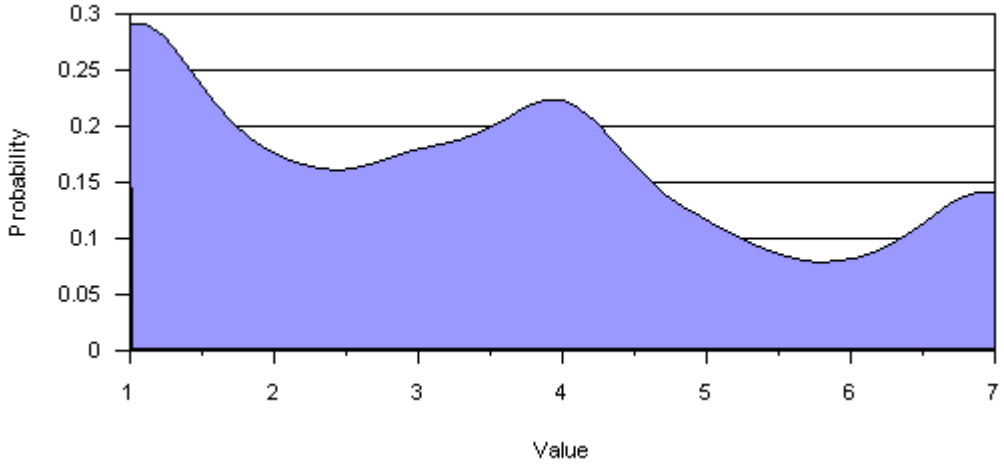


Average:	5.27
Standard Deviation:	1.79
Minimum:	1.00
Maximum:	7.00

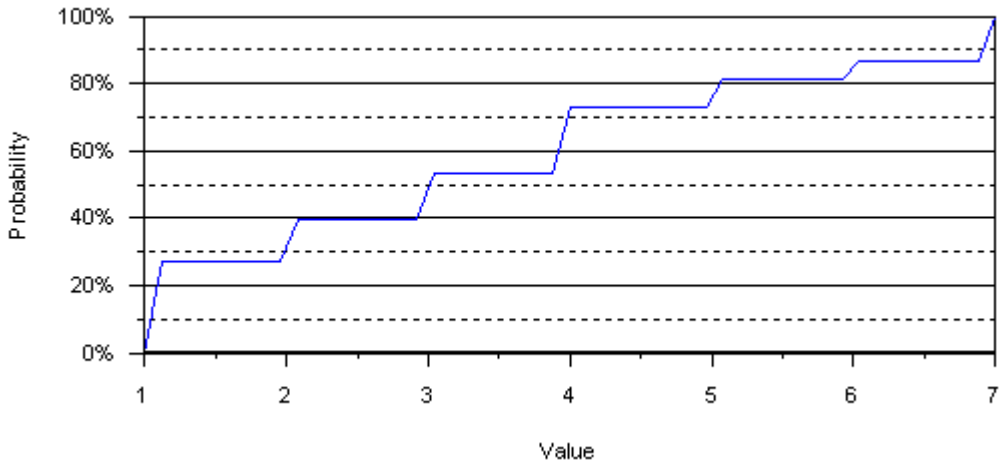
An answer to this question is not required and 34 of 407 respondents chose not to answer.

10e) Petroleum Refining Processes

Probability Density Function



Cumulative Distribution

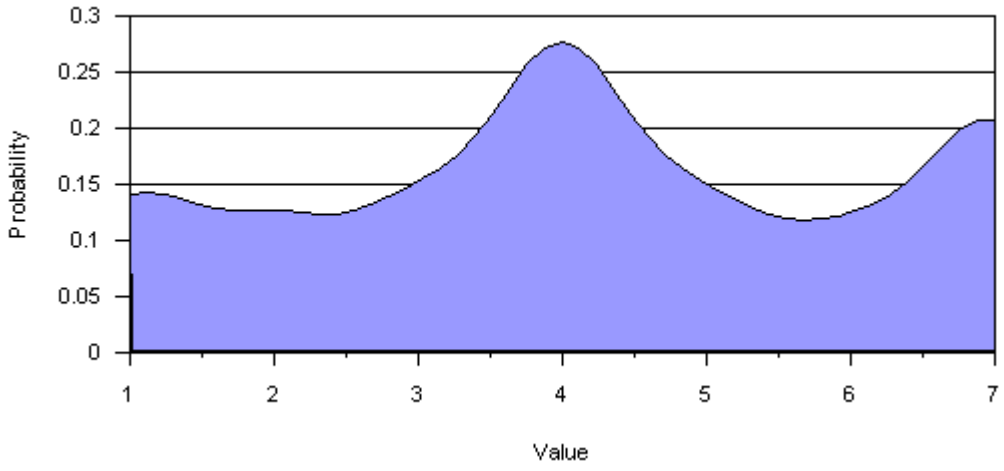


Average:	3.39
Standard Deviation:	2.05
Minimum:	1.00
Maximum:	7.00

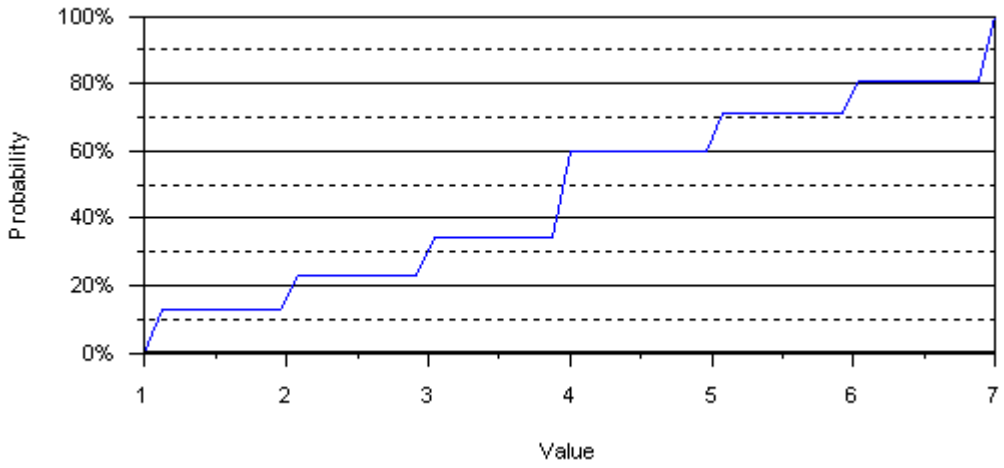
An answer to this question is not required and 54 of 407 respondents chose not to answer.

10f) Ignitable Liquid Classification System

Probability Density Function



Cumulative Distribution

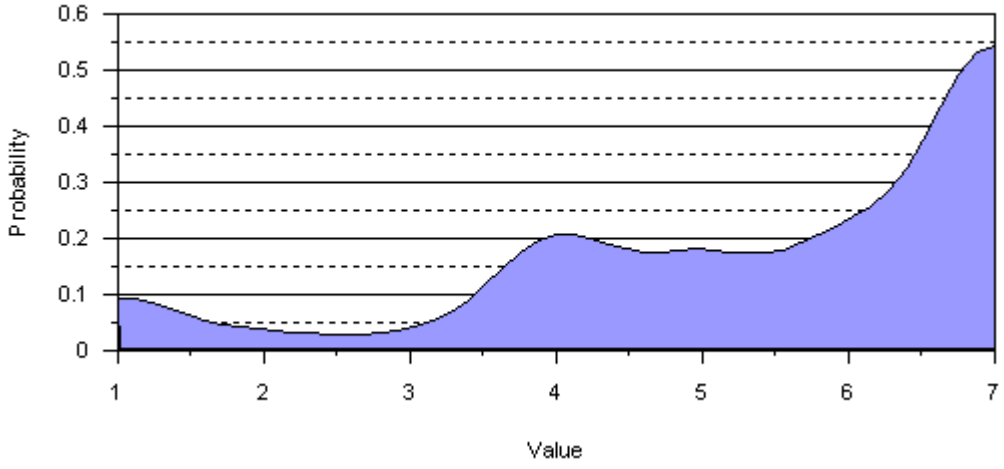


Average:	4.18
Standard Deviation:	1.98
Minimum:	1.00
Maximum:	7.00

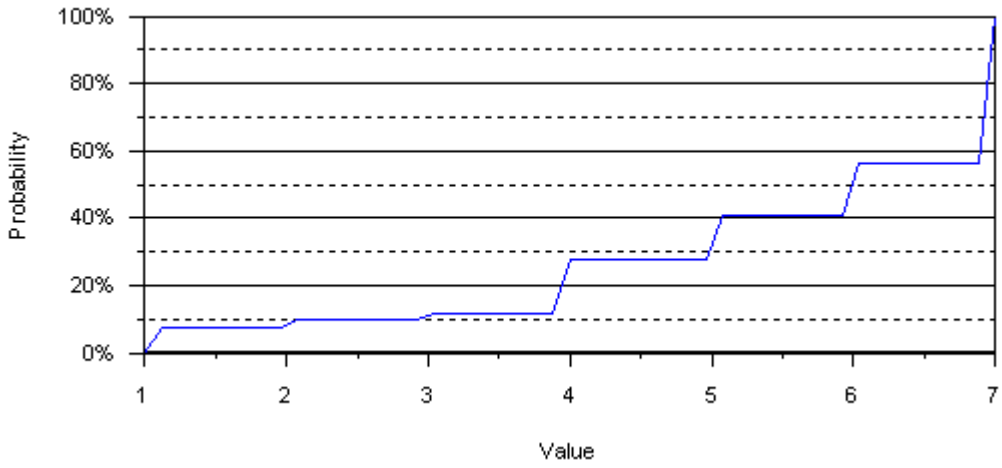
An answer to this question is not required and 50 of 407 respondents chose not to answer.

10g) Electrical circuitry and fire

Probability Density Function



Cumulative Distribution

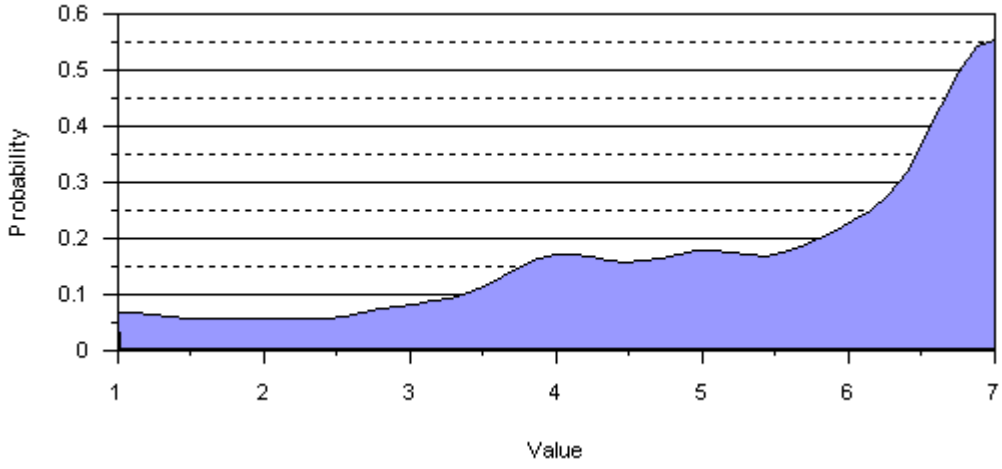


Average:	5.47
Standard Deviation:	1.83
Minimum:	1.00
Maximum:	7.00

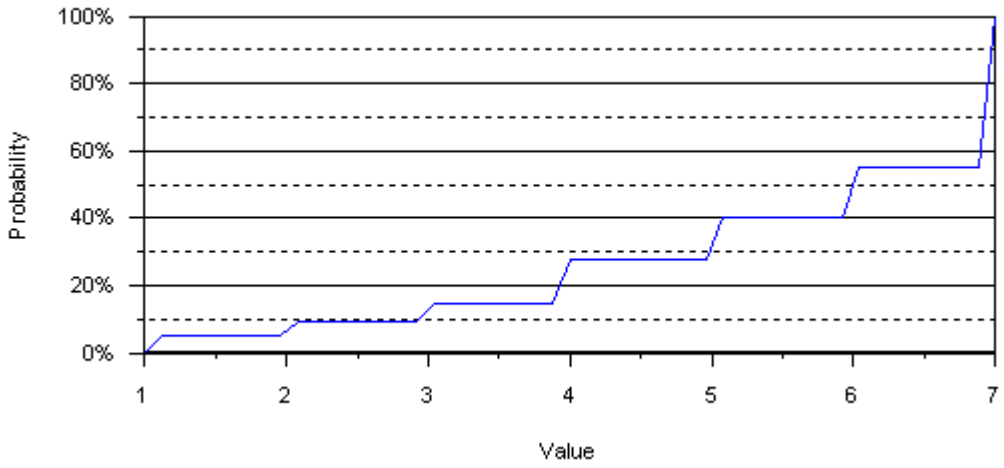
An answer to this question is not required and 30 of 407 respondents chose not to answer.

10h) Testifying as an Expert Witness

Probability Density Function



Cumulative Distribution

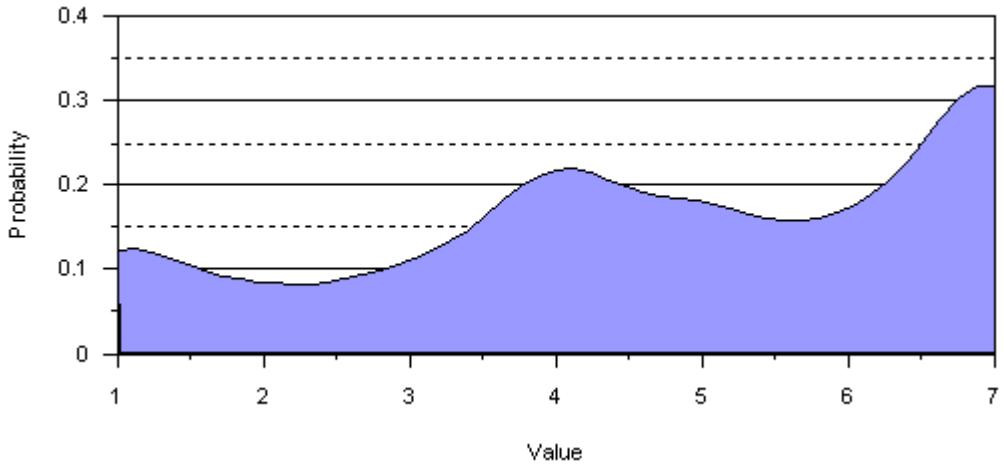


Average:	5.48
Standard Deviation:	1.80
Minimum:	1.00
Maximum:	7.00

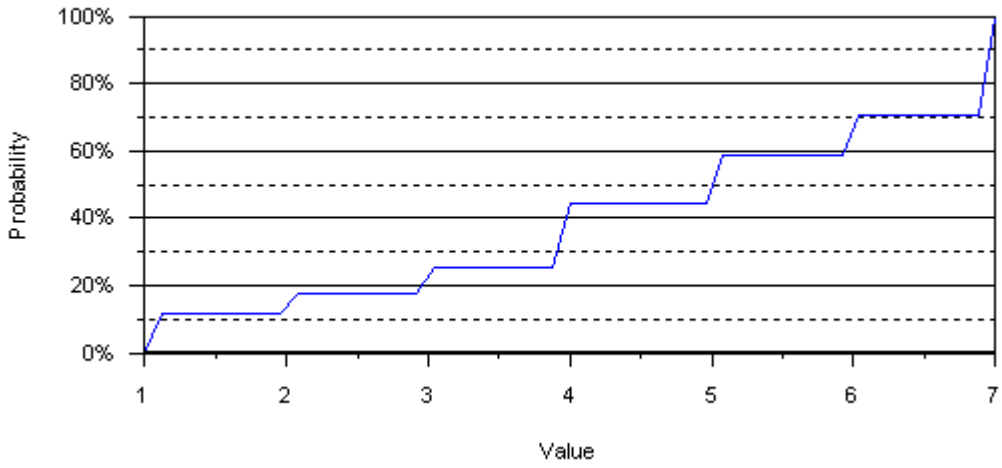
An answer to this question is not required and 33 of 407 respondents chose not to answer.

10i) Explosives Manufacturing Processes

Probability Density Function



Cumulative Distribution

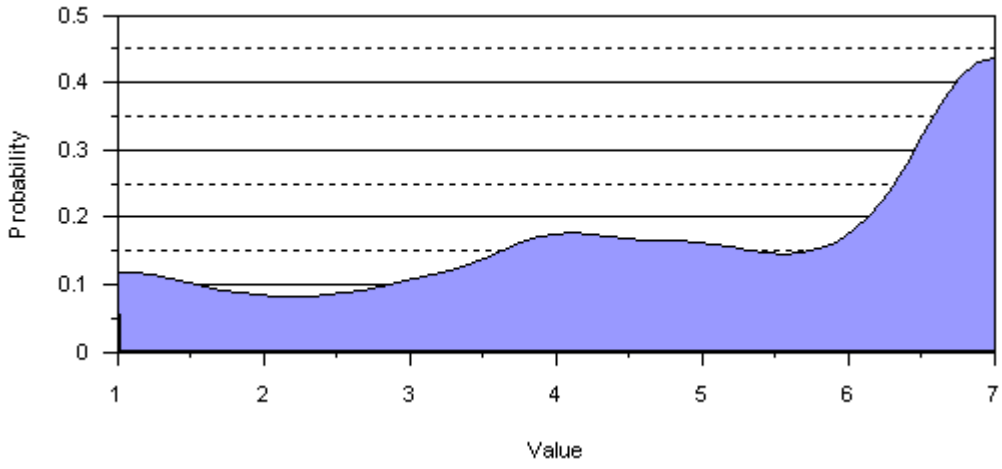


Average:	4.73
Standard Deviation:	2.03
Minimum:	1.00
Maximum:	7.00

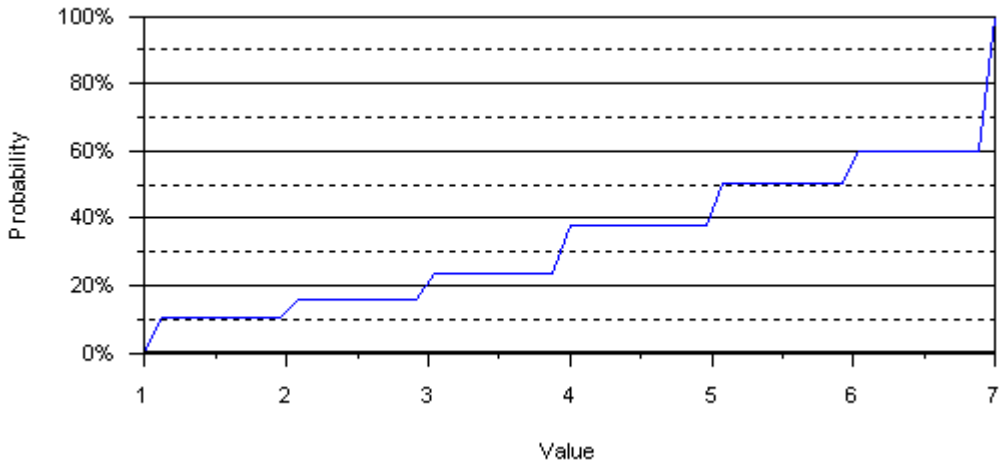
An answer to this question is not required and 46 of 407 respondents chose not to answer.

10j) IED recognition and construction

Probability Density Function



Cumulative Distribution

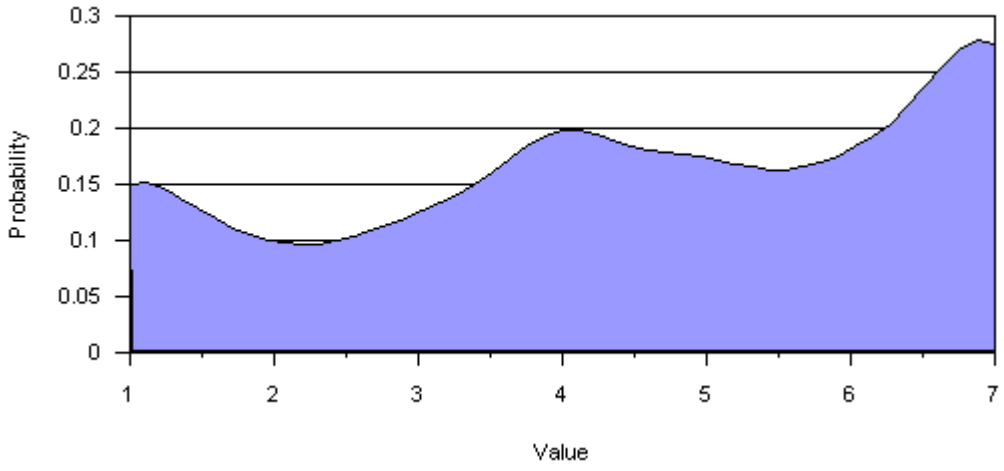


Average:	5.02
Standard Deviation:	2.08
Minimum:	1.00
Maximum:	7.00

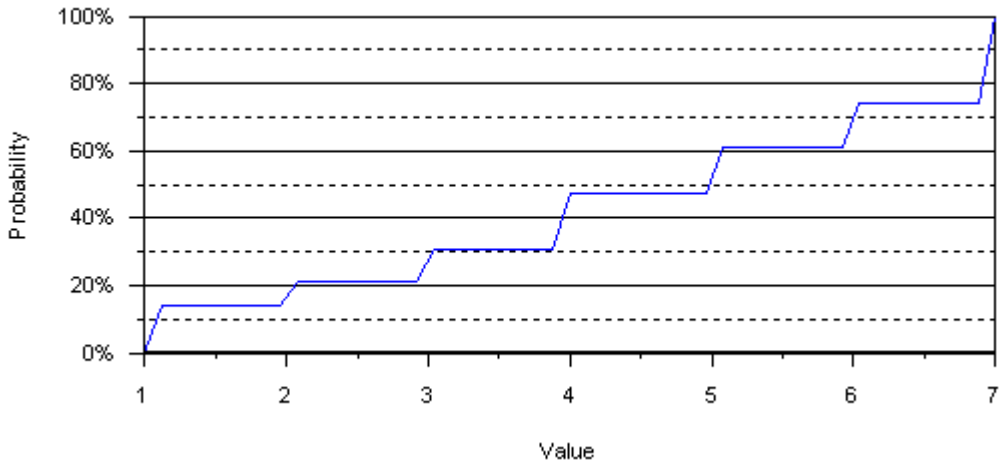
An answer to this question is not required and 52 of 407 respondents chose not to answer.

10k) Computer Fire Modeling

Probability Density Function



Cumulative Distribution

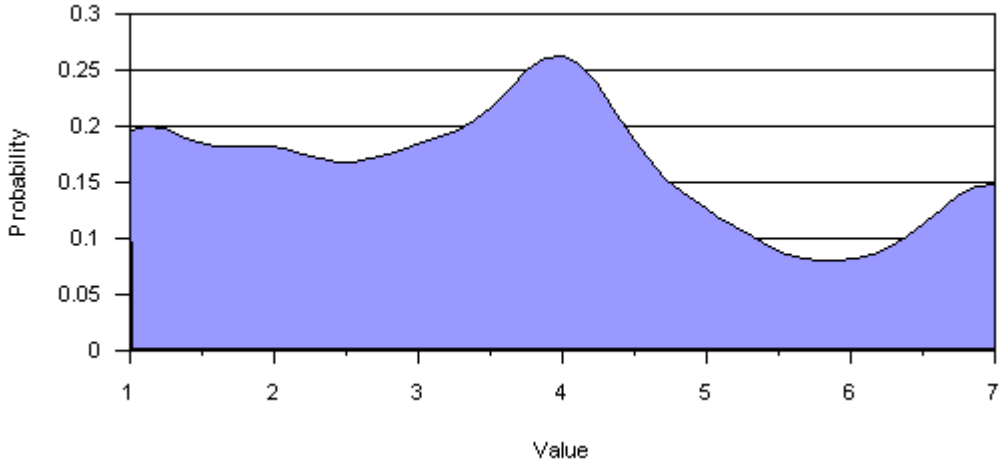


Average:	4.52
Standard Deviation:	2.09
Minimum:	1.00
Maximum:	7.00

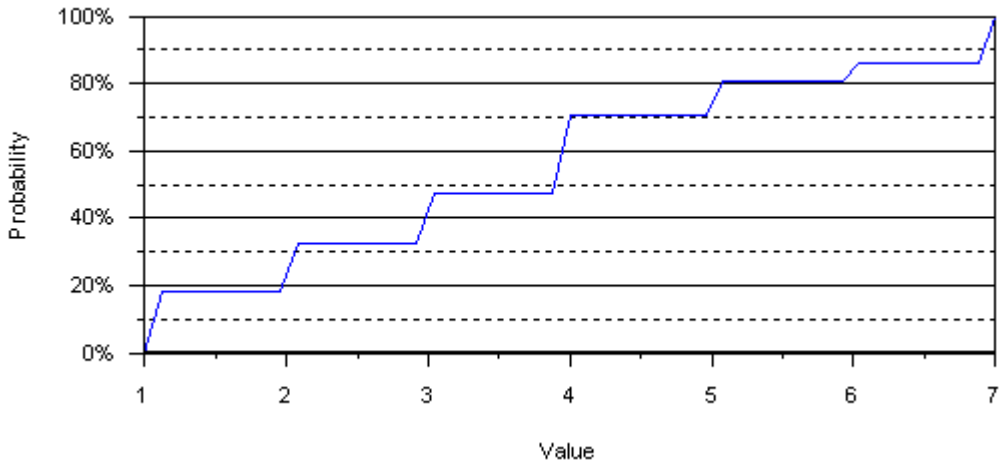
An answer to this question is not required and 46 of 407 respondents chose not to answer.

10l) Gas Chromatography

Probability Density Function



Cumulative Distribution

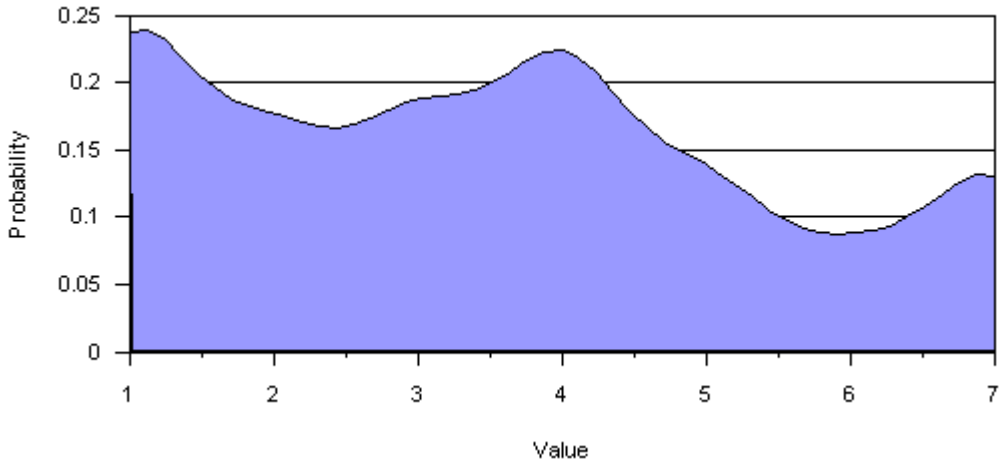


Average:	3.65
Standard Deviation:	1.95
Minimum:	1.00
Maximum:	7.00

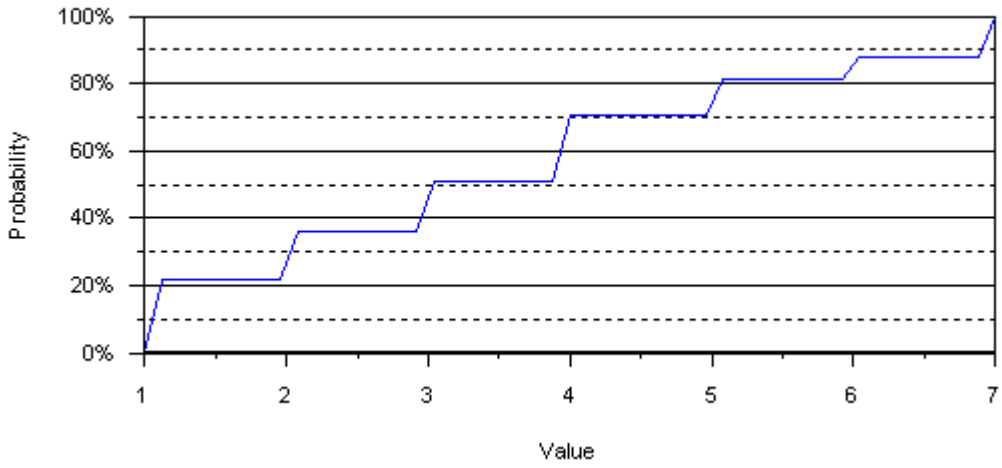
An answer to this question is not required and 55 of 407 respondents chose not to answer.

10m) Mass Spectral Interpretation

Probability Density Function



Cumulative Distribution

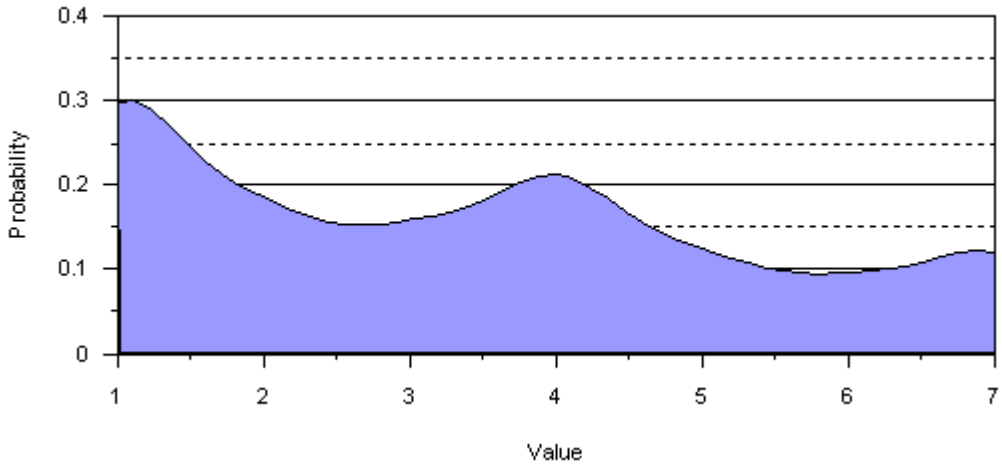


Average:	3.52
Standard Deviation:	1.98
Minimum:	1.00
Maximum:	7.00

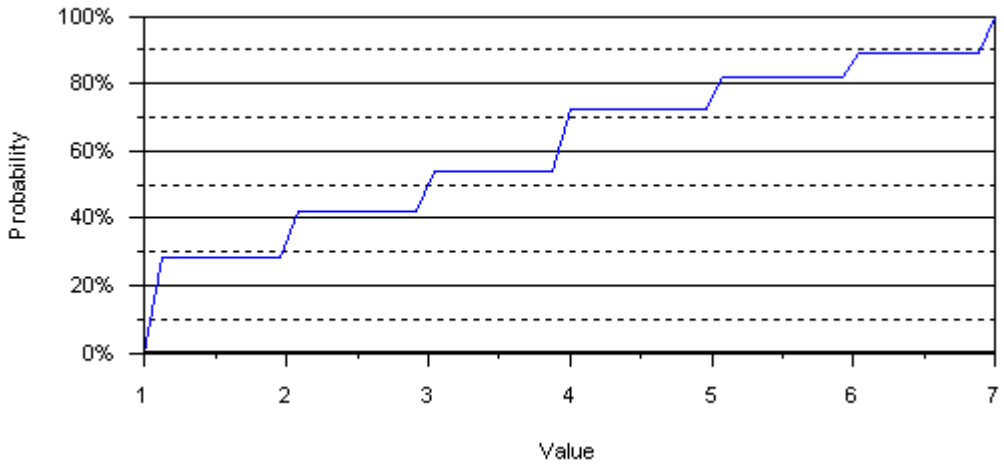
An answer to this question is not required and 57 of 407 respondents chose not to answer.

10n) Raman Spectrosopy for Explosives

Probability Density Function



Cumulative Distribution

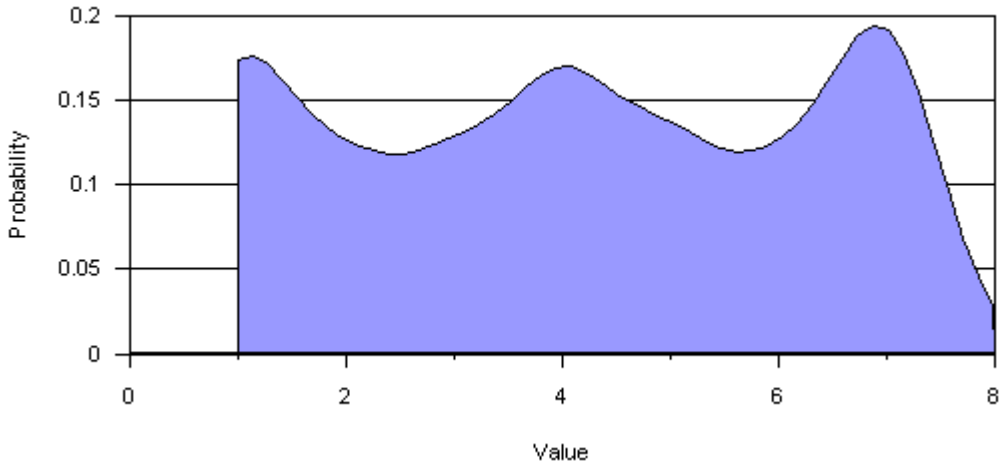


Average:	3.34
Standard Deviation:	2.04
Minimum:	1.00
Maximum:	7.00

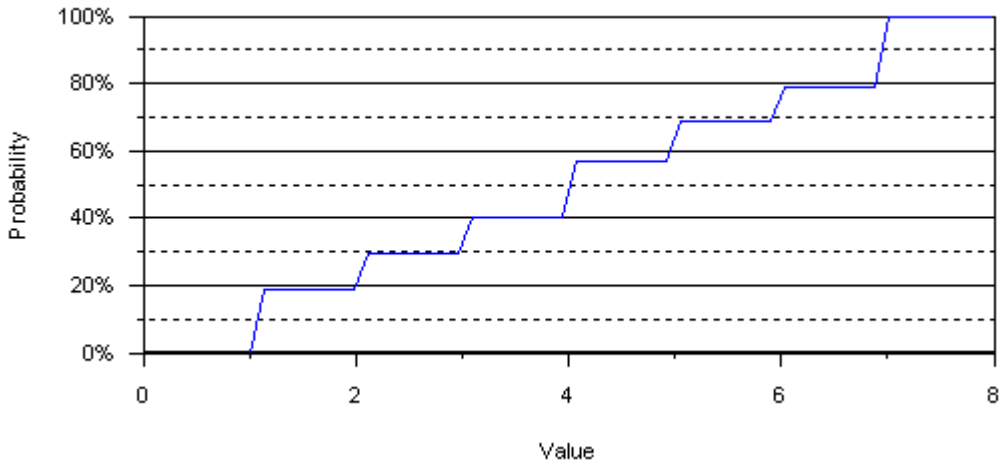
An answer to this question is not required and 57 of 407 respondents chose not to answer.

10o) X-Ray Analysis Techniques (Diffraction, Fluorescence, Energy Dispersive)

Probability Density Function



Cumulative Distribution

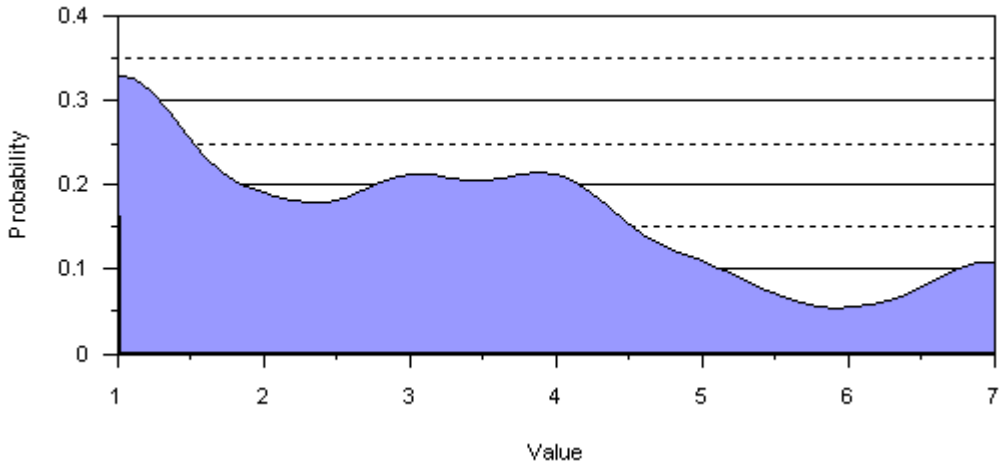


Average:	4.08
Standard Deviation:	2.16
Minimum:	1.00
Maximum:	8.00

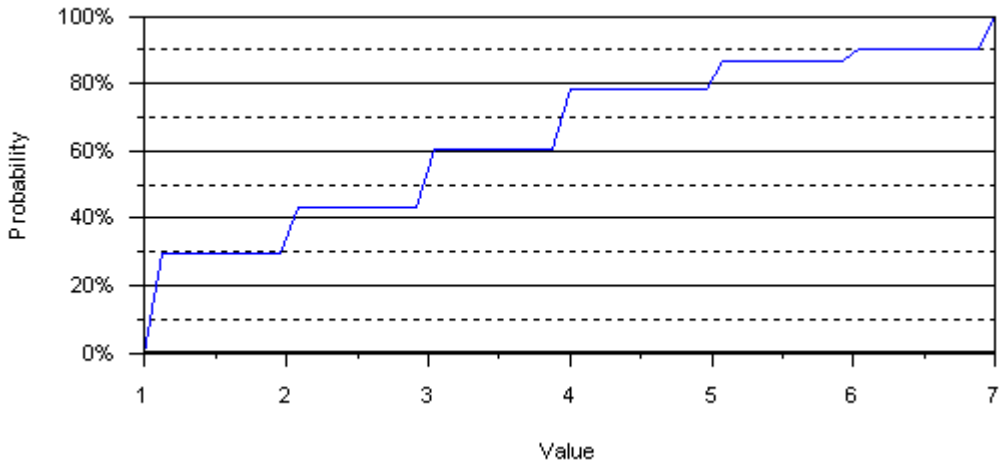
An answer to this question is not required and 54 of 407 respondents chose not to answer.

10p) Ion Chromatography

Probability Density Function



Cumulative Distribution

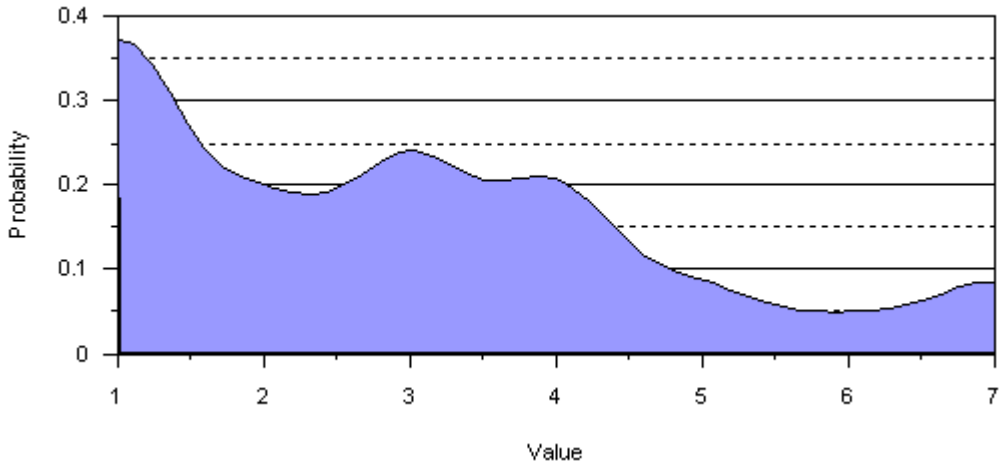


Average:	3.12
Standard Deviation:	1.93
Minimum:	1.00
Maximum:	7.00

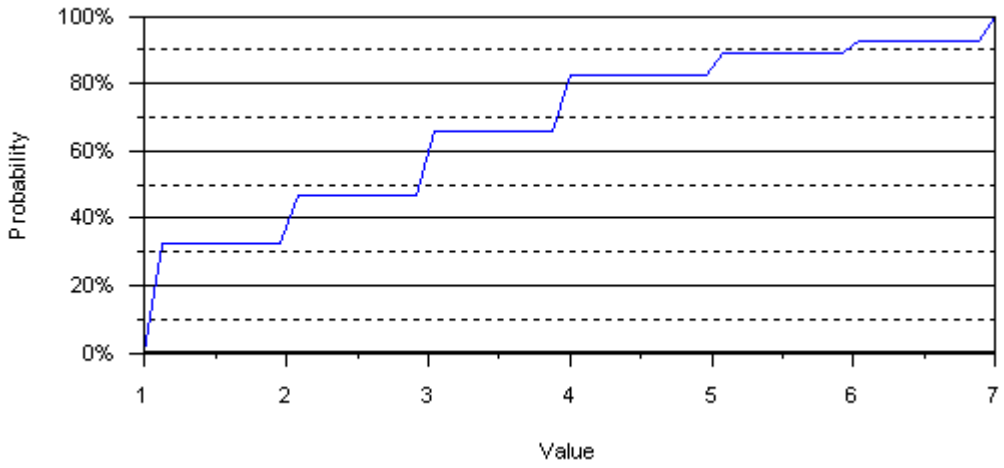
An answer to this question is not required and 63 of 407 respondents chose not to answer.

10q) Capillary Electrophoresis

Probability Density Function



Cumulative Distribution

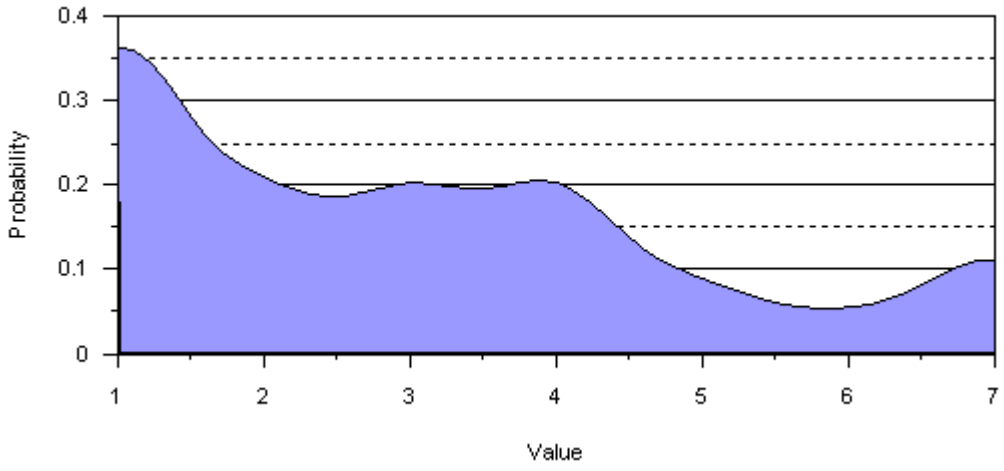


Average:	2.91
Standard Deviation:	1.83
Minimum:	1.00
Maximum:	7.00

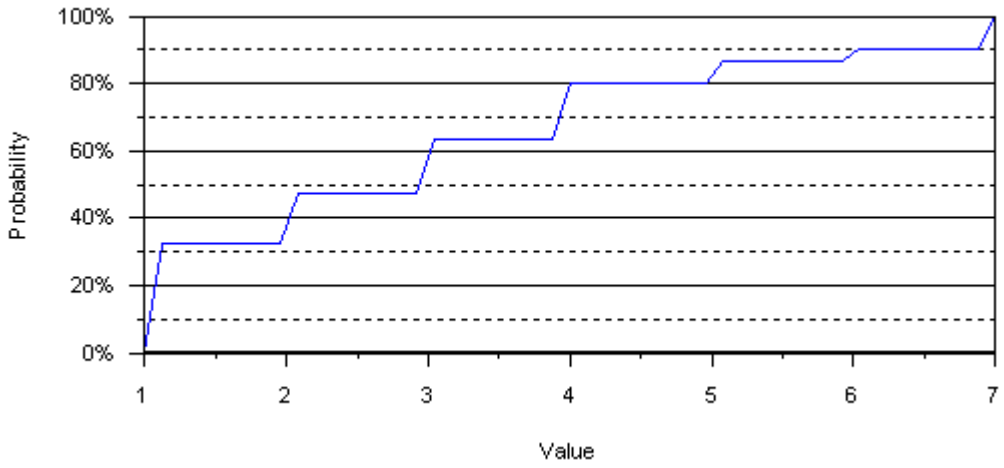
An answer to this question is not required and 66 of 407 respondents chose not to answer.

10r) Fourier Transform Infrared Spectroscopy

Probability Density Function



Cumulative Distribution

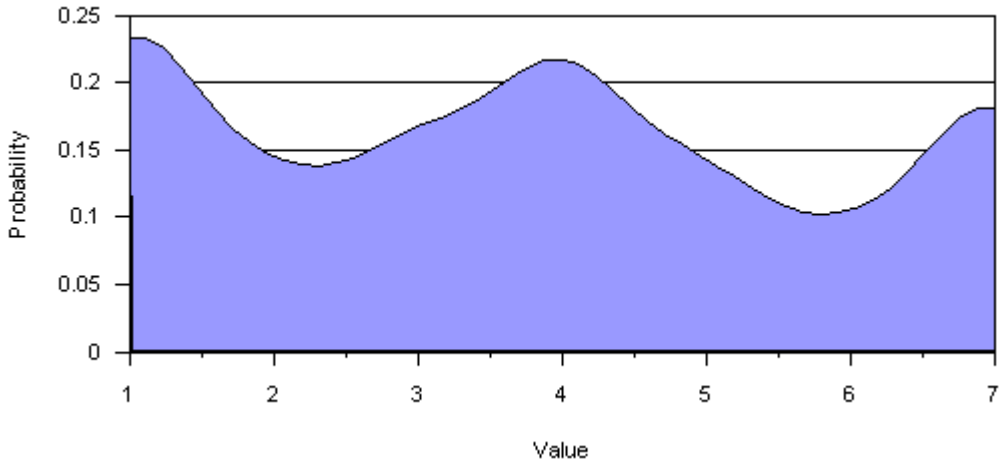


Average:	3.01
Standard Deviation:	1.95
Minimum:	1.00
Maximum:	7.00

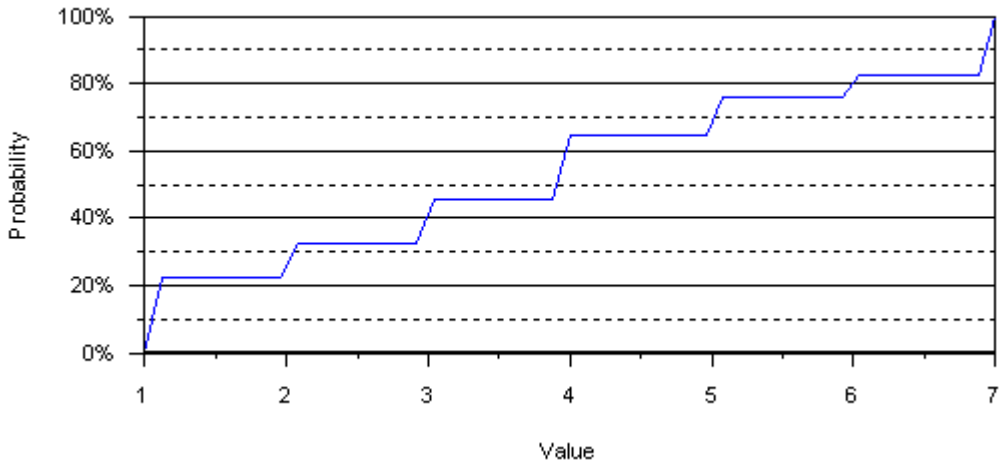
An answer to this question is not required and 67 of 407 respondents chose not to answer.

10s) Advanced Organic Chemistry for Fire Debris Analysis

Probability Density Function



Cumulative Distribution

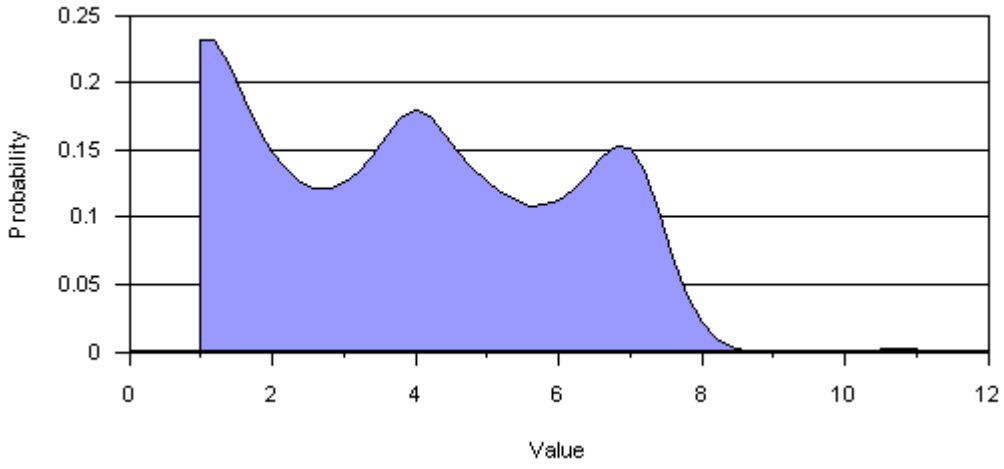


Average:	3.77
Standard Deviation:	2.11
Minimum:	1.00
Maximum:	7.00

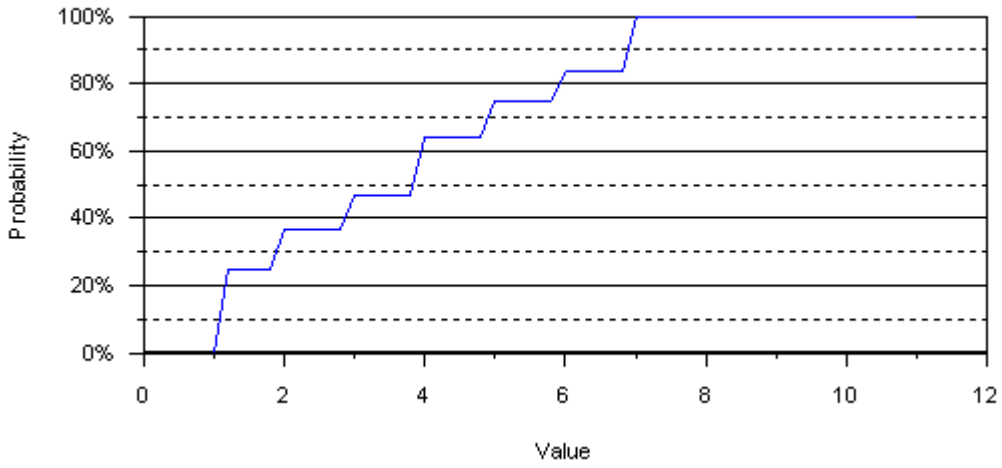
An answer to this question is not required and 58 of 407 respondents chose not to answer.

10t) Advanced Topics in the Chemistry of Organic Explosives

Probability Density Function



Cumulative Distribution

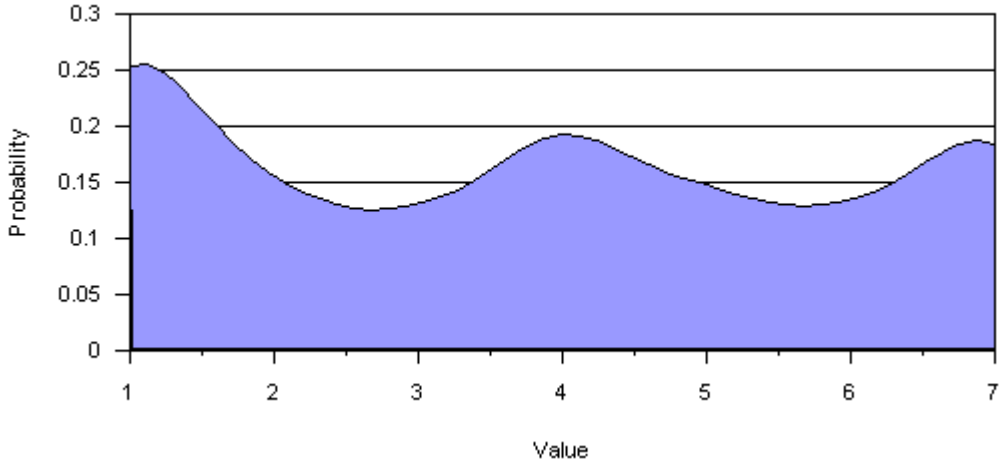


Average:	3.70
Standard Deviation:	2.19
Minimum:	1.00
Maximum:	11.00

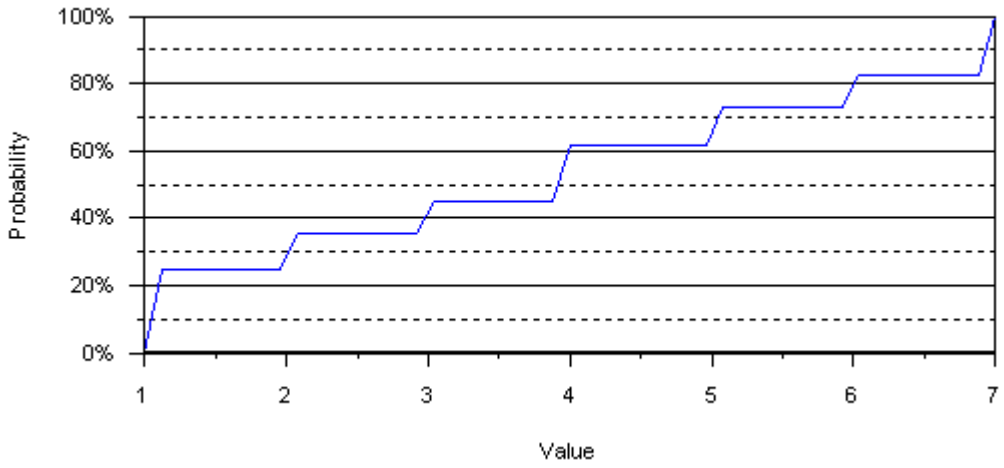
An answer to this question is not required and 58 of 407 respondents chose not to answer.

10u) Advanced Topics in the Chemistry of Inorganic Explosives

Probability Density Function



Cumulative Distribution

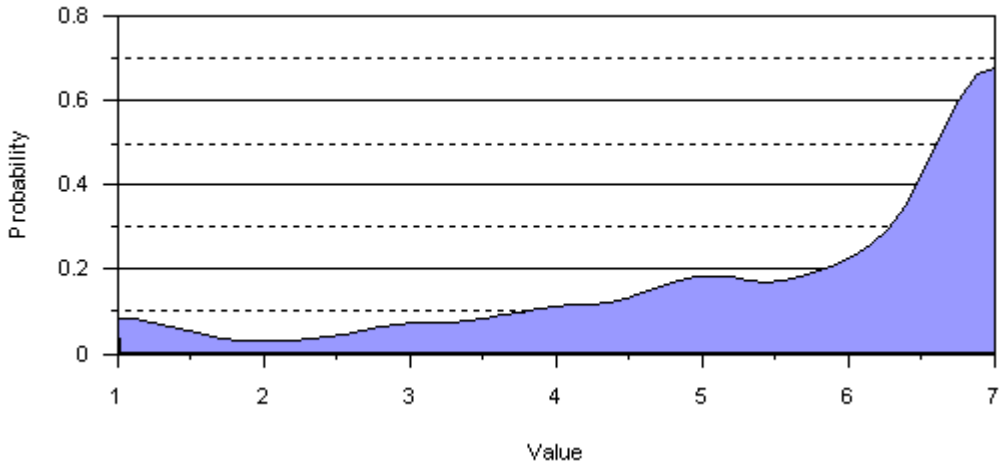


Average:	3.78
Standard Deviation:	2.19
Minimum:	1.00
Maximum:	7.00

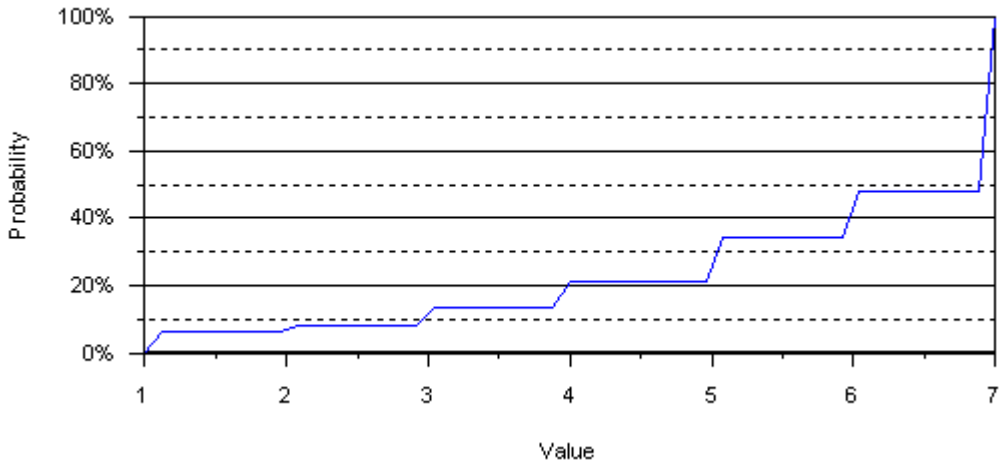
An answer to this question is not required and 61 of 407 respondents chose not to answer.

10v) Forensic Fire Scene Examination

Probability Density Function



Cumulative Distribution

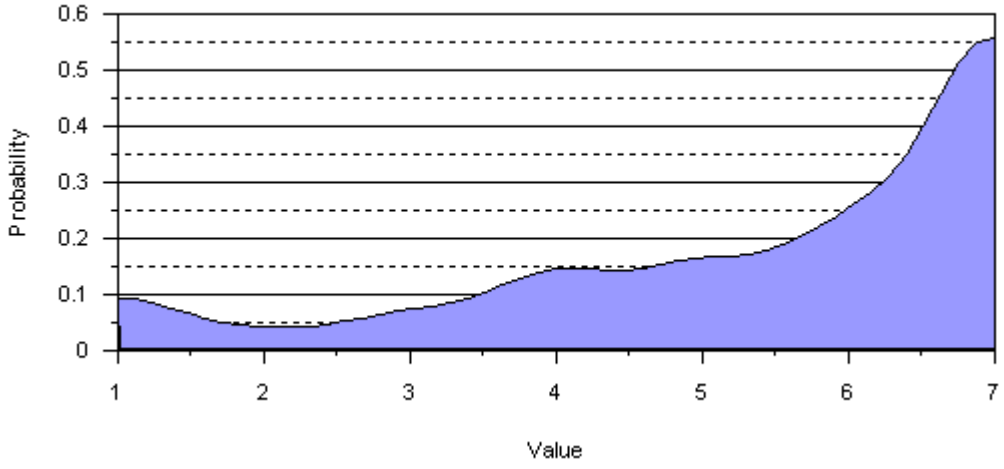


Average:	5.70
Standard Deviation:	1.79
Minimum:	1.00
Maximum:	7.00

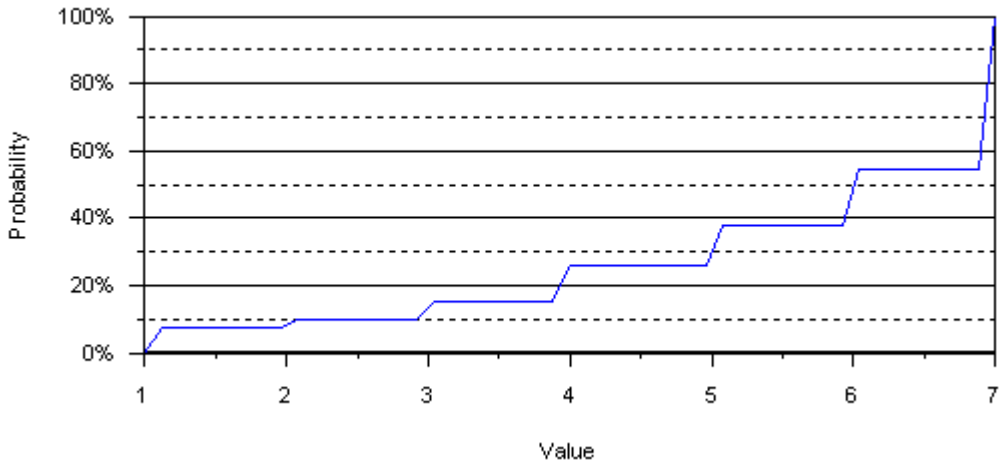
An answer to this question is not required and 34 of 407 respondents chose not to answer.

10w) Forensic Explosive Scene Examination

Probability Density Function



Cumulative Distribution

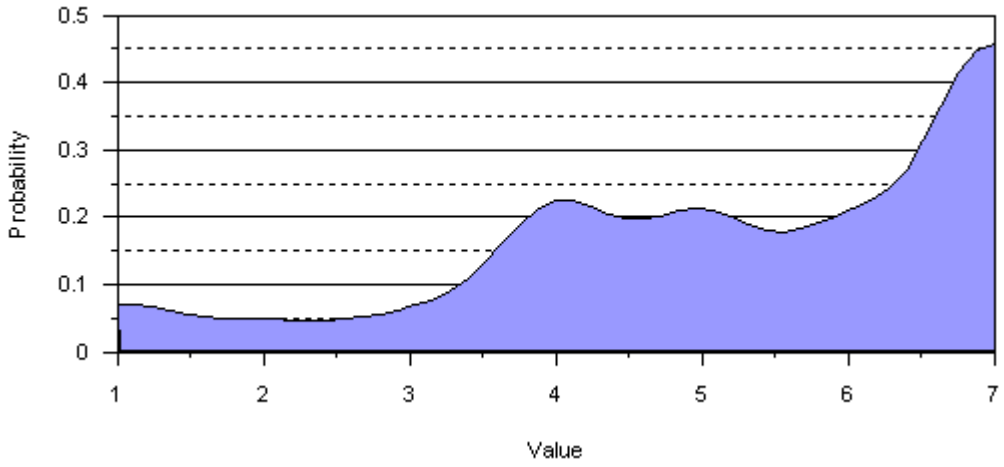


Average:	5.49
Standard Deviation:	1.87
Minimum:	1.00
Maximum:	7.00

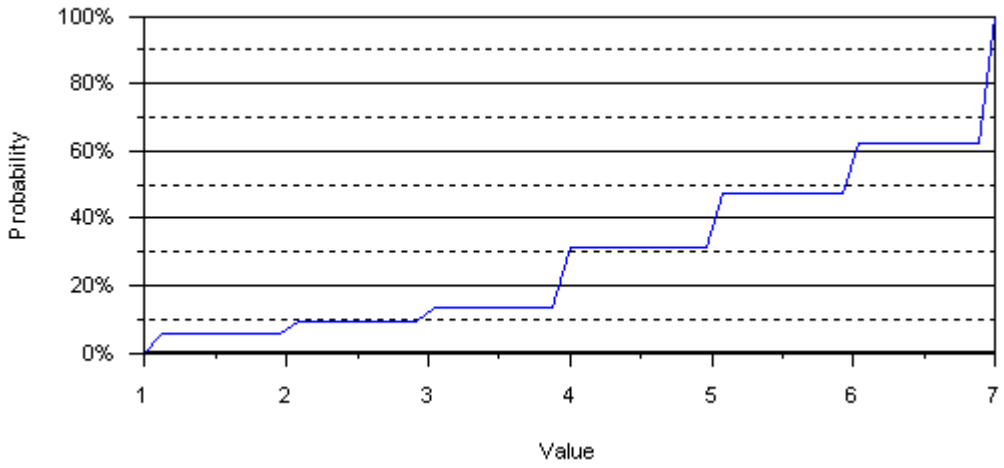
An answer to this question is not required and 49 of 407 respondents chose not to answer.

10x) Communication and Cooperation between Investigators and Analysts in Fire Investigations

Probability Density Function



Cumulative Distribution

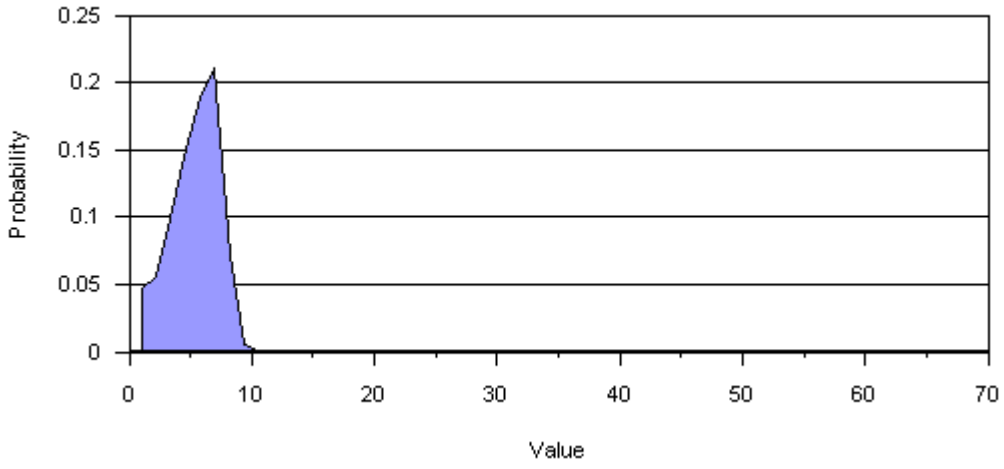


Average:	5.30
Standard Deviation:	1.78
Minimum:	1.00
Maximum:	7.00

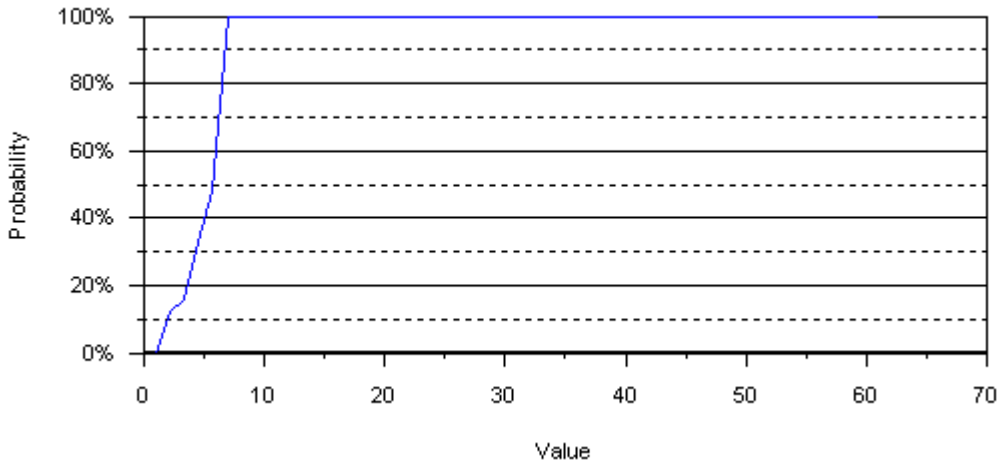
An answer to this question is not required and 41 of 407 respondents chose not to answer.

10y) Communication and Cooperation between Investigators and Analysts in Explosion Investigation

Probability Density Function



Cumulative Distribution



Average:	5.44
Standard Deviation:	3.79
Minimum:	1.00
Maximum:	61.00

An answer to this question is not required and 48 of 407 respondents chose not to answer.

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11) List a maximum of 3 other training / classes that you feel would be helpful to you in order to do your job better?

- Software for data processing
  Macro Writing to customize software for specific needs
- Fire Debris Analysis by GC/MS
  Fire Scene Collection
  Matrix/Ignitable Liquid Classification Identification
  Must have Testimony (did not testify in 2006)
- Hands on scene reconstruction and documentation
  On scene processing of fragile evidence for preservation and collection
  On scene homicide/death investigation
- Pyrolyzates and interfering compunds in fire debris analysis.
  QA issues
- Post Blast Investigations
  Counter Terrorism/IED RSP
- Forensic analysis of intact high explosives, Forensic analysis of explosive residues
- Airport X-Ray Interpretation, Underwater Explosive Recognition and Disruption, Underwater Explosive Scene Investigation and Photography
- A hands on Fire Investigation Class
- Digital photography techniques for the technophobe
- Courtroom Training
  ASCLD Certification
  Evidence Handling
- large and small appliance fire investigation
  advanced vehicle fire investigation

water craft investigations

- Advanced Electronics
  Suicide/Hostage Bomber Investigation
- Previous listing covers it well enough
- Advanced GC/MS class
  Pyrolysis interpretation class
  Advanced Organic Chemistry for Fire Debris Analysis
- Chemistry of Chemical Spot tests
  Chemical Analysis of Clandestine Drug Labs
- lc mass spec
  management
  ion chromatography
- Examination of low order explosives by PLM
- any fire debris analysis training with data interpretation
- If not covered above, Extraction techniques for explosive residue samples
- Fire Scene Digital Photography
  Digital Photograph Printing
- Financial Analysis
- 4
- Report writing
- National level CBRN Training
- Wet chemical analysis of explosives
- Report Writing
  Complex Scene Management
  Data/Document Management
- Fire Pattern analysis
  Vehicle fire investigation
- fire death investigation, burning rates of human bodies, effects of ignitable liquids on the body
- NFPA Life Safety Code
  NFPA Smoke Alarm Code
  Hazards of welding operations
- Insurance aspects of fire investigation
  Effects of fire supression on fire scene
  demolition of fire scene
- NFA and ATF classes as well as Interveiwing and interrogation classes
- Death scene investigation / post mortem evidence collection
- ELECTRICAL WIRING AND/OR APPLIANCE FIRES
  LEGALITIES OF FIRE SCENE INVEST./ COURT PROCEDURES
- CV writting, DIgital photography, TAsk force communications
- Gases - appliances and failure, Crime scene investigation as fire/crime scenes often are one in the same. The necessity of scene and evidence integrity integrity - many cases are void due to lack of scene and evidence integrity being maintained or retained.
- 1. fuel cell technology
  2. IED development
  3. Modern technology concerning electronics and manufacturing if IC's and plastics.
- People Management
  Budget
  Communication Skills
- Hazardous materials sampling and analysis
- Statistical analysis of fire incidents

- Classes which provide information pertaining to the insurance industry and the resources they have that can be used.
- Interviewing
  Interogation
  Evidence collection
- Photography, Reasearch of data, Civil and Criminal Law
- Live fire investigaton trainings
  Site review/site case studies
- Digital imaging classes
- Cooperation between Investigators and Prosecutors.
- advanced burn pattern recognition
- Examinaion of appliances involved with fire
  Vehicle fire investigstions
  Interview interrogation techniques
- auto fire investigations
  heavy equipment (construction, logging, farm) fire inves.
  RV fire inves
- All Classes through ATF and National Fire Academy
- Auto fire investigation
- vehicle
  computer forensic
- Report writing
- Private Public working to gether this would be more local due to various imunity laws
- More advance electrical classes
- Interrogation
- report writing
- interviewing
  interrogation
  fatals
- Interview Techniques
- Accelerant Detection K-9 Utilization
- Fire Fatality Investigation
- Preparing for CFI Examination
- interview/ interogation
  photography/ scketching
  case managment
- Evidence collection and chain of evidence
  Fire scene cross contamination
  Fire scene reconstruction
- Kinesics
  Electrical Issues in fire scene examination
  Kinesics
- Evidence Collection and preservation, Forensic Photography
- Serial Arson Analysis-Planning
  Law Enforcement Operations/Fire-Surviellance
- Crime scene photography
  Total Station for crime scenes
  CAD for crime scenes
- examination of gas appliances
  electrical examination

- interviewing and interrogation techniques
  proper techniques on crime scenes
- general crime scene investigations
  latent fingerprints
  fire scene photography
- Learning to be Objective
  Report writing
  Evidence Collection and Protection
- Homemade explosives
- Vehicle and heavy equipment fire investigation techniques
- On scene vehicle fires
  On scene building fires
- live demonstrations of burns and explosives.
- Interviewing Tech.
  Large Scale Investigations
  wildland
- None
- Interviewing
  Financial Analysis
  Advanced evidecne handling techniques
- identification of fire damaged components/equipment. Vehicle fire investigation.
- Search warrant prep. for post blast investigation.
- finger print preservation and lifting prints
- Interviewing Techniques
- Interview / interrogation techniques
  Forensic Photography
  The role of a fire investigator, engineer, & scientist in fire & explosion investigations
- The scientific method
  NFPA 921
  Avoiding bias
- Report Writing
  Photography of evidence
  Finger Printing
- investigation 2 A and 2B
- fire pattern recognition, digital photography,
- inter-agency ops
  TDY assignments as compared to FBI SABT's out of country assignments

- Commercial Explosives
  Post Blast/Residue Analysis
- Arc tracking/mapping
- Case Law Studies
  Interviewing
  Fire Death Investigations

- Photography
  X-Ray photography
  HAZWOPER
- Car fire origin and cause
  Transponder/Vats/Passlock operation
  eLECTRONIC "SNIFFING" DEVICES
- Car fires, car bombs
- Juvenile Fire Setters, Fraud Case Managment, Interview Tech.
- Digital Photes
  Case Preperation
  Report Writting
- photography, sketching classes and programs
- Standards in Reports.
  Case studies,
  Safety on and around the fire scene during an investigation.
- 1.History of Explosives and composition.
  2.Home Made Explosives (with Range time)
  3.Improvised Explosive recognition and manufacturing
- n/a
- Bulding an arson case
  Investigating Financial Motives
  Health Concerns due to long term exposures
- 1. Digital Photography
  2. ICS for Major Fire and Explosives Scenes.
  3. How to read techinical reports.
- Reasearch areas
  Marine Fire Investigations
  Auto Fires
- Advanced electronics course.
- Court Room Prep
  Report Prep
  Scene Documentation
- Marine fire and explosion investigation
- Advanced arson investigation;
- Electronics circuitry,
- VEHICLE FIRES,FINDING CLUES AFTER FLASHOVER,PSY CLASS OF CRIMINAL MIND TO COVER CRIME WITH FIRE.
- Legal liability in the fire service
  Spoliation
- Advanced Render Safe Procedures
  Use and training in ECM techniques
  Advanced Electronics training with DTMF, collapsing circuits and observation at sites like TEDAC where real world devices, triggers and switches can be examined and evaluated.
- Electronics class, Current trends in IED's, Delivery methods for LVBIED's
- Interviewing techniques.
- Buget and Grant writing
- Fire-Explosion Dynamics
  Fire-Explosion Modeling
  Scene documentation for modeling
- Fire modeling,interview interrogation, frire debris analysis
- Interview/Interrogation Classes by John Reid
- na

- Interview / interogation
  Report writing
- Vessel Fires
  Large Scale, Forestry/Wildland Fire Investigations
  Large Scale Building Construction Techniques
- Serial Arsonists
  Fraud Arson
  Chemical Fires
- Residential Fire Investigation programs
  Improved communication between attorneys, insurance companies, and investigators
- Legal Aspects of Fire Scene Examination
  Cooperation Between Police and Fire Investigators
- advanced on hands explosives course
- Coordination of / Participation in Multi-Agency Investigations; The OSHA perspective on Fire Investigator Safety; Understanding the Legal System for the Non-Sworn Fire Investigator
- Interviewing and Intoerrogation classes e.g. Reid, W-Z Method, Kinesics etc...
  Investigating/Responding to Clan-Lab Fires
  Fire Fatality/Injury Investigations
- Photography
  Drafting/Drawing
  Interveiwing Techniques
- Vehicle Fire Investigation, Report Writing, Appliance Fires
- Interview and Interragation
  Computer Information Systems
  Criminal Back ground investigation
  Agency Overviews(Design and makeup of other agencies for basic information and improved communication.)
- testifing
  report writting
  diagram
- 1. Interview/Interrogation techniques
  2. Courtroom testimony training
  3. Digital photography training
- Mechanical systems and fires.
  Fires in Gas Appliances
- Big bomb disruption tools, standards.
  Training on standard eq.
- survellence and interview techniques
- Use of digital photography
  Interviewing
  Personal protection at fire scene
- report wrting
- mathematical calculations for heat flux, etc.
  legal update re: expert witness exclusion
  report writing for technical experts
- Interviewing techniques
  Available investigation equipment and uses
  Fire patterns
- Scene Preservation
  Scene Reconstruction
  Interviewing
- Management of large loss scene investigations
  Establishing protocols for muti-party bench exams
- Financial alnalyisi of Fire Suspects

- documentation
- Legal guidelines, warrants, evidence issues, roles of the municipality in investigations.
- IED electrical analysis
  Field exercise with improvises explosives (ie TATP)
- Fire scene reconstruction
- Vehicle Fires
- Electronics/ basic Circuitry
- Explosive Breaching, Advanced IED electronics, Advanced X-ray
- Robot Operations, Rigging Operations, Associate Degree Program in Explosives Disposal Technology
- Hands on Arson Investigation classes
- Hands on training.
- Vehicle fires
  Appliance fires
- Investigative writing techniques.
- 80 hour arson investigation course taught at local level for l.e. investigators;
- Legal courtroom analysis and testifying
- Military ordnance recognition, explosive range development/ hazmat osha concerns
- Advanced technologoy in fire scene examination
- Report writing
  Training budget and analysis
- Advanced Vehicle Fire Investigations
  Insurance Fraud Investigations
- Spontaneous combustion fire analysis, Building construction as it relates to the fire investigator,
- Propane explosions and defeat\
  standoff distances for bomb techs
- Legal Updates, Surveillance, Search and Seizure
- WItness interview
  Electrical shorting and arcing
- Refresher courses in all above on an on-going basis
- Advanced scene investigation
  Electrical Investigation
  Case management
- IED, EOD, and Courtroom testamony
- Explosives crime scene management
- x-ray interpretation
- Interviewing and Interrogation
  Report writing
  Multi-juristictional wildland fire investigation case building
- Juvenile firesetting, Fire Scene Reconstruction, Hands on Electrical Fire Investigation
- maritime fires
  equivocal death investigations
  structures/construction
- n/a
- Vehicular systems functions for fire investigators.
  Boating systems functions for fire investigators.
  Ignition chemistry: Spontaneous combustion
- Interview and Interrogation
  Fatal fire scene examination
- Physical chemistry

- new automobile fire causes/possible heat sources/possible danger zones
  new building material burn and heat related failure compared to older more conventional building components
  health hazards/related cancer studies/ studies on safe levels of atmosphere on post fire scenes
- Evidence Collection
- Interviewing and Report writing
- Court room testimony, trial preparation, interrogation
- Forensic Analysis of Explosive Residues

An answer to this question is not required and 227 of 407 respondents chose not to answer.

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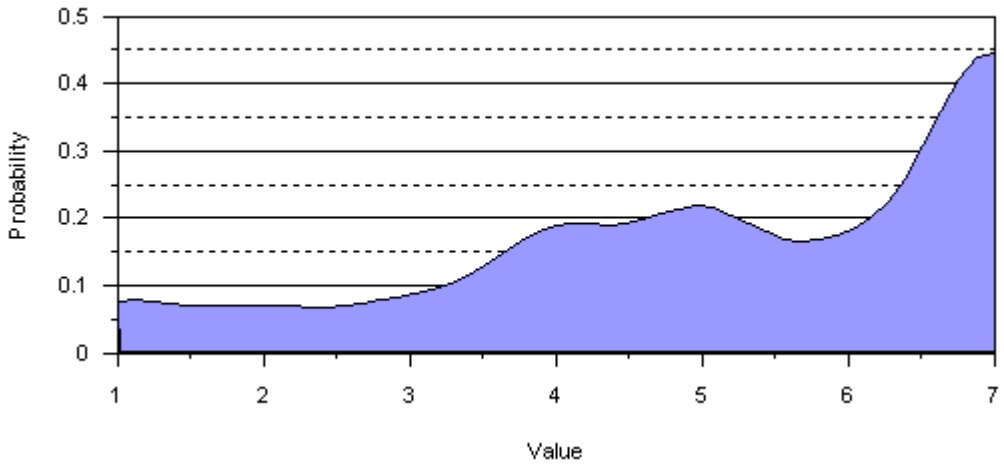
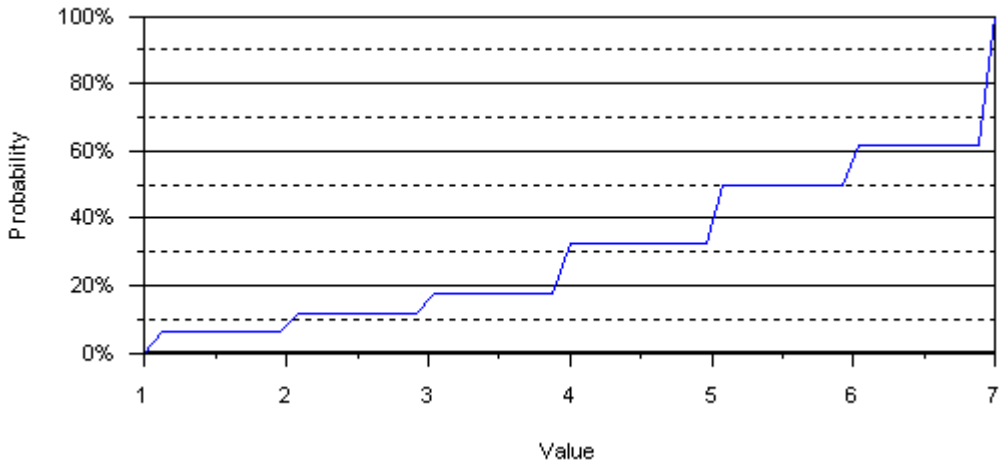
12) Rank how important would each of the following resources be to you? (1-7 where: 1 = Not at all, 7 = Very Important)

12a) Comprehensive Listing of people working in the field (private and government)

Probability Density Function



Cumulative Distribution

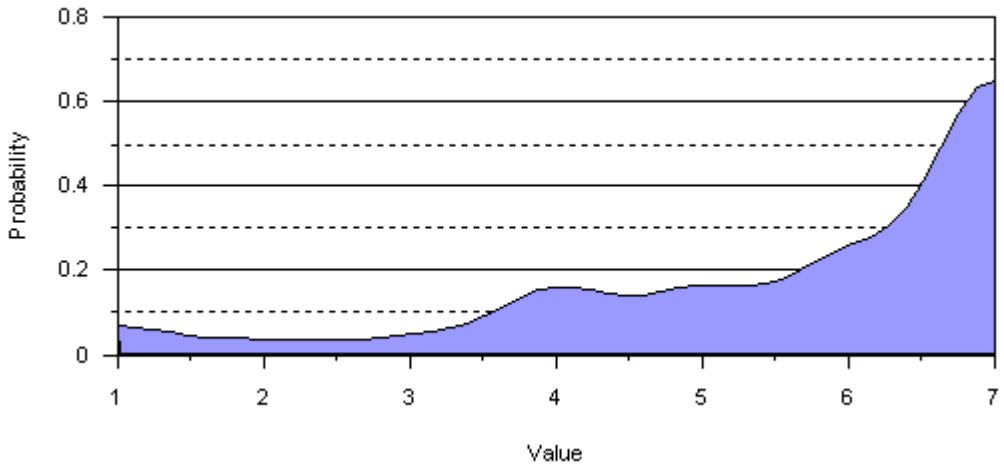


Average:	5.20
Standard Deviation:	1.87
Minimum:	1.00
Maximum:	7.00

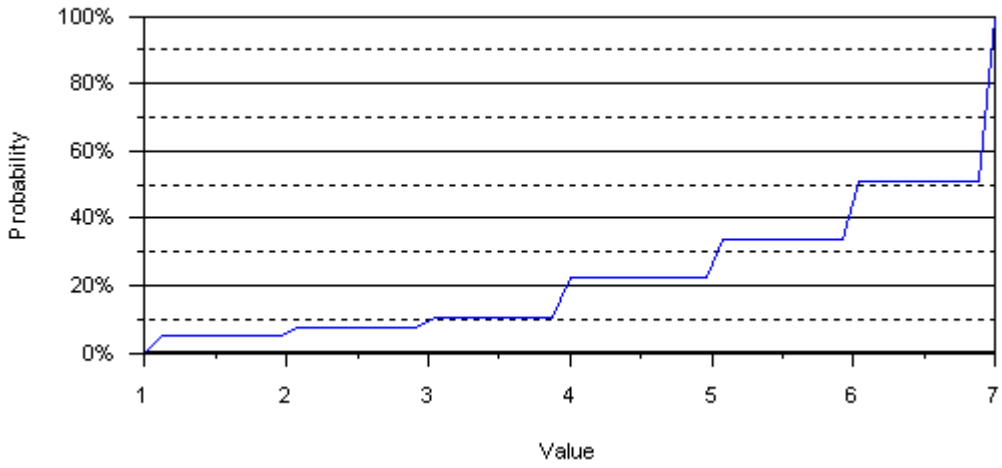
An answer to this question is not required and 46 of 407 respondents chose not to answer.

12b) Creation of a secure Internet link for E-mail and information exchange between professionals in the field of explosives and fire debris analysis

Probability Density Function



Cumulative Distribution

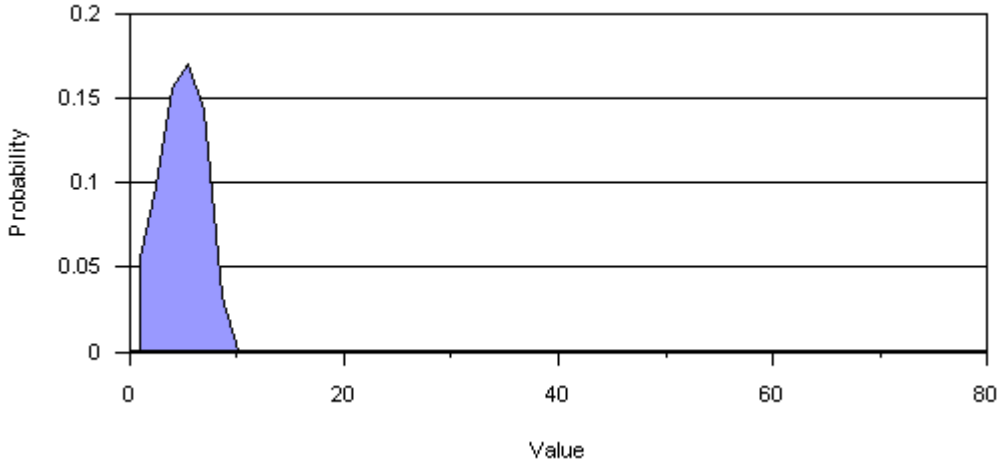


Average:	5.70
Standard Deviation:	1.71
Minimum:	1.00
Maximum:	7.00

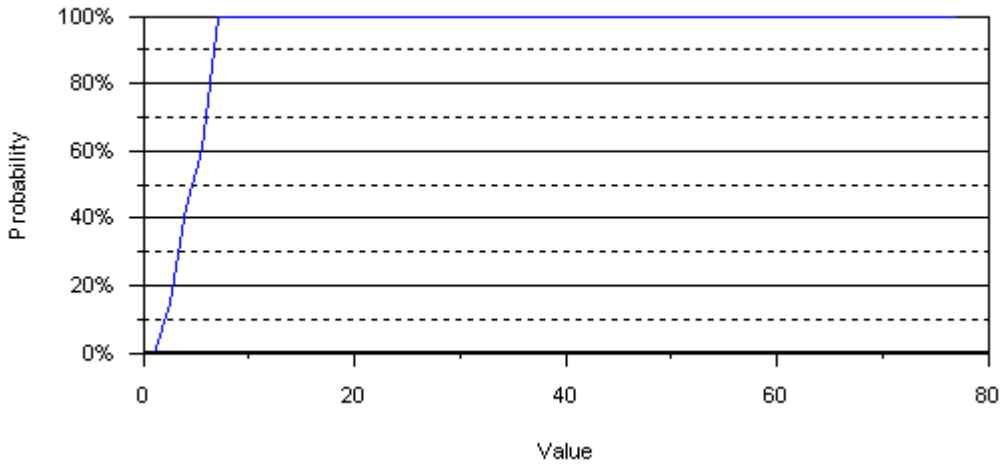
An answer to this question is not required and 48 of 407 respondents chose not to answer.

12c) Establishment of a collection of sample laboratory reports

Probability Density Function



Cumulative Distribution

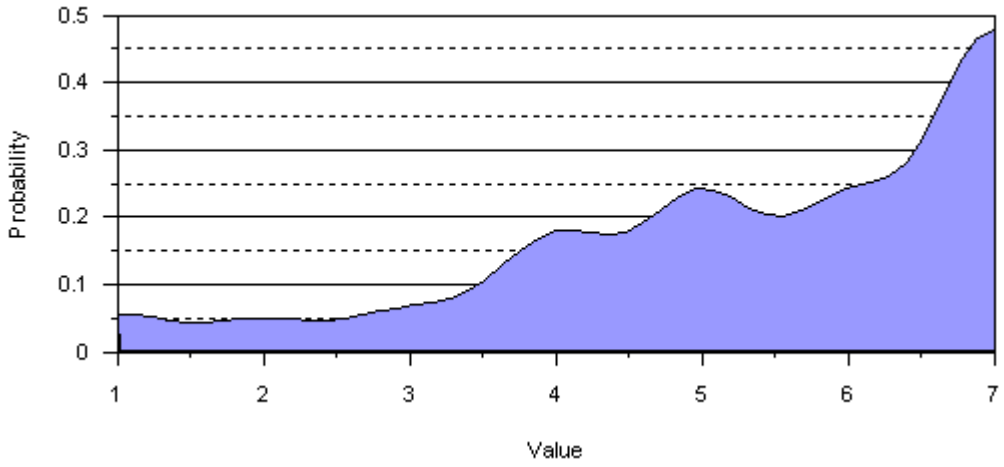


Average:	4.95
Standard Deviation:	4.32
Minimum:	1.00
Maximum:	77.00

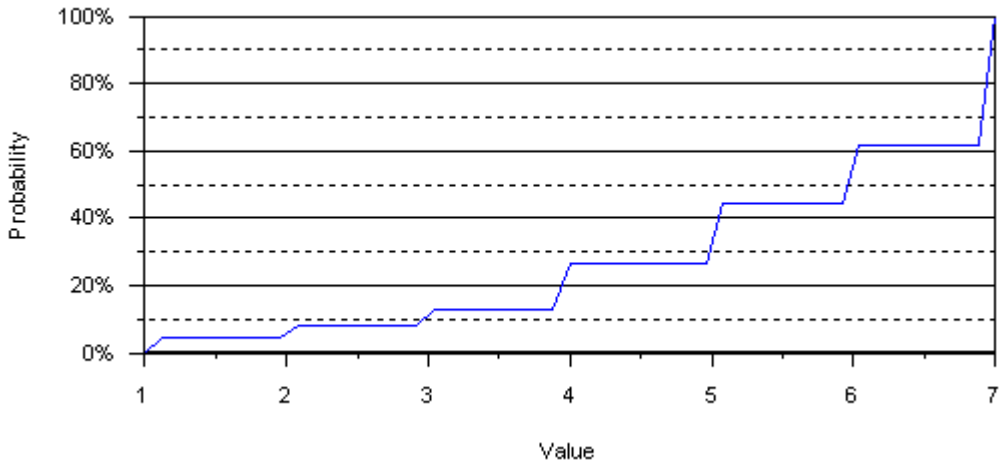
An answer to this question is not required and 60 of 407 respondents chose not to answer.

12d) Creation of a glossary of analytical, explosives, and fire debris-related technology

Probability Density Function



Cumulative Distribution

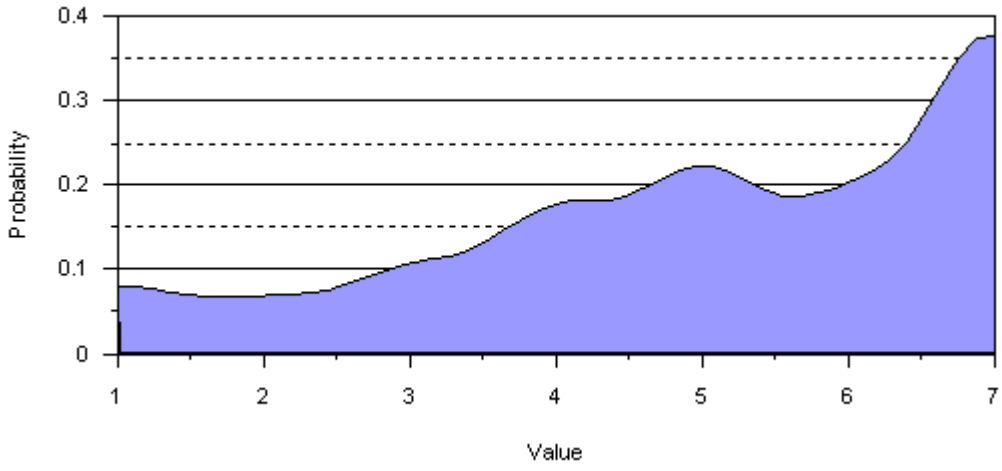


Average:	5.42
Standard Deviation:	1.69
Minimum:	1.00
Maximum:	7.00

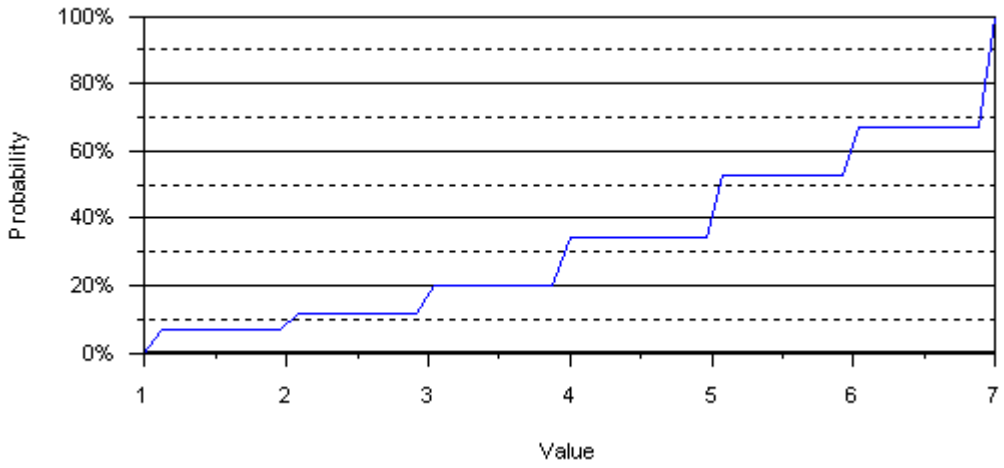
An answer to this question is not required and 53 of 407 respondents chose not to answer.

12e) Creation of information templates for evidence submission

Probability Density Function



Cumulative Distribution

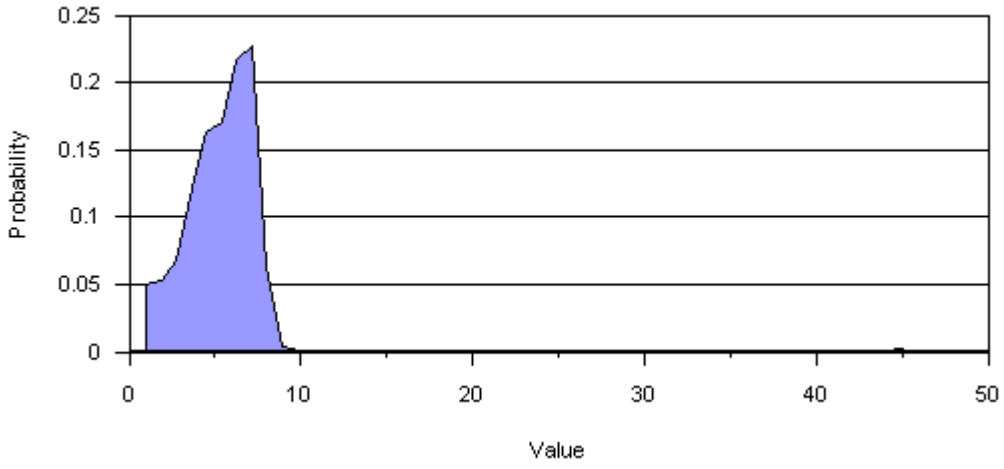


Average:	5.08
Standard Deviation:	1.87
Minimum:	1.00
Maximum:	7.00

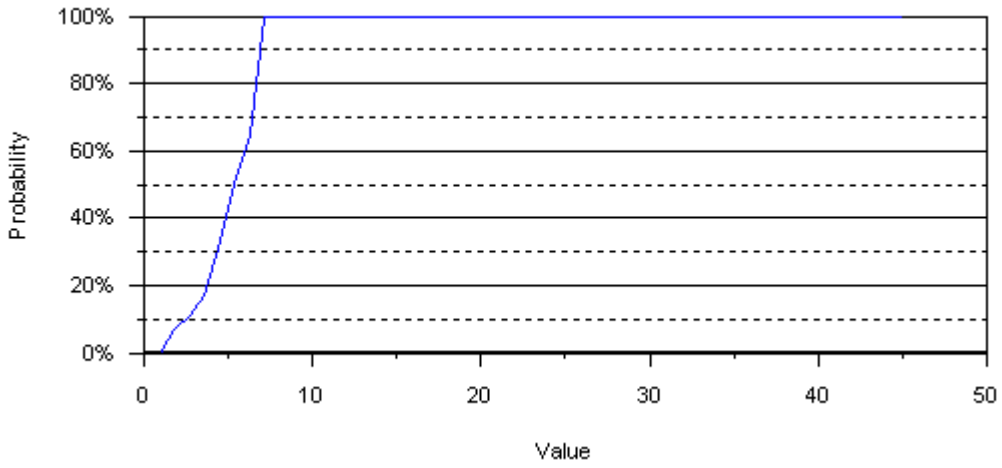
An answer to this question is not required and 54 of 407 respondents chose not to answer.

12f) Establishment of a collection of methods and protocols for analytical techniques

Probability Density Function



Cumulative Distribution

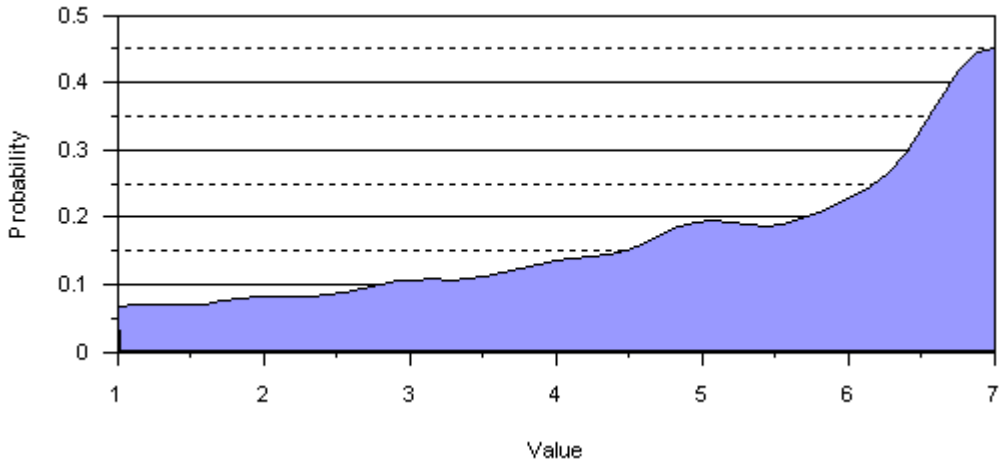


Average:	5.28
Standard Deviation:	2.82
Minimum:	1.00
Maximum:	45.00

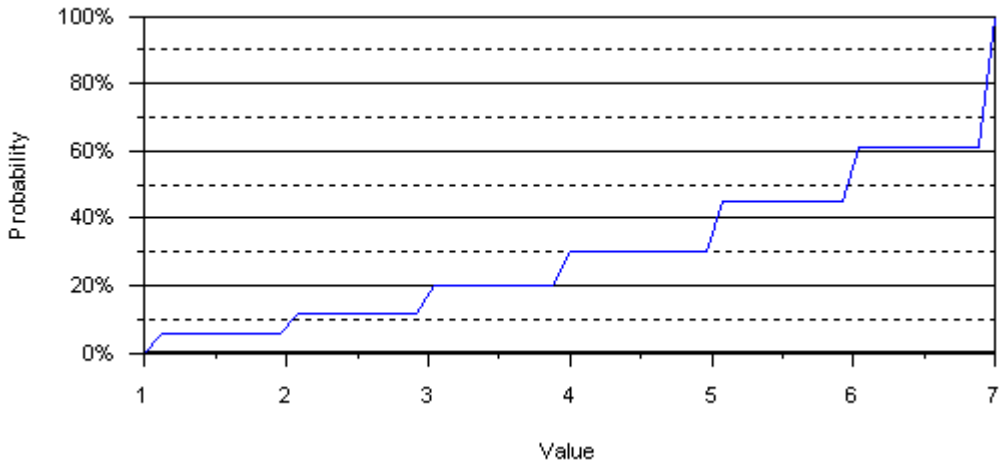
An answer to this question is not required and 59 of 407 respondents chose not to answer.

12g) Establishment of databases of reference materials for analytical techniques

Probability Density Function



Cumulative Distribution

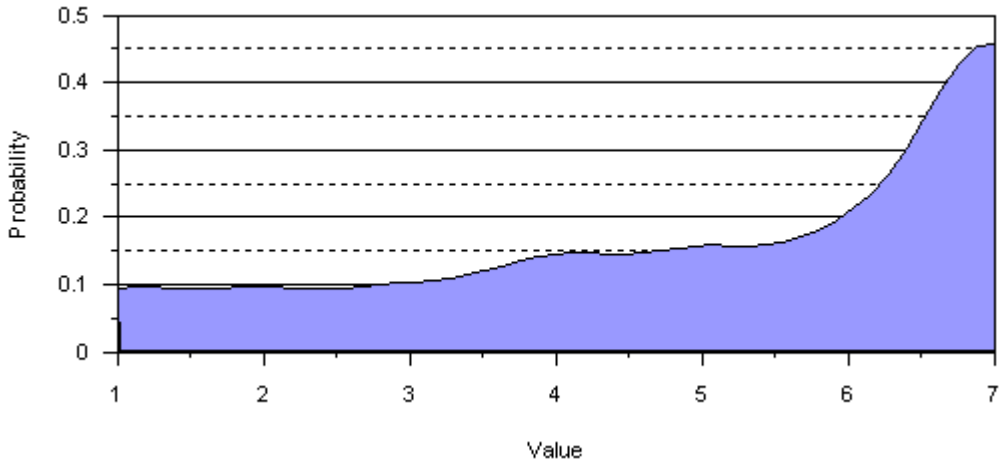


Average:	5.27
Standard Deviation:	1.88
Minimum:	1.00
Maximum:	7.00

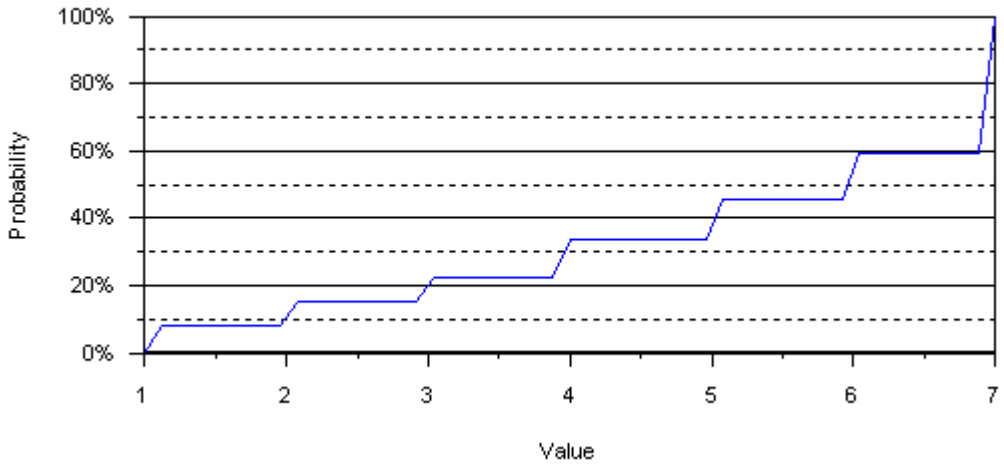
An answer to this question is not required and 64 of 407 respondents chose not to answer.

12h) Creation of a national database for tracking bombing matters

Probability Density Function



Cumulative Distribution

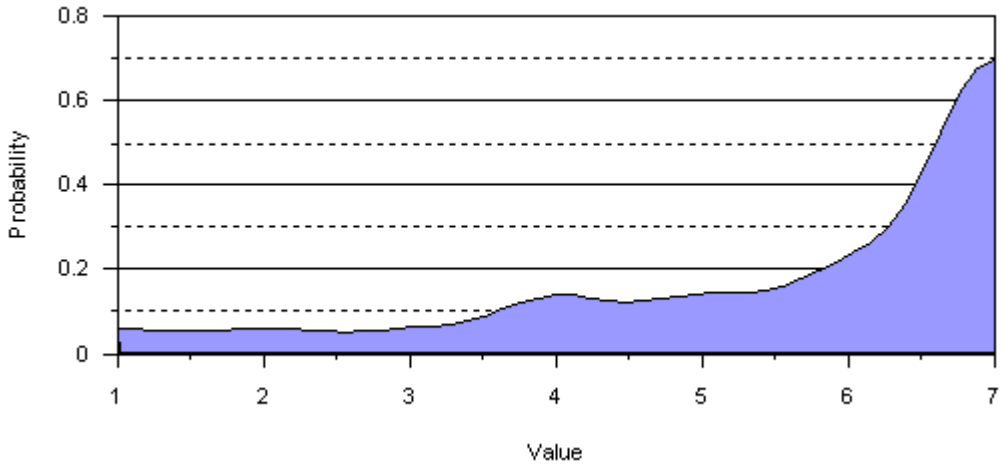


Average:	5.16
Standard Deviation:	2.02
Minimum:	1.00
Maximum:	7.00

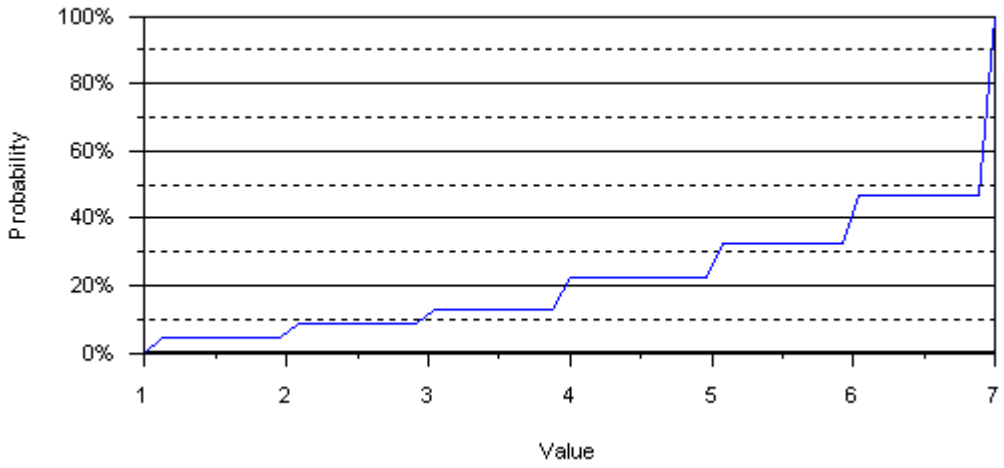
An answer to this question is not required and 62 of 407 respondents chose not to answer.

12i) Creation of a national database for tracking arson matters

Probability Density Function



Cumulative Distribution

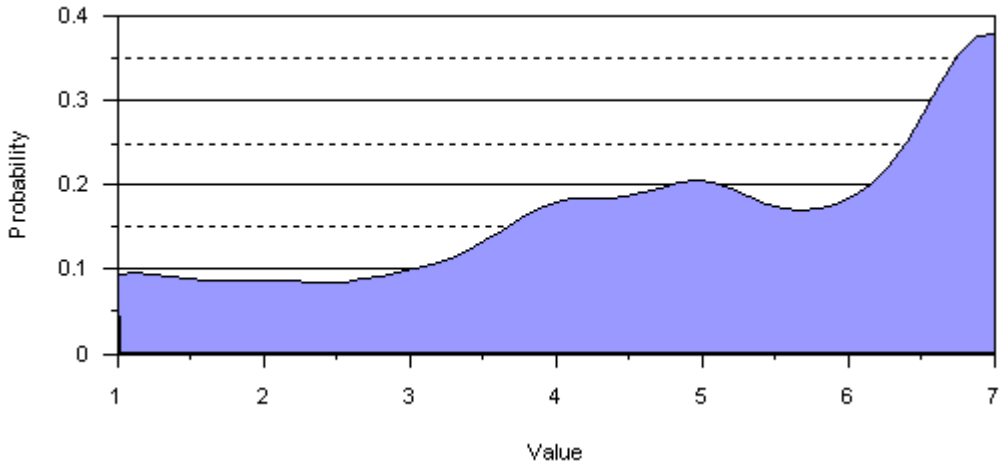


Average:	5.73
Standard Deviation:	1.76
Minimum:	1.00
Maximum:	7.00

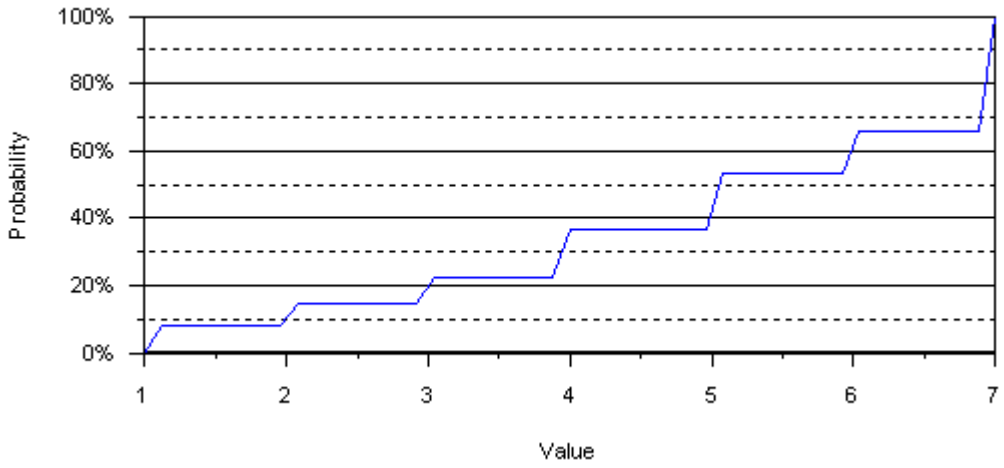
An answer to this question is not required and 57 of 407 respondents chose not to answer.

12j) Establishment of a national resource database (for lab equipment, expertise, etc.)

Probability Density Function



Cumulative Distribution

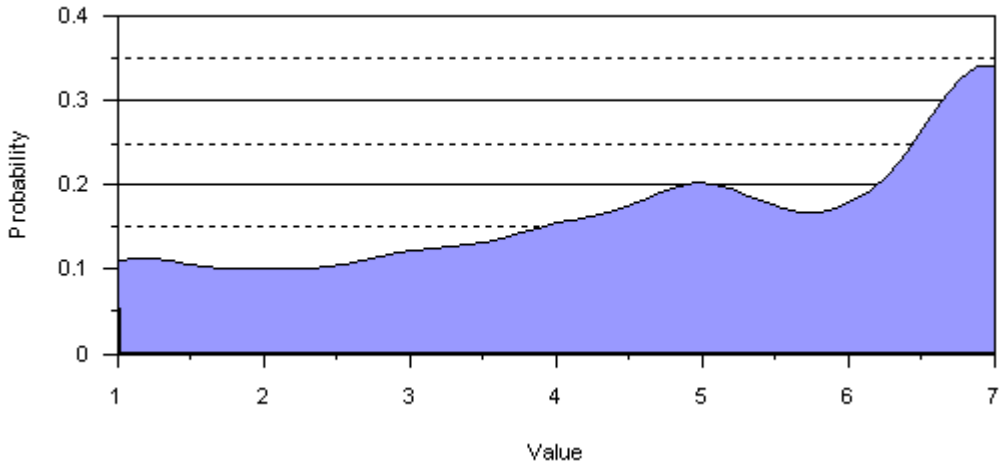


Average:	4.99
Standard Deviation:	1.96
Minimum:	1.00
Maximum:	7.00

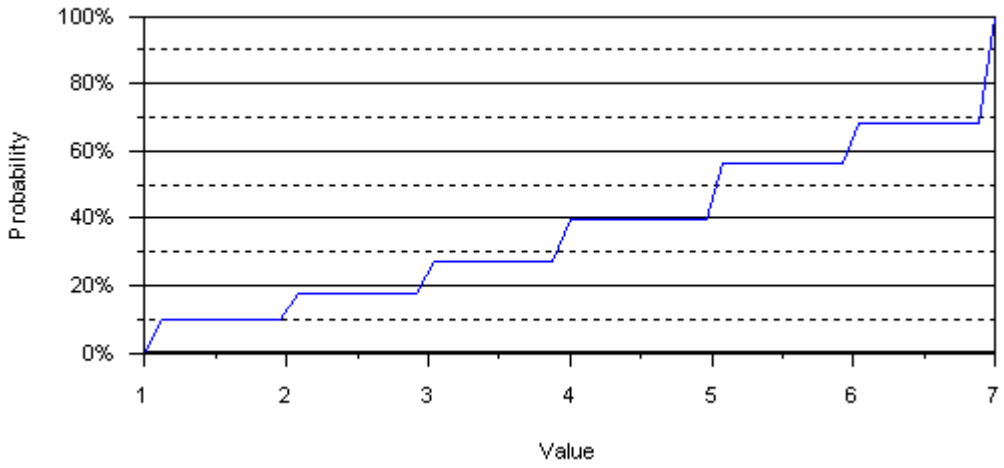
An answer to this question is not required and 64 of 407 respondents chose not to answer.

12k) Establishment of a national explosives formulation database

Probability Density Function



Cumulative Distribution

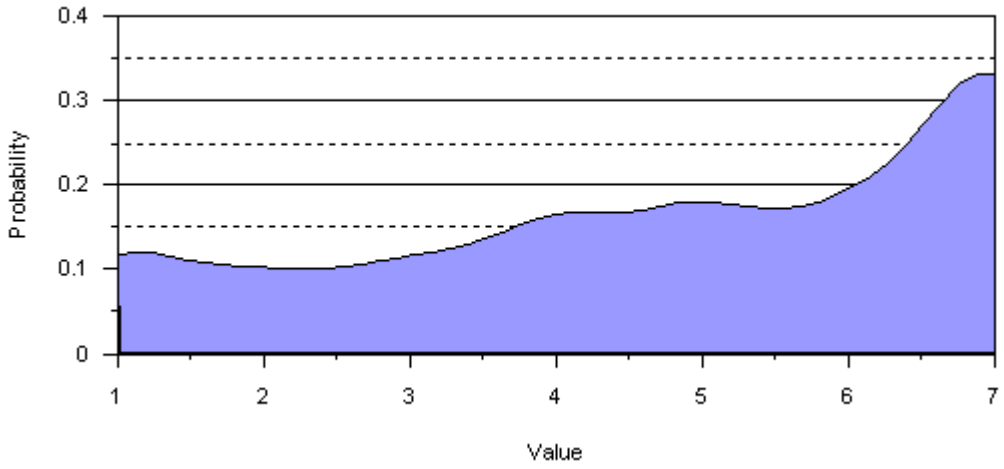


Average:	4.82
Standard Deviation:	2.04
Minimum:	1.00
Maximum:	7.00

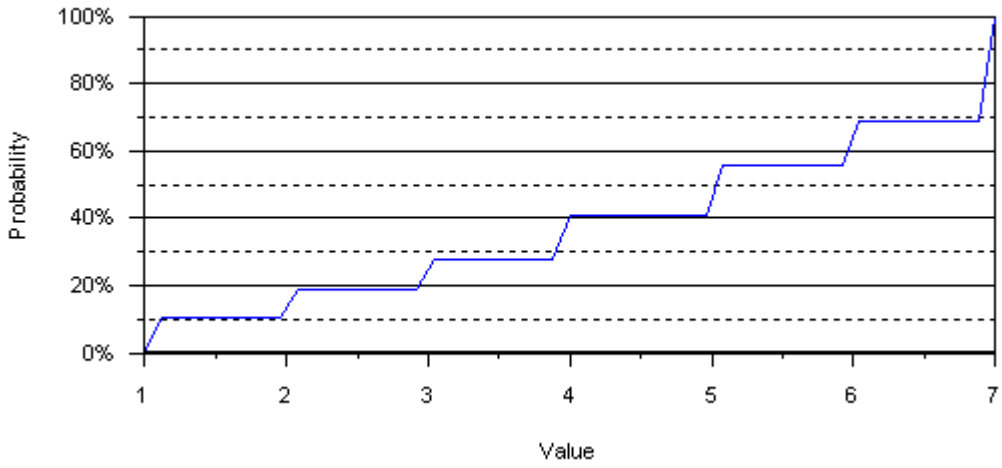
An answer to this question is not required and 66 of 407 respondents chose not to answer.

12I) Creation of a bulletin board for communication between explosives analysts

Probability Density Function



Cumulative Distribution

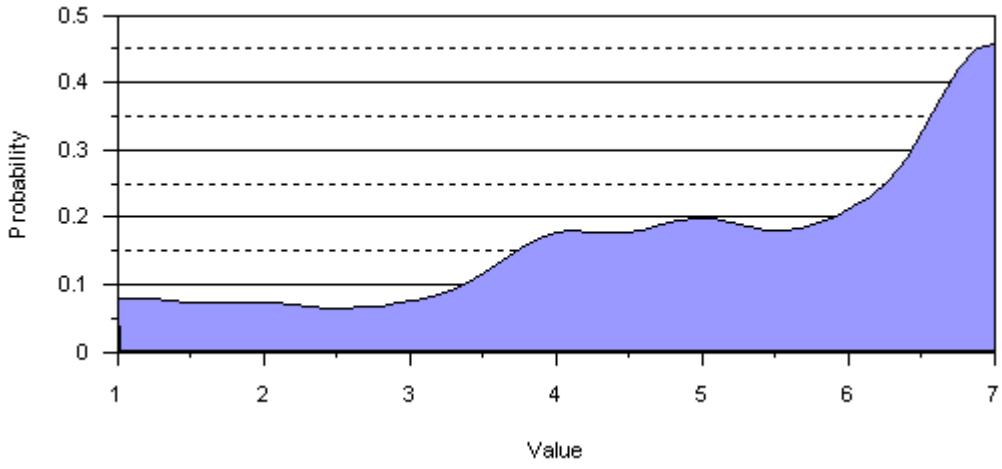


Average:	4.78
Standard Deviation:	2.06
Minimum:	1.00
Maximum:	7.00

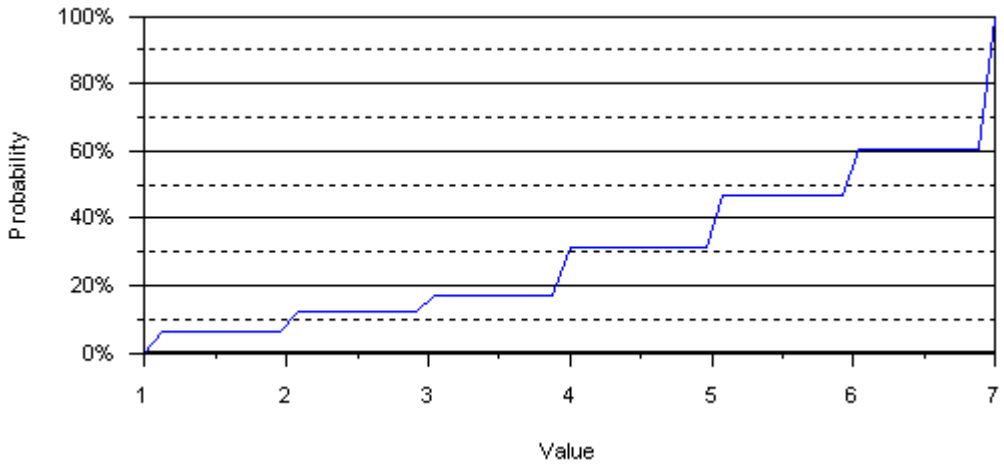
An answer to this question is not required and 71 of 407 respondents chose not to answer.

12m) Creation of a bulletin board for communication between fire debris

Probability Density Function



Cumulative Distribution

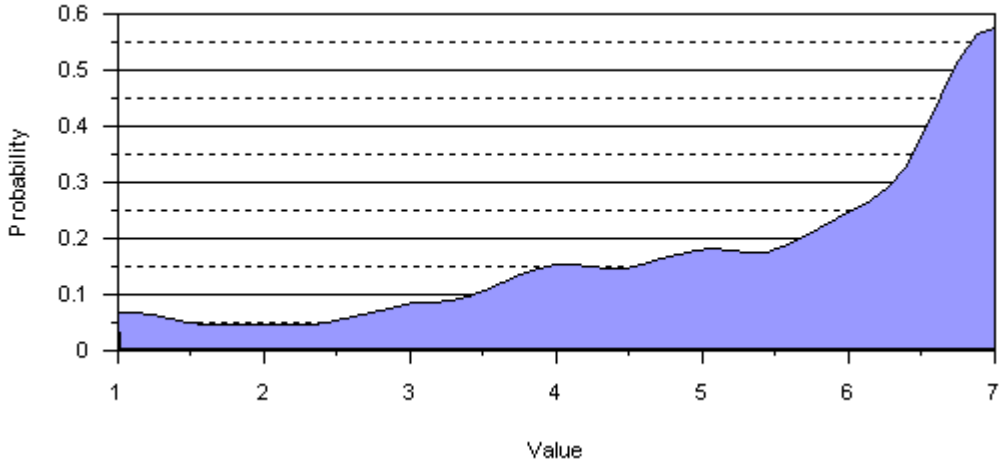


Average:	5.26
Standard Deviation:	1.88
Minimum:	1.00
Maximum:	7.00

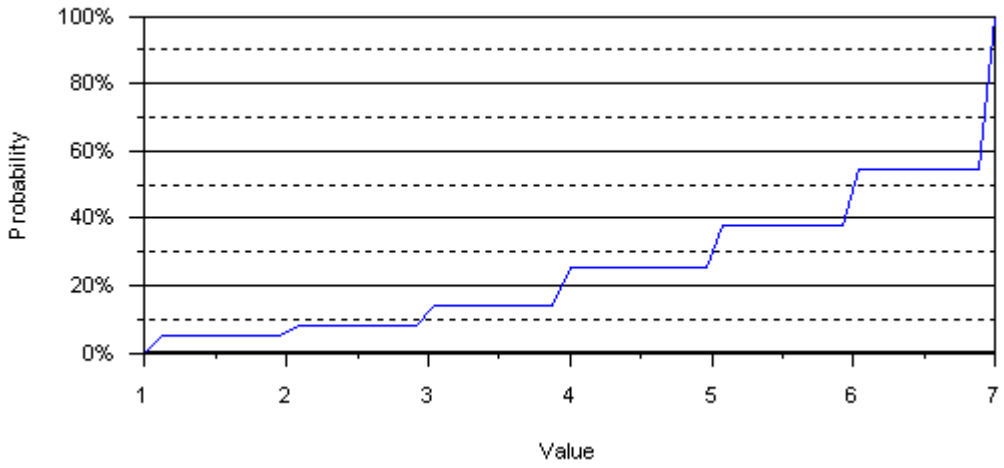
An answer to this question is not required and 69 of 407 respondents chose not to answer.

12n) Creation of an library of manufacturers' literature

Probability Density Function



Cumulative Distribution

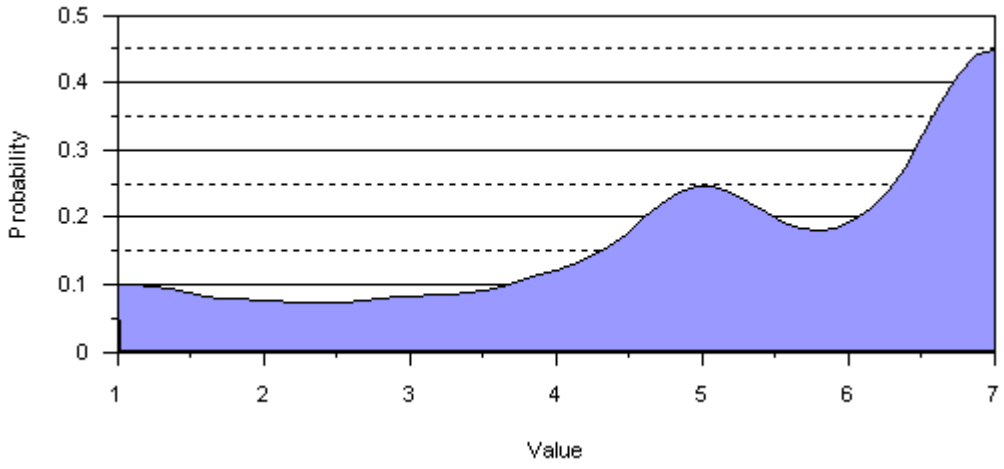


Average:	5.55
Standard Deviation:	1.77
Minimum:	1.00
Maximum:	7.00

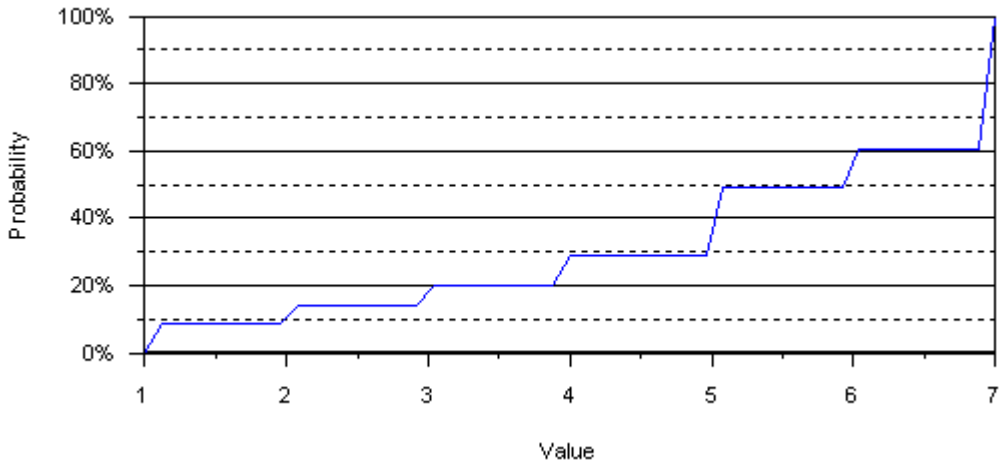
An answer to this question is not required and 60 of 407 respondents chose not to answer.

12o) Database of explosives analyst training manuals and materials

Probability Density Function



Cumulative Distribution

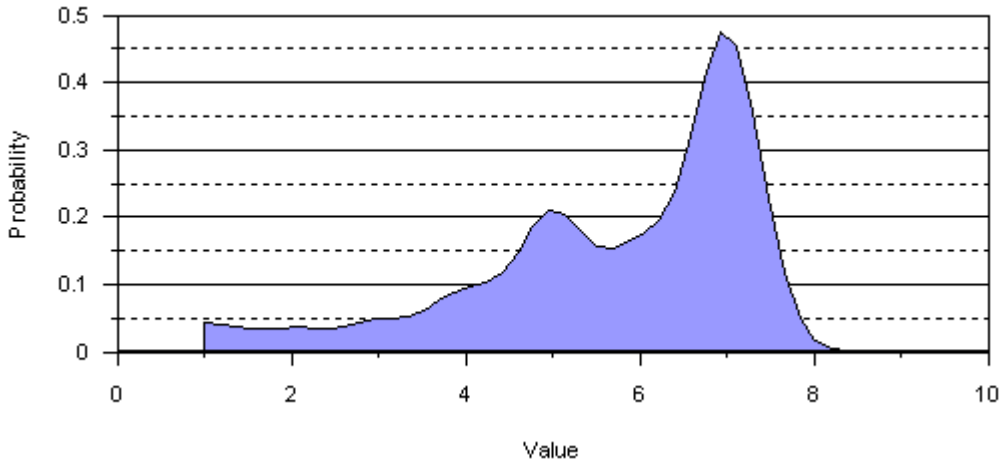


Average:	5.19
Standard Deviation:	1.96
Minimum:	1.00
Maximum:	7.00

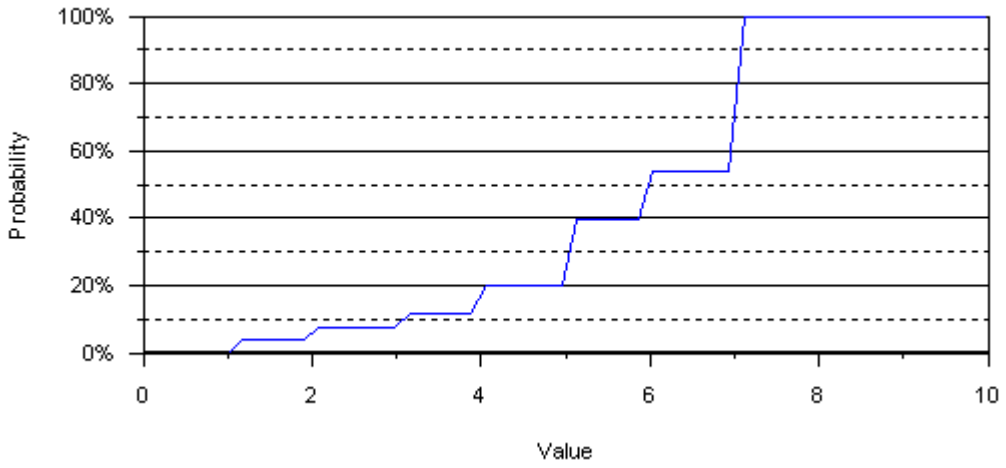
An answer to this question is not required and 65 of 407 respondents chose not to answer.

12p) Information center for inter-agency training exercises

Probability Density Function



Cumulative Distribution



Average:	5.65
Standard Deviation:	1.68
Minimum:	1.00
Maximum:	10.00

An answer to this question is not required and 60 of 407 respondents chose not to answer.

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13) Are you given time and resources to perform research in your field(s)?

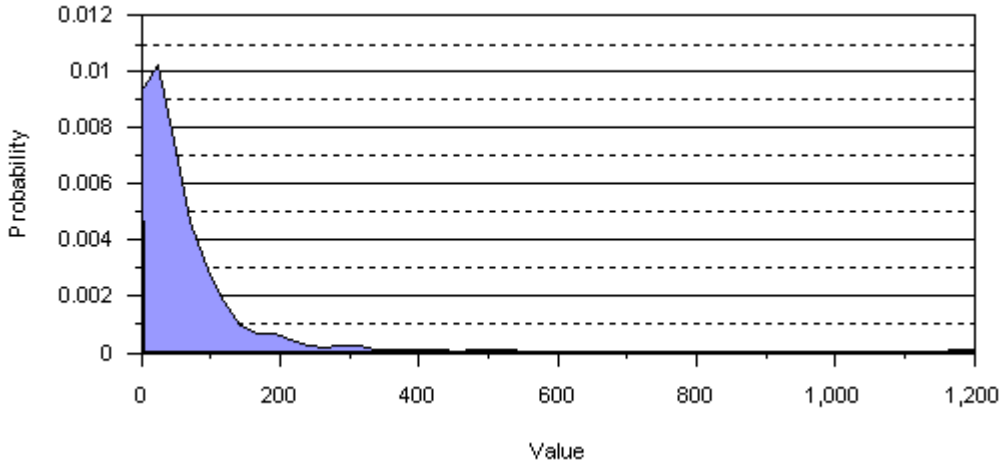
Yes	(203)	54.1%
No	(172)	45.9%
Total	(375)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 32 of 407 respondents chose not to answer.

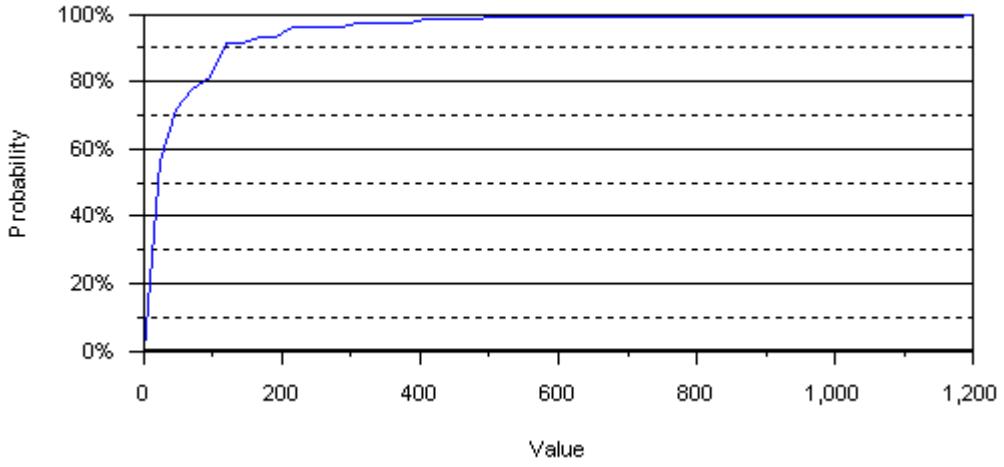
14) If so, approximately how many hours in 2006?

14a) Fire debris analysis

Probability Density Function



Cumulative Distribution



Average:	57.12
Standard Deviation:	128.15
Minimum:	0.00
Maximum:	1,200.00

An answer to this question is not required and 281 of 407 respondents chose not to answer.

14b) Explosives Analysis

- 120
- 20
- 0
- 0
- 0

- 0
- 0
- 20
- 0
- 0
- 10
- 0
- 0
- 0
- 30
- 40
- 25
- 200
- 12
- NA
- 0
- 12
- 0
- 0
- 0
- 25
- 10
- 20
- 20
- 50
- 0
- 1
- 5
- 10
- 0
- 100
- 0
- 50
- 0
- 20
- 0
- 20
- 10
- 0
- 40
- 0
- 40
- 10
- 10
- 0

- 3
- 25
- 0
- 400
- 35
- 0
- 30
- 20
- 10
- 0
- 40
- 0
- 100
- 24
- 300
- 40
- 0
- 96
- 100
- 0
- 0
- 0
- 40
- 1650
- 80
- 0
- 10
- 100
- 0
- 50
- 0
- 10
- n/a
- 0
- 700
- 0
- 0
- 0
- 200
- 80
- na
- 0
- 0
- 144
- 0

- 20
- 1
- 5
- 0
- 0
- 40
- 0
- 25
- 0
- 0
- 30
- 0
- 0
- 50
- 0
- 80
- 0
- 10

An answer to this question is not required and 294 of 407 respondents chose not to answer.

14c) Fire Scenes

- 0
- 100
- 0
- 0
- 60
- 40
- 0
- 0
- 25
- 0
- 0
- 0
- 40
- 0
- 40
- 75
- 40
- 0
- 40

- 0
- 25
- 100
- 100
- NA
- 80
- 100
- 25
- 48
- 0
- 200
- 50
- 1000
- 100
- 6240
- 0
- 50
- 4
- 100
- 25
- 120
- 20
- 1000
- 50
- 1
- 100
- 40
- 250
- 50
- 80
- 75
- 10
- 10
- 200
- 100
- 8
- 300
- 24
- 100
- 80
- 40
- 30
- 500
- 60
- 1000

- 20
- 80
- 10
- 0
- 12
- 20
- 40
- 100
- 40
- 20
- 50
- 10
- 80
- 0
- 40
- 200
- 60
- 50
- 1000
- 24
- 100
- 80
- 100
- 250
- 20
- 25
- 1000
- 25
- 30
- 60
- 150
- 40
- 900
- 15
- 1100
- 100
- 80
- 40
- 1800
- 96
- 70
- 8
- 0
- 120
- 20

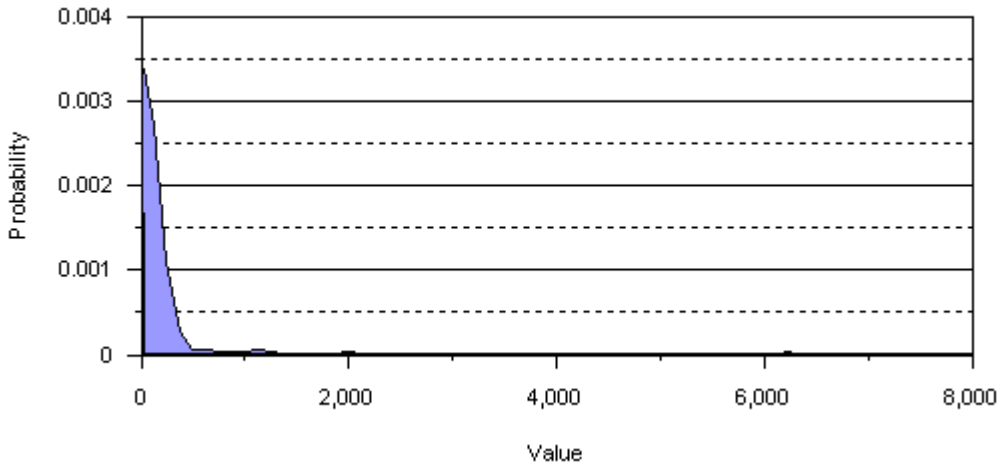
- 60
- 55
- 300
- 50
- 60
- 75
- 500
- 50
- 0
- 30
- 48
- 4
- 40
- 80
- 40
- 20
- 200
- 100
- 56
- 20
- 20
- 40
- >100
- >80
- 100
- 150
- n/a
- 200
- 4
- 25
- 24
- 50
- 20
- 40
- 40
- 40
- 0
- 100
- 0
- na
- 80
- 131
- 10
- 100
- 0

- 0
- 0
- 4
- 100
- 40
- 40
- 10
- 40
- 0
- 100
- 2
- 0
- 50
- 80
- 0
- 150
- 0
- 200
- 20
- 0

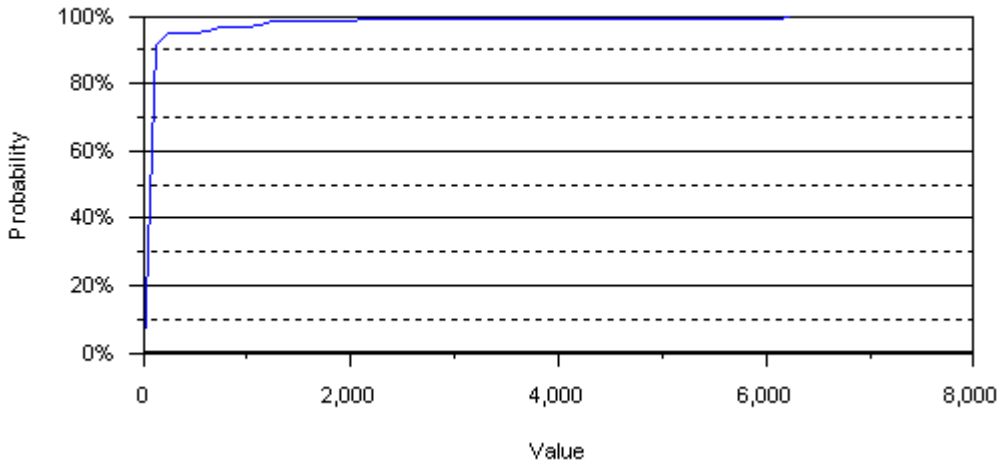
An answer to this question is not required and 233 of 407 respondents chose not to answer.

14d) Explosive Scenes

Probability Density Function



Cumulative Distribution



Average:	121.92
Standard Deviation:	614.91
Minimum:	0.00
Maximum:	6,240.00

An answer to this question is not required and 288 of 407 respondents chose not to answer.

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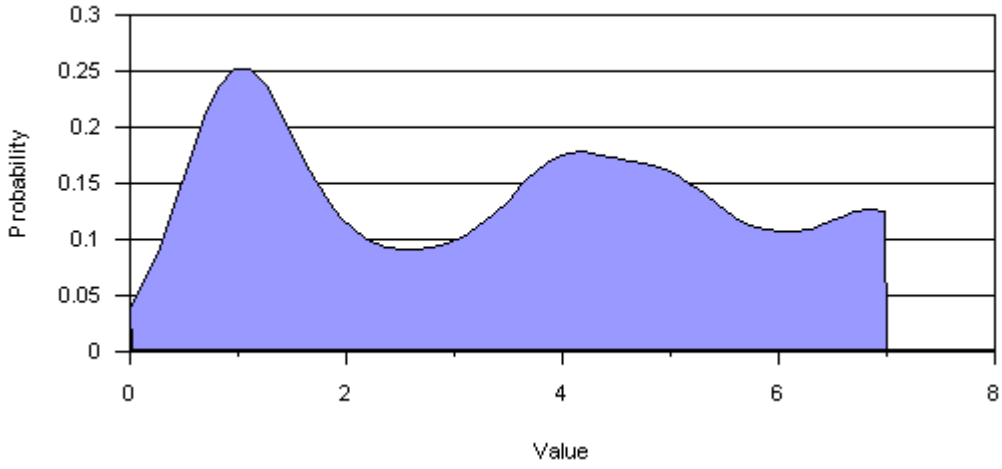
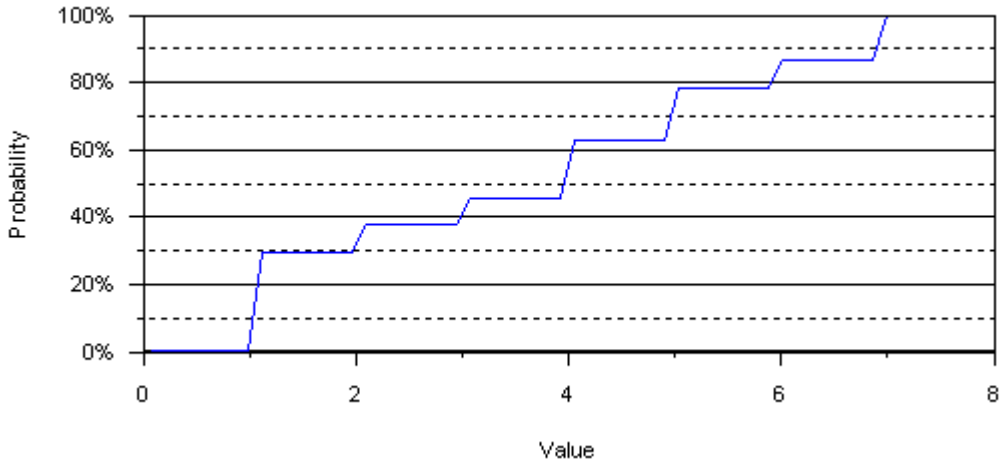
15) Rate each of the following statements as they apply to your laboratory or to you using the scale given below: (1-7 where: 1 = Not at all, 7 = Very)

15a) How sufficient are the explosives and fire debris publications provided by your laboratory?

Probability Density Function



Cumulative Distribution

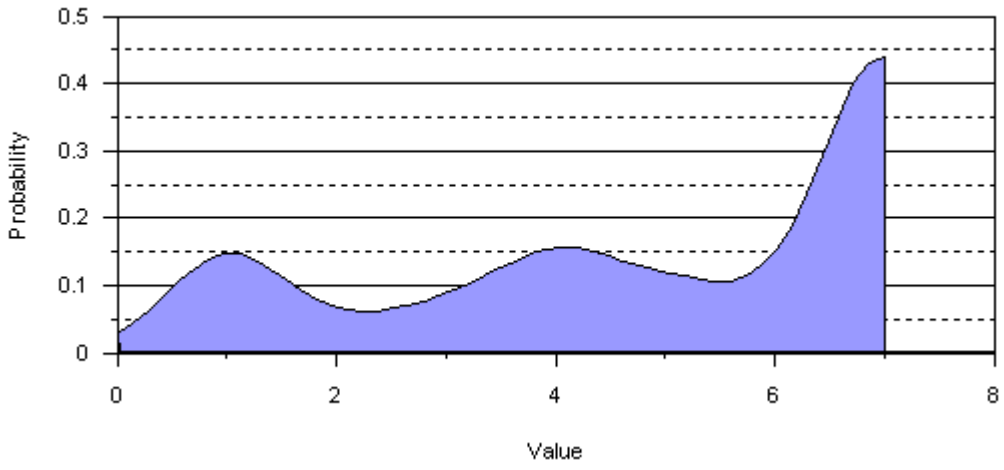


Average:	3.60
Standard Deviation:	2.16
Minimum:	0.00
Maximum:	7.00

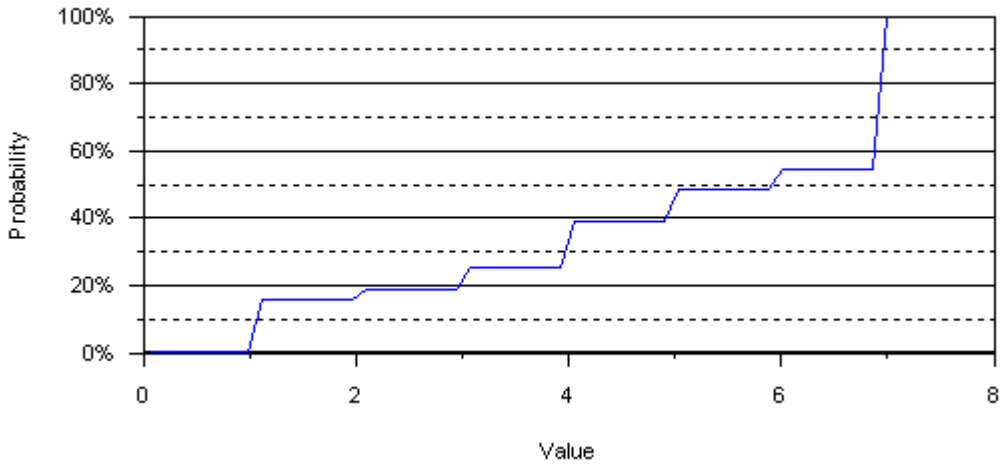
An answer to this question is not required and 229 of 407 respondents chose not to answer.

15b) How interested would your laboratory be in receiving a library of ignitable liquid standards on a regular basis?

Probability Density Function



Cumulative Distribution

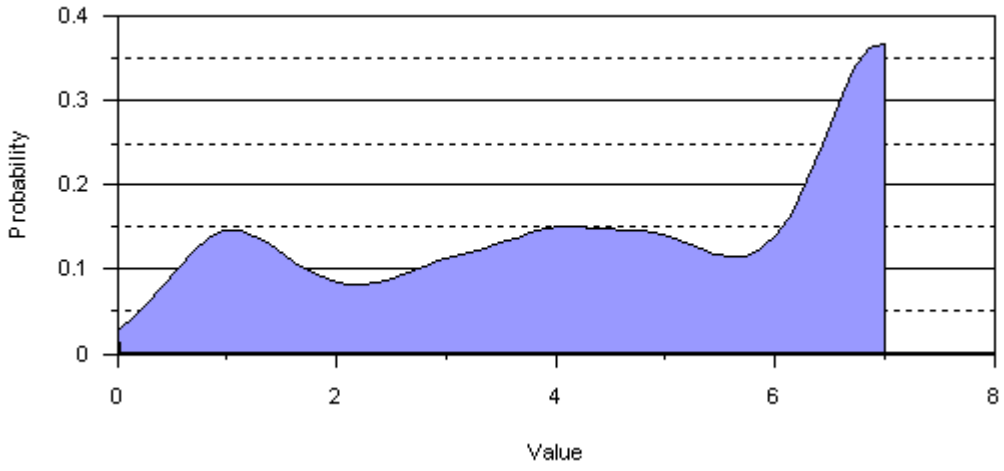


Average:	4.98
Standard Deviation:	2.27
Minimum:	0.00
Maximum:	7.00

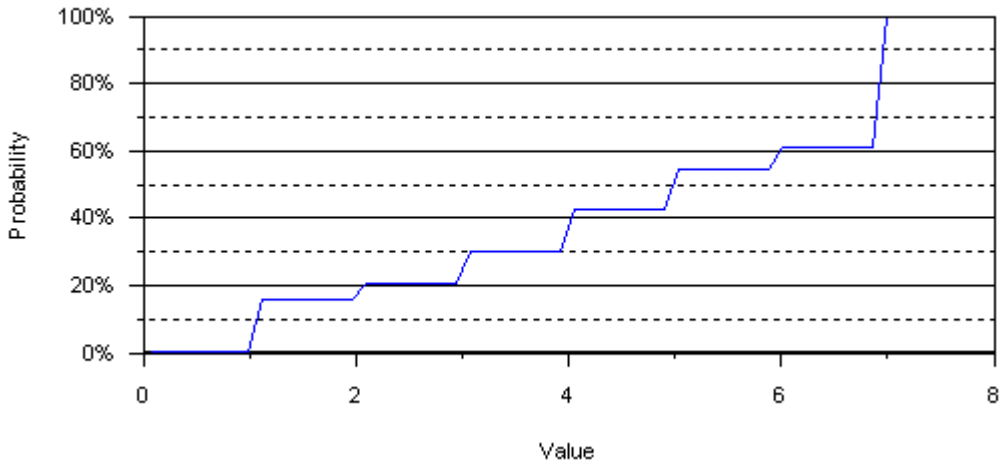
An answer to this question is not required and 233 of 407 respondents chose not to answer.

15c) How interested would your laboratory be in receiving a library of pyrolysis standards on a regular basis?

Probability Density Function



Cumulative Distribution

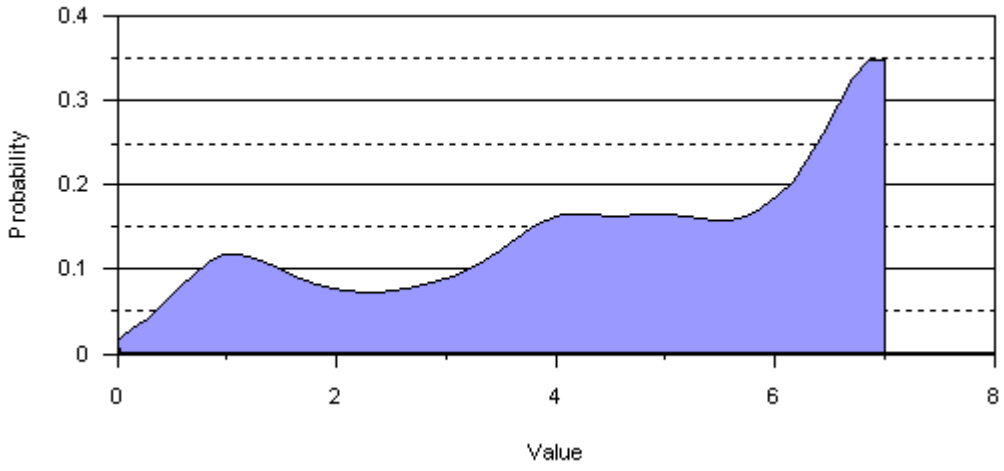


Average:	4.75
Standard Deviation:	2.26
Minimum:	0.00
Maximum:	7.00

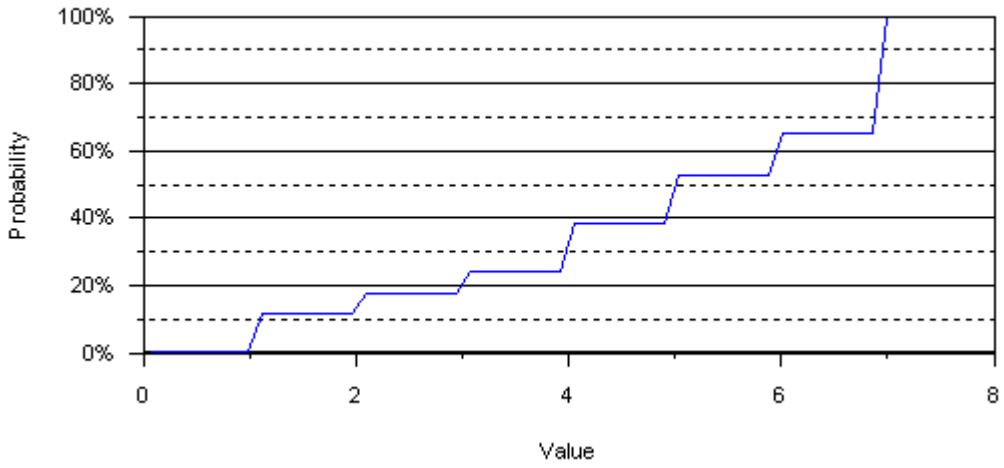
An answer to this question is not required and 233 of 407 respondents chose not to answer.

15d) How important do you feel it would be to have national standards for report writing?

Probability Density Function



Cumulative Distribution

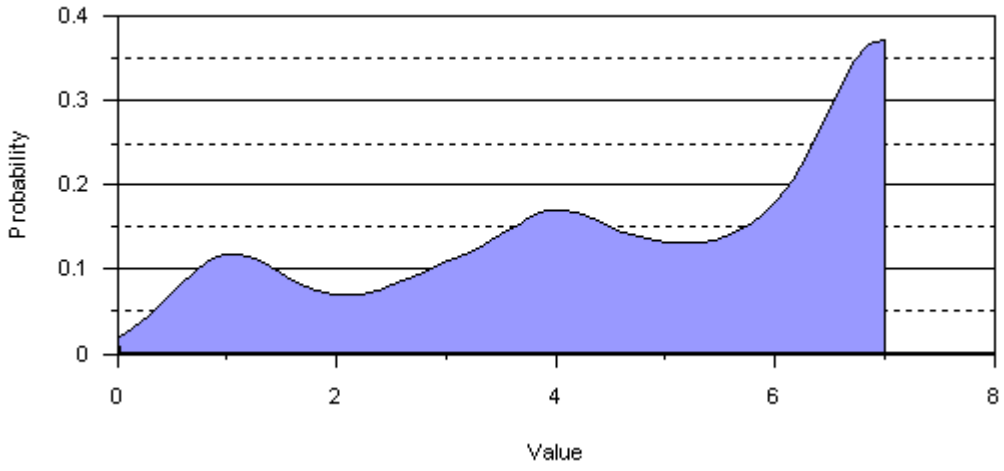


Average:	4.90
Standard Deviation:	2.10
Minimum:	0.00
Maximum:	7.00

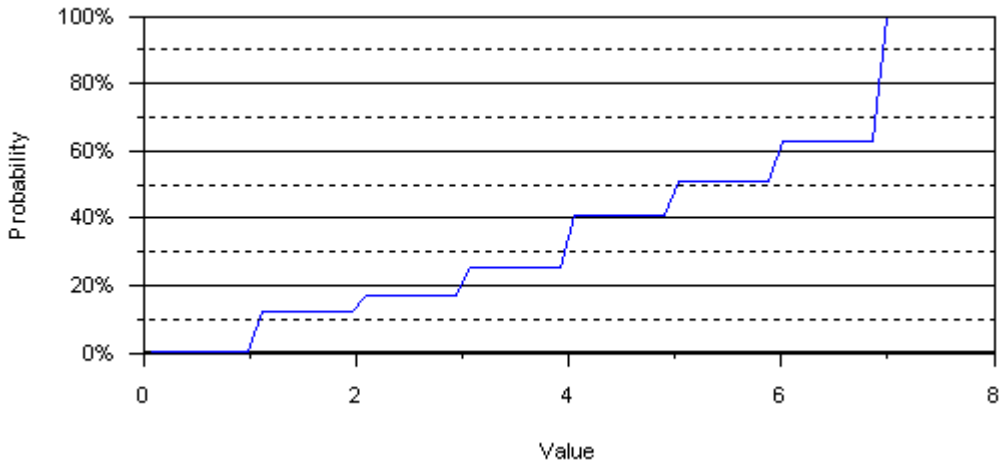
An answer to this question is not required and 197 of 407 respondents chose not to answer.

15e) How important would it be to have a specific protocol for wording of both positive and negative samples?

Probability Density Function



Cumulative Distribution

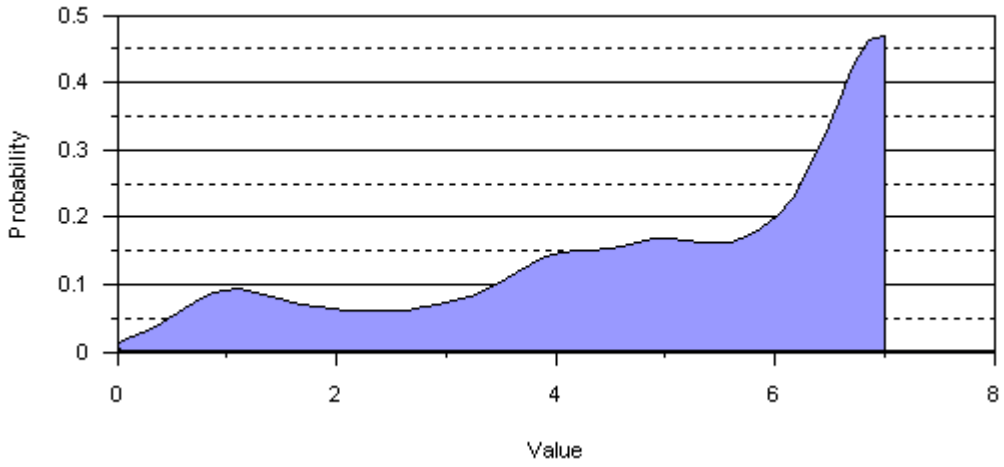


Average:	4.91
Standard Deviation:	2.13
Minimum:	0.00
Maximum:	7.00

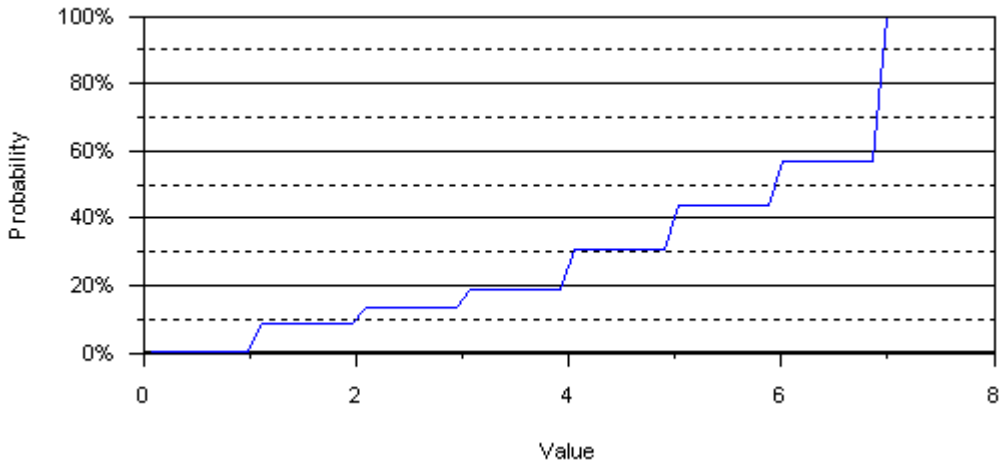
An answer to this question is not required and 210 of 407 respondents chose not to answer.

15f) How important would it be to have a national database for chromatographic data for ignitable liquids?

Probability Density Function



Cumulative Distribution

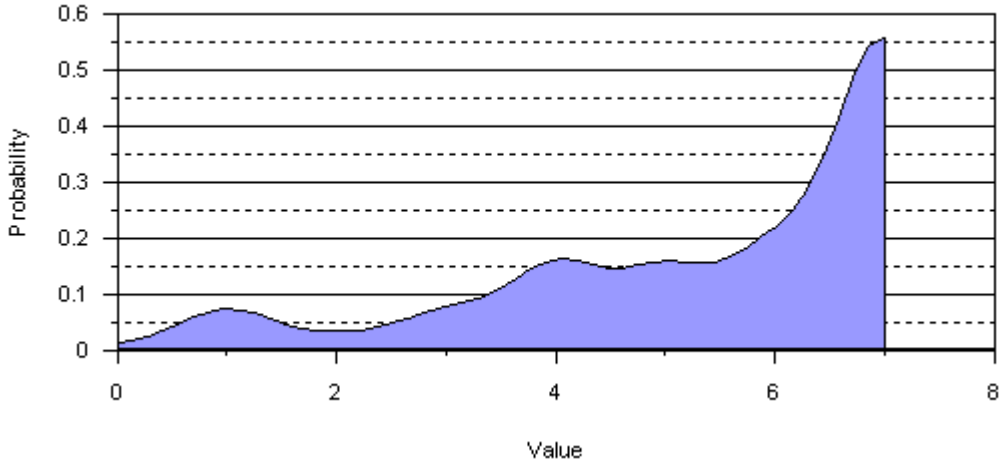


Average:	5.28
Standard Deviation:	2.00
Minimum:	0.00
Maximum:	7.00

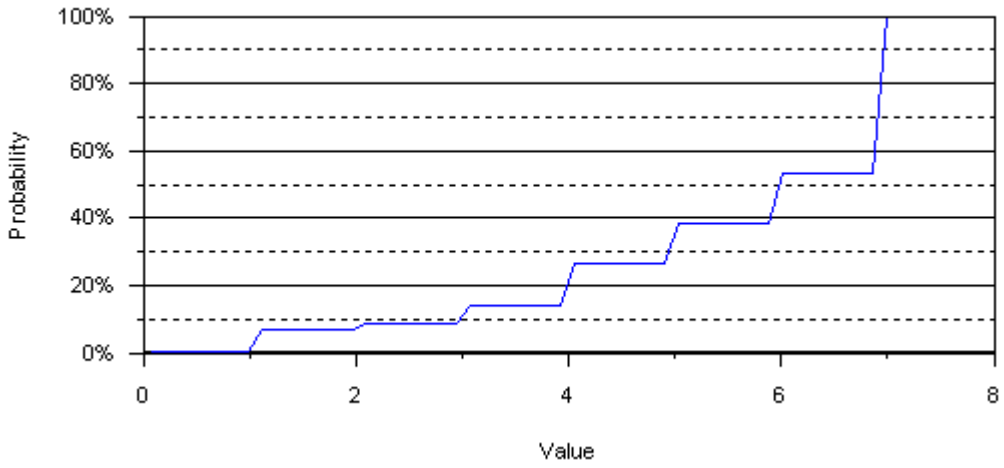
An answer to this question is not required and 213 of 407 respondents chose not to answer.

15g) How important would it be to have a national source for ignitable liquid standards?

Probability Density Function



Cumulative Distribution

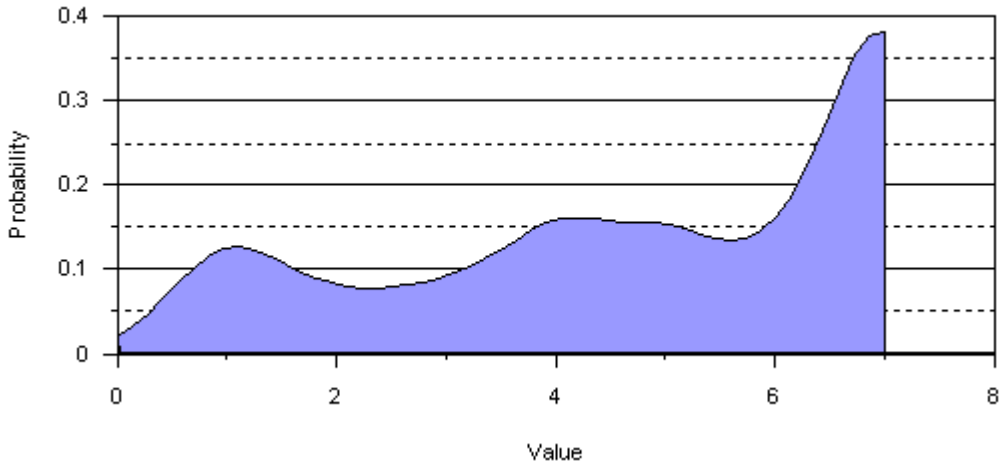


Average:	5.52
Standard Deviation:	1.84
Minimum:	0.00
Maximum:	7.00

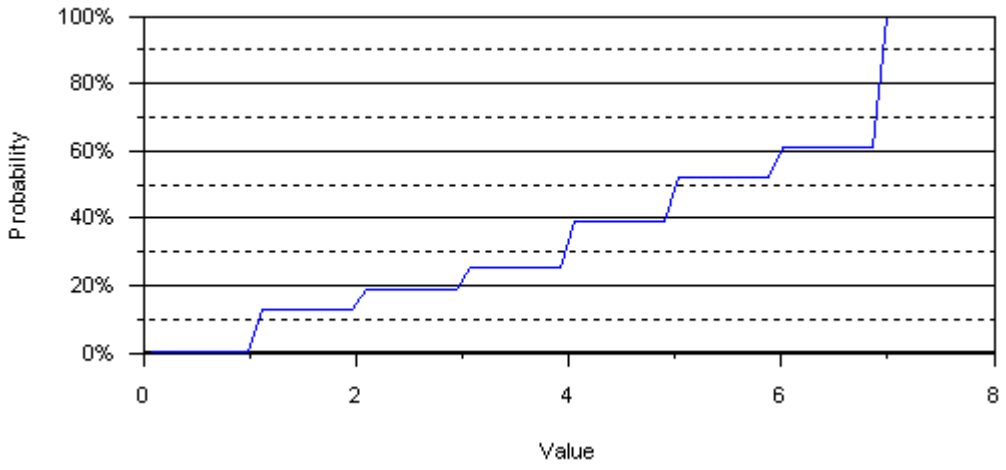
An answer to this question is not required and 209 of 407 respondents chose not to answer.

15h) How interested are you in participating in the fire and explosives debris analysis technical working group?

Probability Density Function



Cumulative Distribution



Average:	4.90
Standard Deviation:	2.16
Minimum:	0.00
Maximum:	7.00

An answer to this question is not required and 203 of 407 respondents chose not to answer.

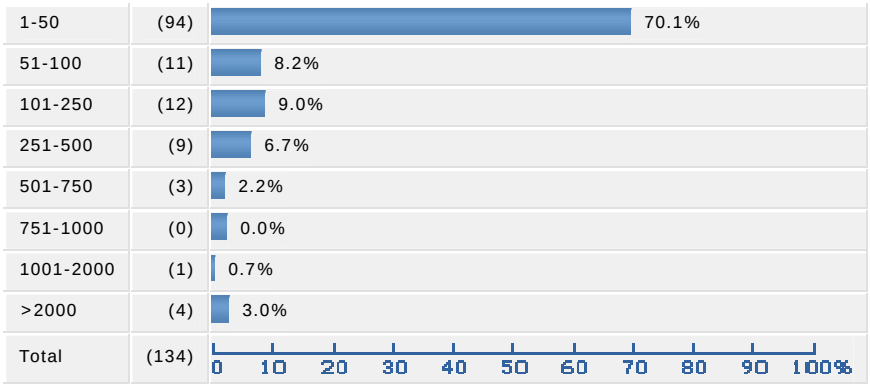
iii) **Part C. Fire Debris Analysis Case Work (Check an answer only on those questions which apply to you)**

16) Indicate the total number of fire debris samples analyzed/processed in 2006 by all the analysts within your agency (check one):

1-50	(87)	60.4%
51-100	(16)	11.1%
101-250	(13)	9.0%
251-500	(8)	5.6%
501-750	(6)	4.2%
751-1000	(4)	2.8%
1001-2000	(3)	2.1%
>2000	(7)	4.9%
Total	(144)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 263 of 407 respondents chose not to answer.

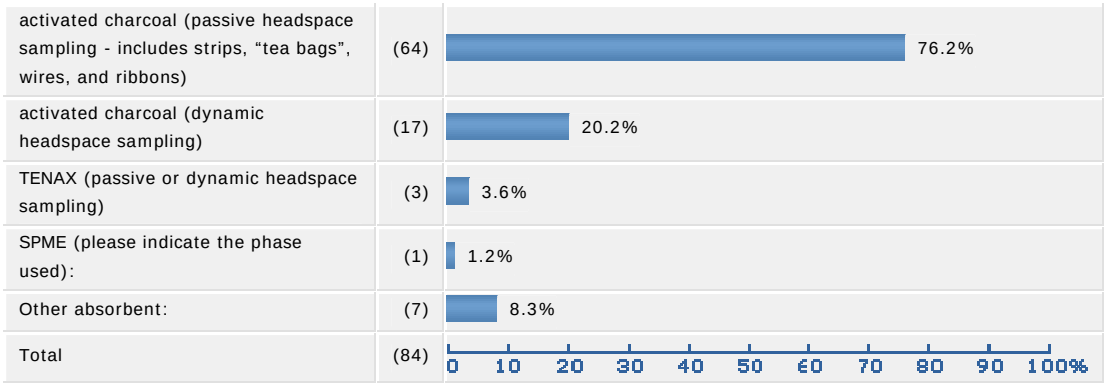
16a) Indicate the total number of ignitable liquid samples analyzed/processed in 2006 by all the analysts within your agency (check one):



An answer to this question is not required and 273 of 407 respondents chose not to answer.

iv) **Part D. Fire Debris Analytical Methods (Check an answer only on those questions which apply to you)**

17) Extraction method routinely used for fire debris analysis (check one):



An answer to this question is not required and 323 of 407 respondents chose not to answer.

17a) If you checked *"SPME"* (Please indicate the phase used here):

- none
- n/a

An answer to this question is not required and 405 of 407 respondents chose not to answer.

17b) If you checked *"Other* absorbent" above, (please specify which one used here):

- N/A
- solid or bulk sample
- gauze pads
- n/a
- non-bleached flour
- clay chips/ sterile pads

An answer to this question is not required and 401 of 407 respondents chose not to answer.

18) Indicate which eluting solvent used for extracts from fire debris:

no eluting solvent used (e.g. thermal desorption or SPME)	(11)	16.4%
carbon disulfide (CS2)	(38)	56.7%
dichloromethane (CH2Cl2)	(5)	7.5%
diethyl ether	(6)	9.0%
pentane	(11)	16.4%
Other (specify):	(4)	6.0%
Total	(67)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 340 of 407 respondents chose not to answer.

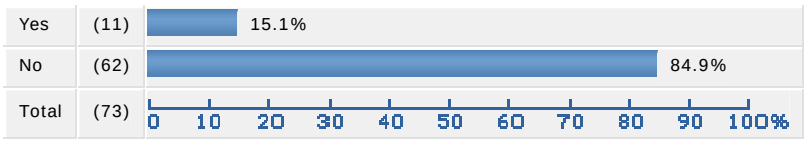
18a) If you checked *"Other"* above (please specify which one was used here):

- CS2/Pentane 1:1
- none
- N/A
- n/a
- unknown
- not preformed

An answer to this question is not required and 401 of 407 respondents chose not to answer.

---

19) Internal standard routinely added to fire debris?



An answer to this question is not required and 334 of 407 respondents chose not to answer.

19a) If "Yes", (please specify which compound(s) used):

- 3 pphenyl toluene used in lab can controls for recovery
- 3PT
- trichloroethylene
- but BHT is in ether
- 3-phenyltoluene
- 3 phenyl toluene
- 3-phenyltoluene
- none
- 3-phenyltoluene
- N/A
- kflex

An answer to this question is not required and 396 of 407 respondents chose not to answer.

---

20) Internal standard routinely added to eluting solvent (if solvent used to elute absorbent)?

Yes	(10)	15.2%
No	(56)	84.8%
Total	(66)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 341 of 407 respondents chose not to answer.

20a) If "Yes", (please specify which compound(s) used):

- Trichloroethane
- PCE
- diphenylmethane
- Alane mix
- thiophene
- none
- perchloroethylene
- N/A
- alcohols, gas, kerosene, diesel fuel

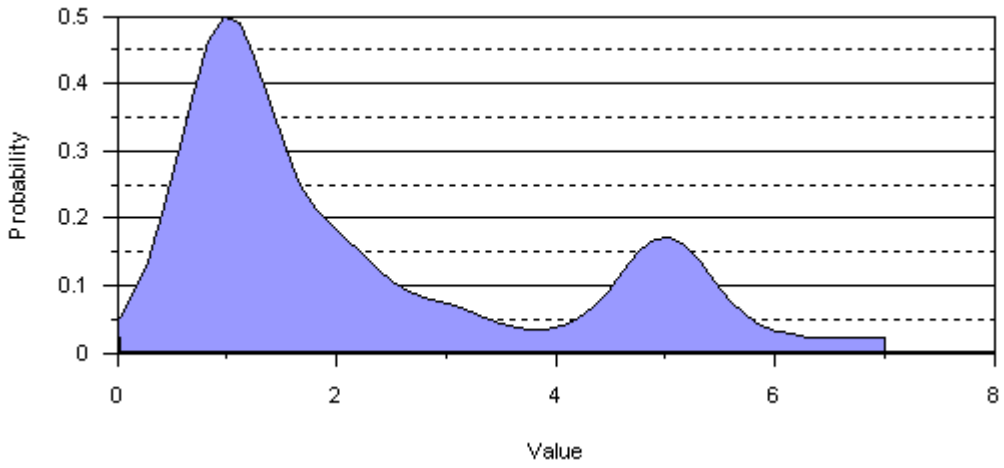
An answer to this question is not required and 398 of 407 respondents chose not to answer.

---

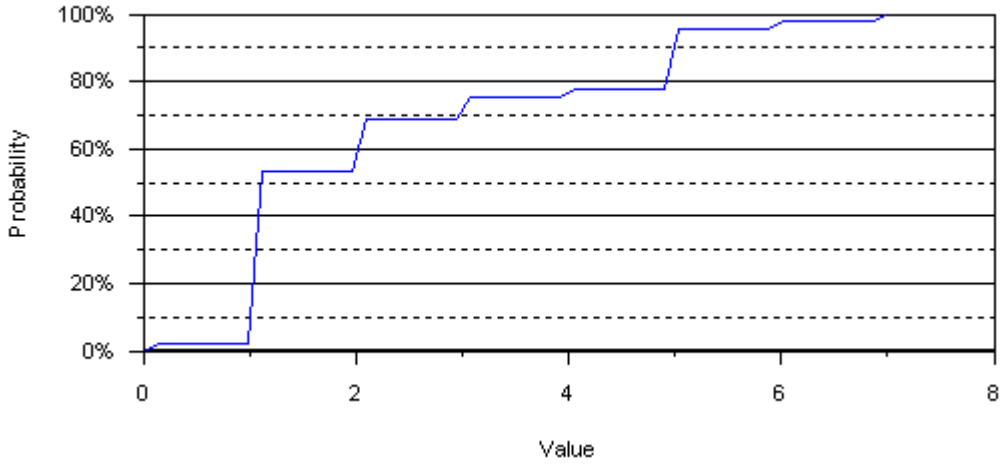
21) For Instrumentation used in fire debris and/or ignitable liquid analysis, how often do you use each of the following analytical techniques? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

21a) GC-FID

Probability Density Function



Cumulative Distribution

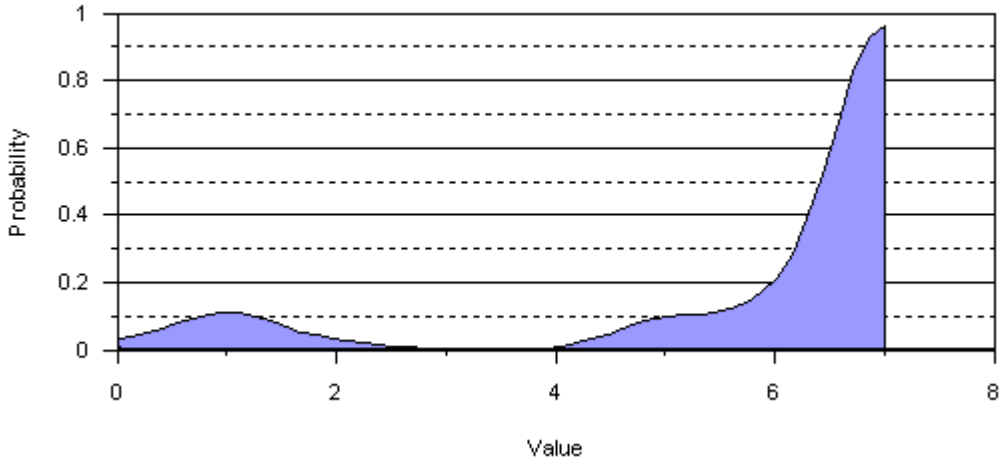


Average:	2.29
Standard Deviation:	1.80
Minimum:	0.00
Maximum:	7.00

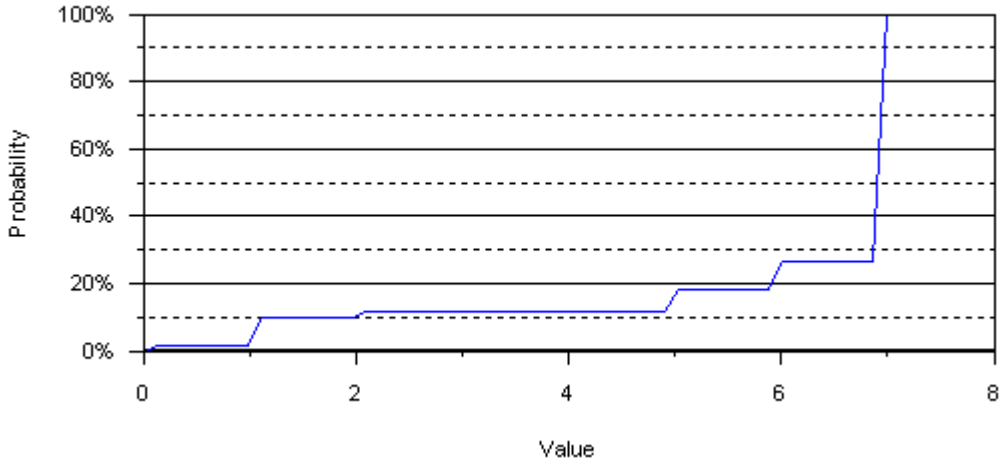
An answer to this question is not required and 362 of 407 respondents chose not to answer.

21b) GC-MS

Probability Density Function



Cumulative Distribution

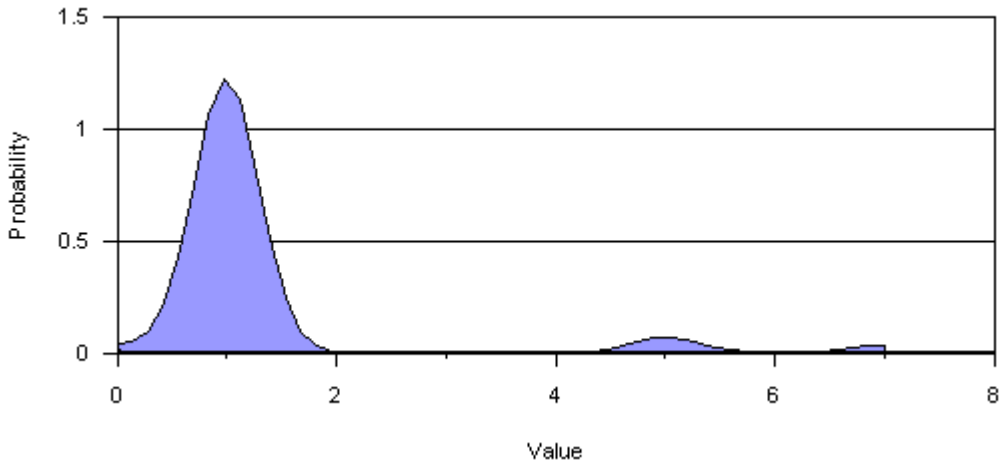


Average:	6.08
Standard Deviation:	1.95
Minimum:	0.00
Maximum:	7.00

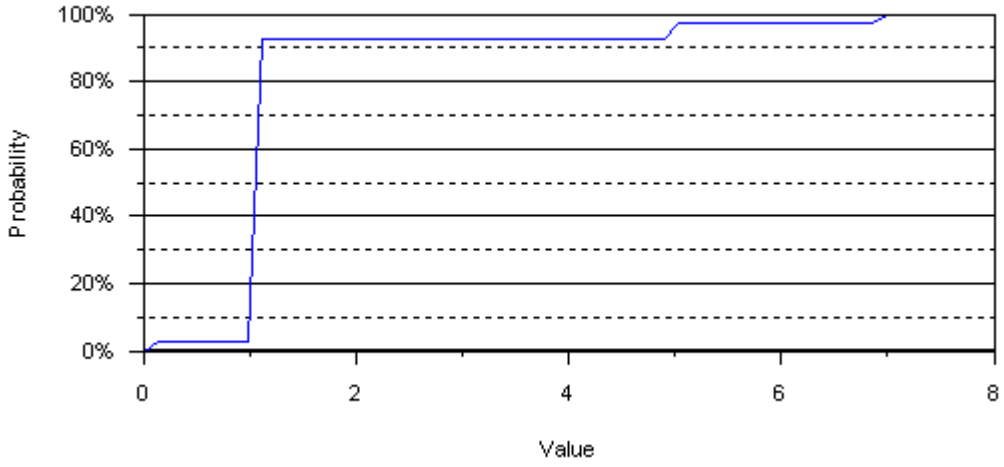
An answer to this question is not required and 347 of 407 respondents chose not to answer.

21c) GC-MS-MS

Probability Density Function



Cumulative Distribution

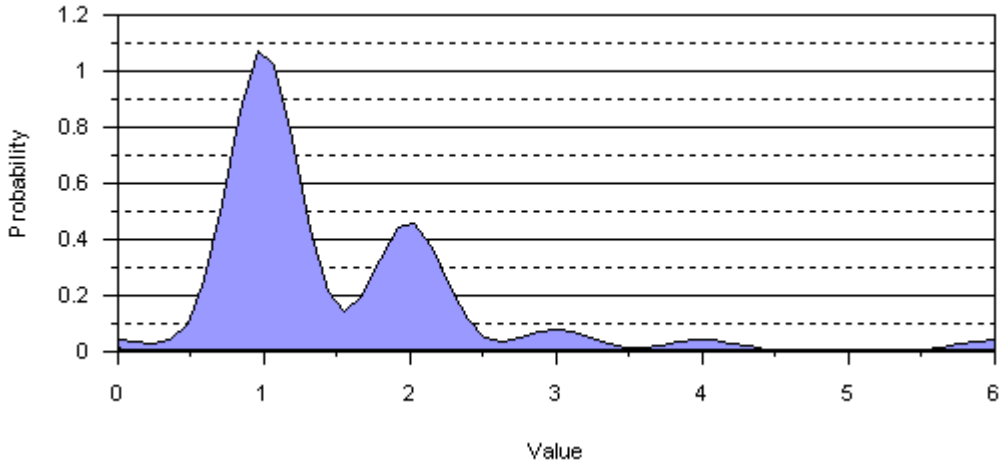


Average:	1.32
Standard Deviation:	1.27
Minimum:	0.00
Maximum:	7.00

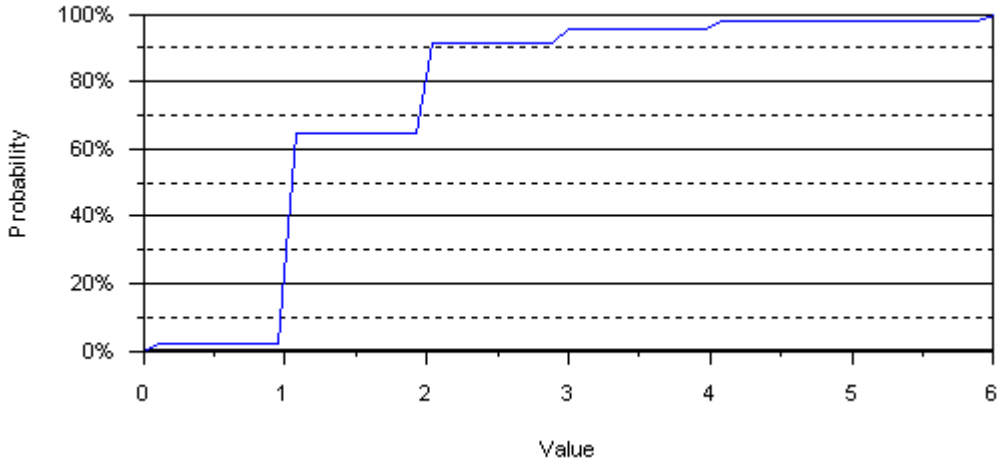
An answer to this question is not required and 366 of 407 respondents chose not to answer.

21d) FTIR

Probability Density Function



Cumulative Distribution

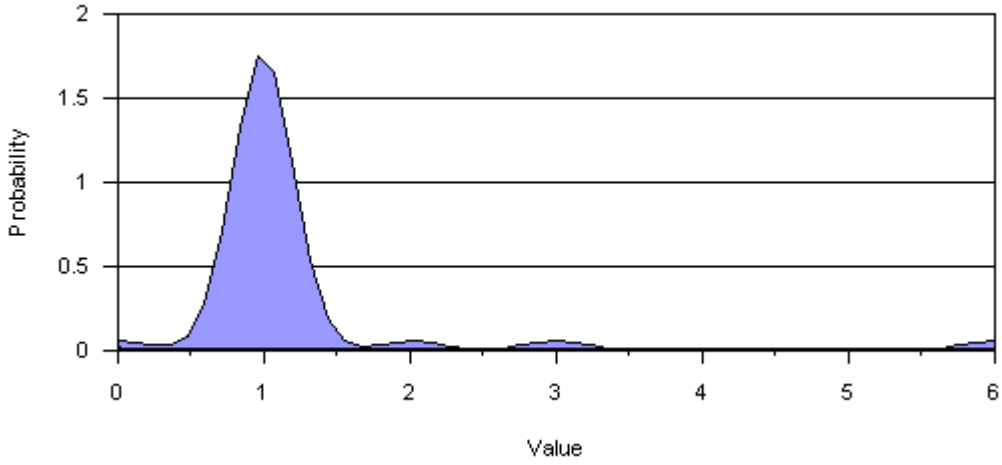


Average:	1.51
Standard Deviation:	0.99
Minimum:	0.00
Maximum:	6.00

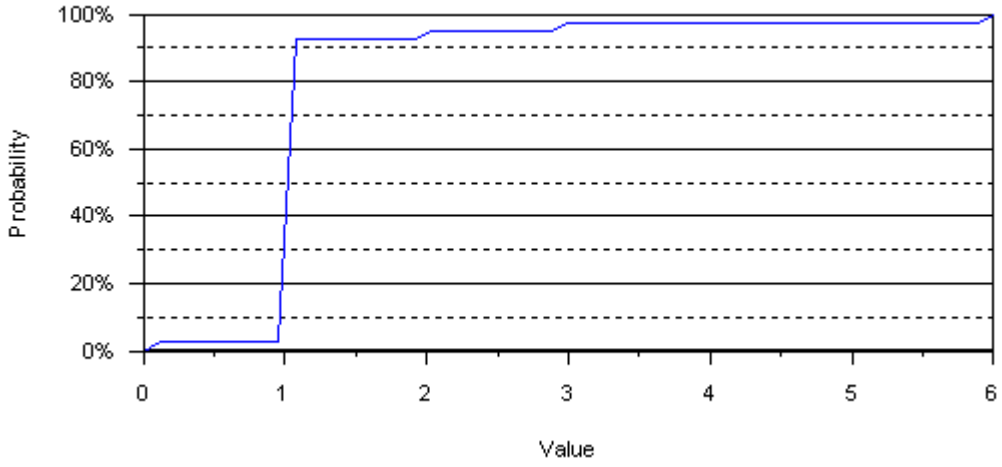
An answer to this question is not required and 362 of 407 respondents chose not to answer.

21e) GC-FTIR

Probability Density Function



Cumulative Distribution

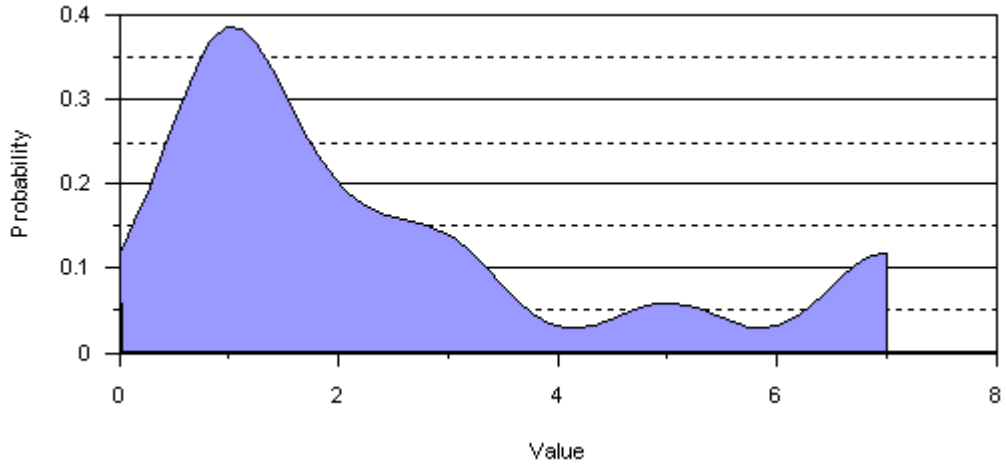


Average:	1.18
Standard Deviation:	0.87
Minimum:	0.00
Maximum:	6.00

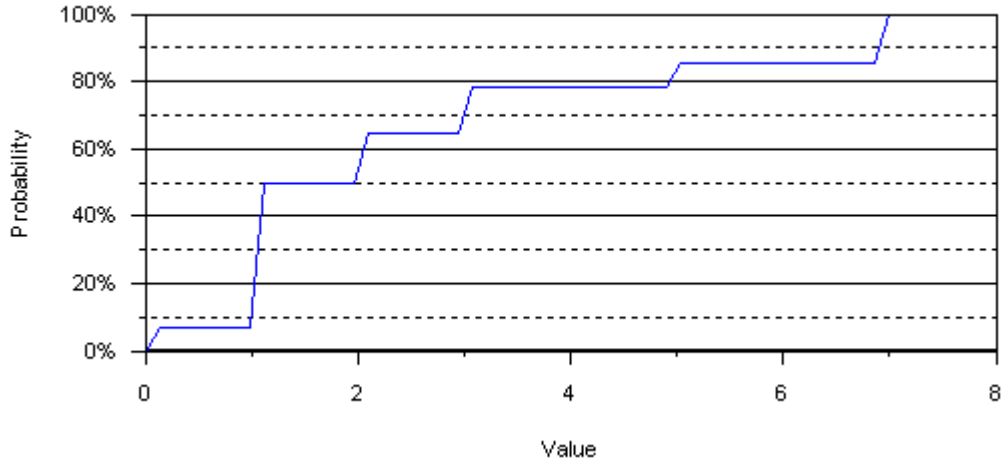
An answer to this question is not required and 367 of 407 respondents chose not to answer.

21f) other: (specify)

Probability Density Function



Cumulative Distribution



Average:	2.50
Standard Deviation:	2.28
Minimum:	0.00
Maximum:	7.00

An answer to this question is not required and 393 of 407 respondents chose not to answer.

21g) If you checked "Other", (please specify which technique(s) used):

- SEM/EDS
- Headspace analyzer
- sem/eds
- none
- N/A

- outsource
- FLASH POINT
- fed lab
- n/a
- 1
- XRF, SEM-EDS, Py GC/MS

An answer to this question is not required and 396 of 407 respondents chose not to answer.

---

22) Sample introduction to GC

22a) (check one):

split solvent injection	(34)	69.4%
splitless solvent injection	(7)	14.3%
thermal desorption	(7)	14.3%
SPME (please indicate the phase used):	(0)	0.0%
Other: (specify)	(1)	2.0%
Total	(49)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 358 of 407 respondents chose not to answer.

22b) If you checked "*SPME*" above, (please specify phase used):

- n/a

An answer to this question is not required and 406 of 407 respondents chose not to answer.

22c) If you checked "*Other*" above, (please specify which was used):

- splitless 5973, split VArian 2000

- headspace
- none
- N/A

An answer to this question is not required and 403 of 407 respondents chose not to answer.

---

23) Type of column phase routinely used for GC separation (check all that apply):

100% polydimethylsiloxane (e.g. DB-1, DB-1ms, HPMS-1, OV-1, Rtx-1, DB-PETRO, etc.)	(30)	58.8%
(5% phenyl)-methylpolysiloxane (e.g. DB-5, DB-5ms, HPMS-5, OV-5, Rtx-5, etc.)	(21)	41.2%
(14%-Cyanopropyl-phenyl)-methylpolysiloxane (e.g. DB-1701, SPB-1701, Rtx-1701, etc.)	(0)	0.0%
polyethylene glycol (e.g. DB-WAX, Carbowax, HP-20M, Supelcowax 10, HP-Innowax, etc.)	(1)	2.0%
other: (specify)	(1)	2.0%
Total	(51)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 356 of 407 respondents chose not to answer.

23a) If you checked "*Other*" above, (please specify column phase used):

- none
- N/A
- n/a

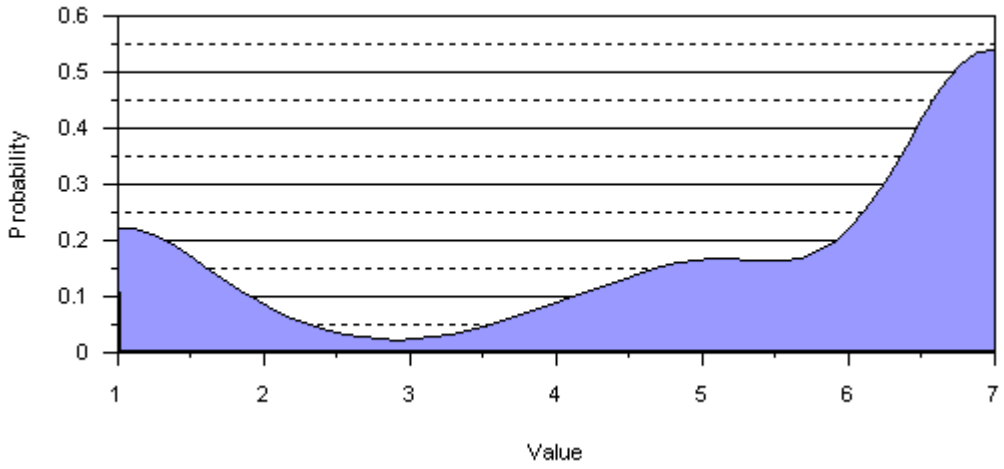
An answer to this question is not required and 404 of 407 respondents chose not to answer.

---

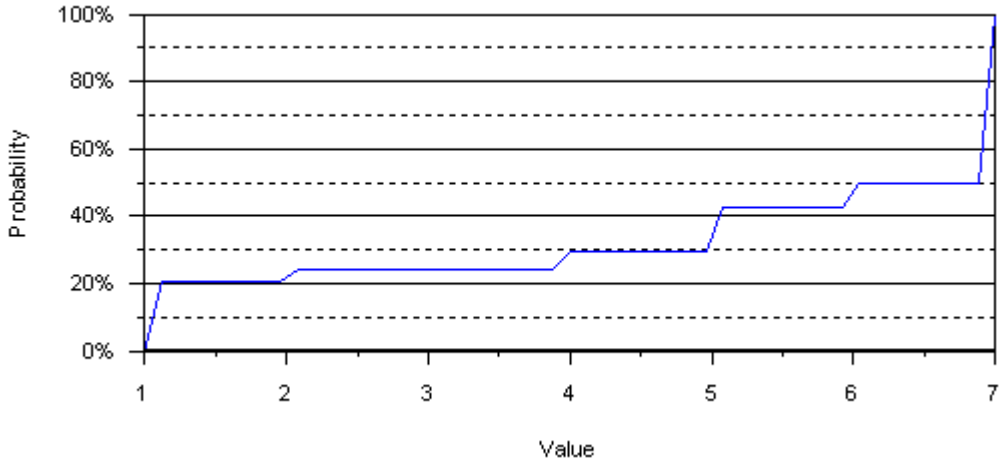
24) For fire debris analyses, how often do you use the following QA/QC tests? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

24a) ASTM 1387 test mix or similar mixture

Probability Density Function



Cumulative Distribution

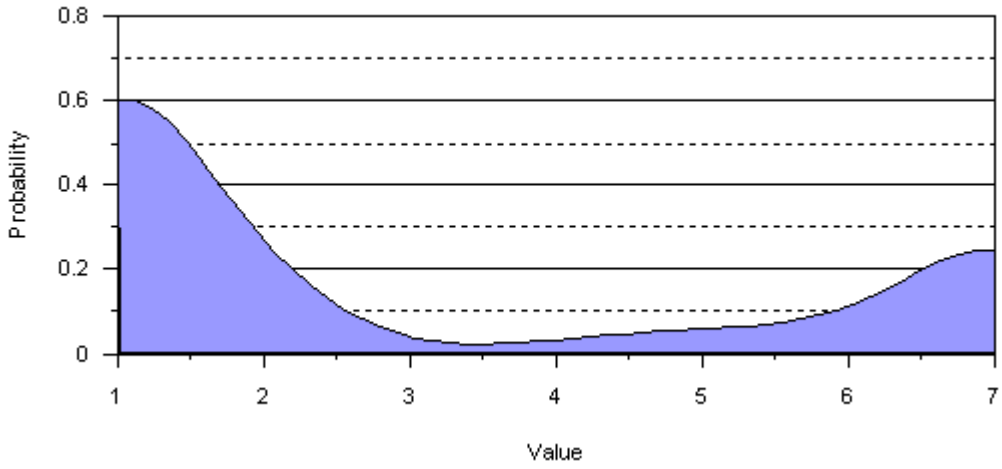


Average:	5.09
Standard Deviation:	2.41
Minimum:	1.00
Maximum:	7.00

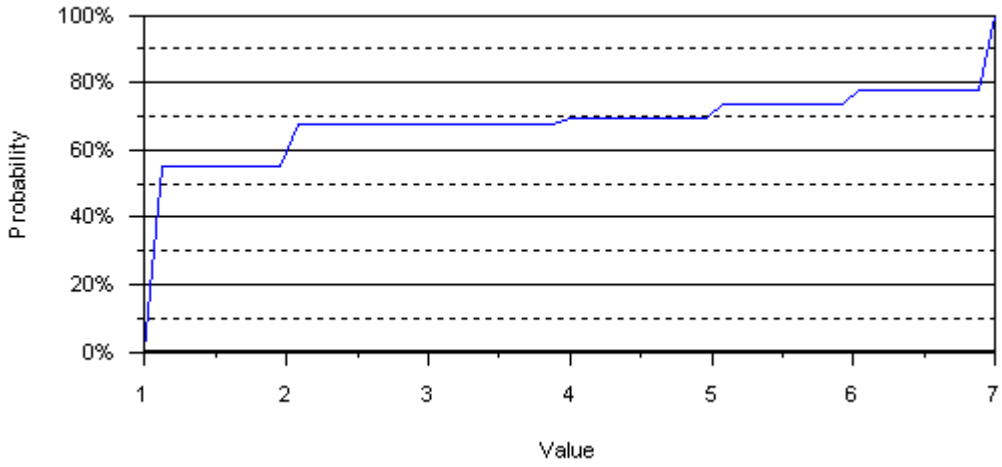
An answer to this question is not required and 353 of 407 respondents chose not to answer.

24b) Internal Standards (e.g., 3-phenyltoluene)

Probability Density Function



Cumulative Distribution

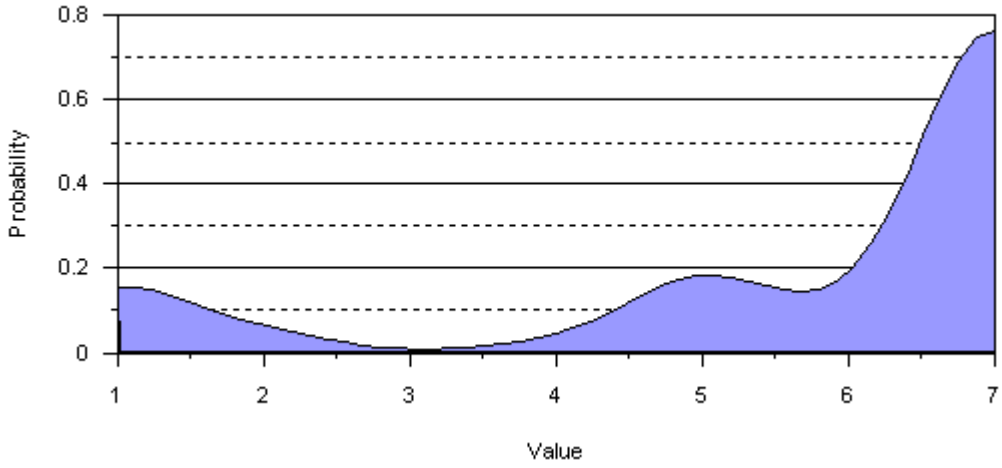


Average:	2.90
Standard Deviation:	2.57
Minimum:	1.00
Maximum:	7.00

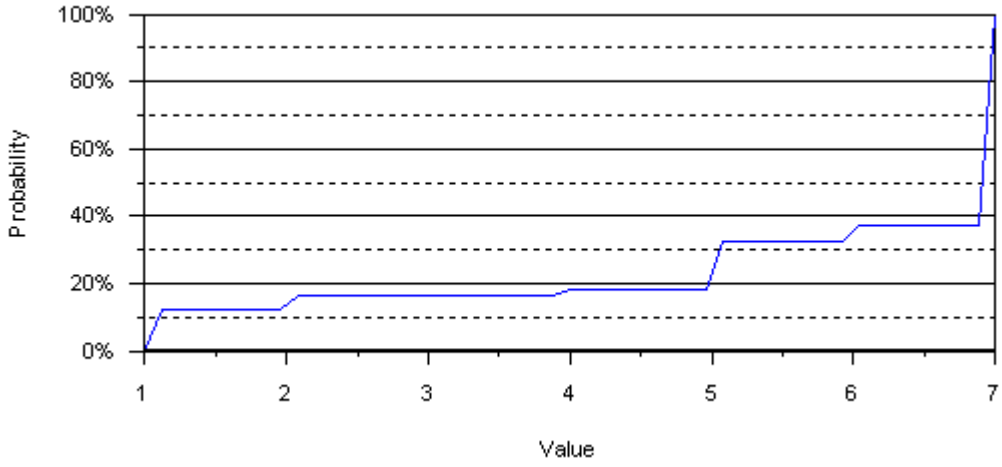
An answer to this question is not required and 358 of 407 respondents chose not to answer.

24c) Solvent Blanks

Probability Density Function



Cumulative Distribution

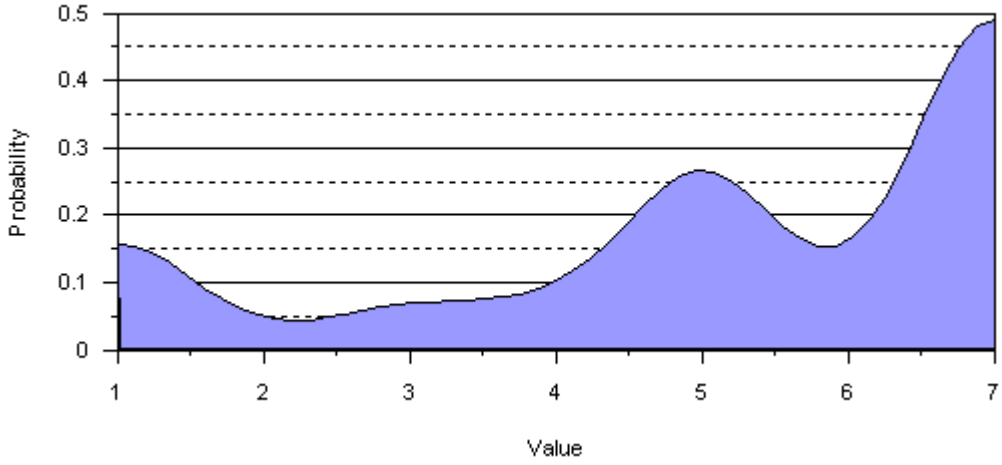


Average:	5.68
Standard Deviation:	2.12
Minimum:	1.00
Maximum:	7.00

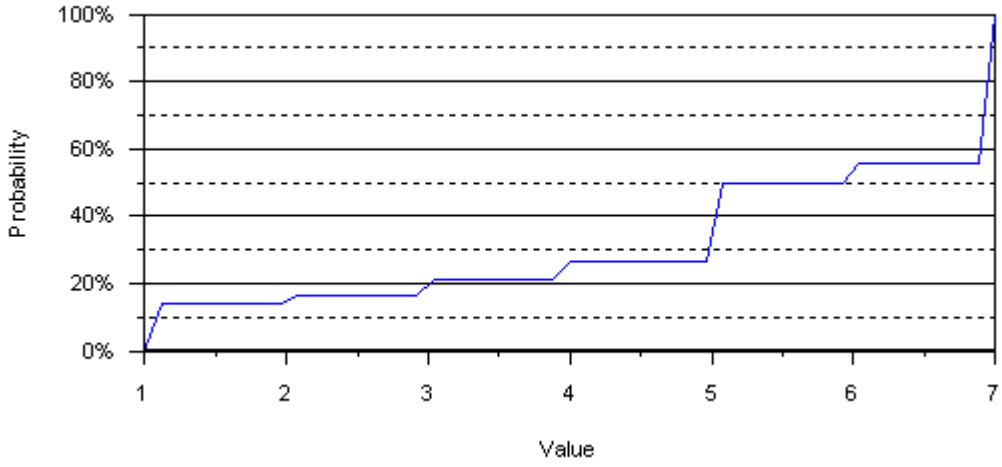
An answer to this question is not required and 351 of 407 respondents chose not to answer.

24d) Apparatus Blanks (e.g., strips, glassware)

Probability Density Function



Cumulative Distribution

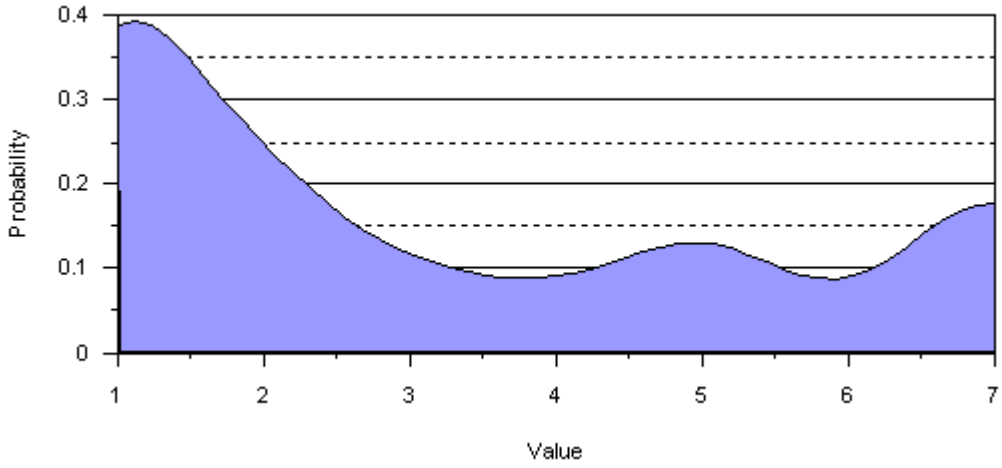


Average:	5.16
Standard Deviation:	2.15
Minimum:	1.00
Maximum:	7.00

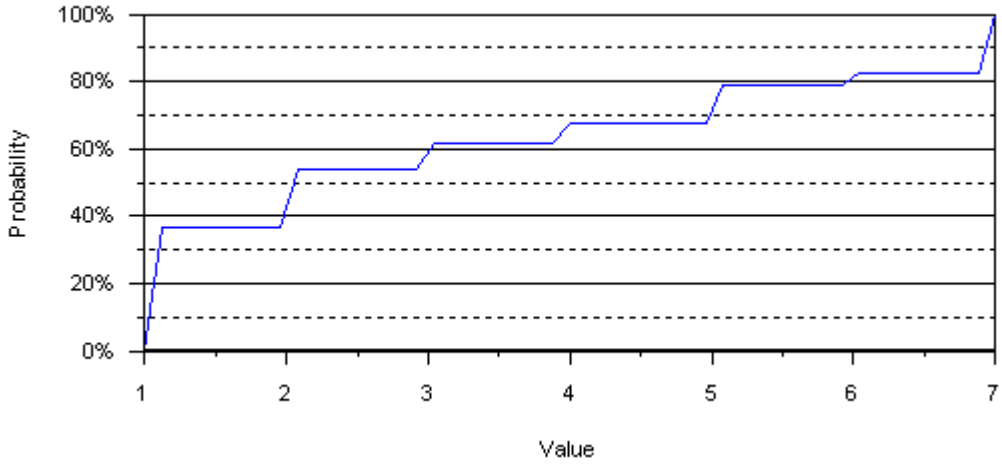
An answer to this question is not required and 351 of 407 respondents chose not to answer.

24e) Recovery Checks (e.g., simulated case extractions

Probability Density Function



Cumulative Distribution

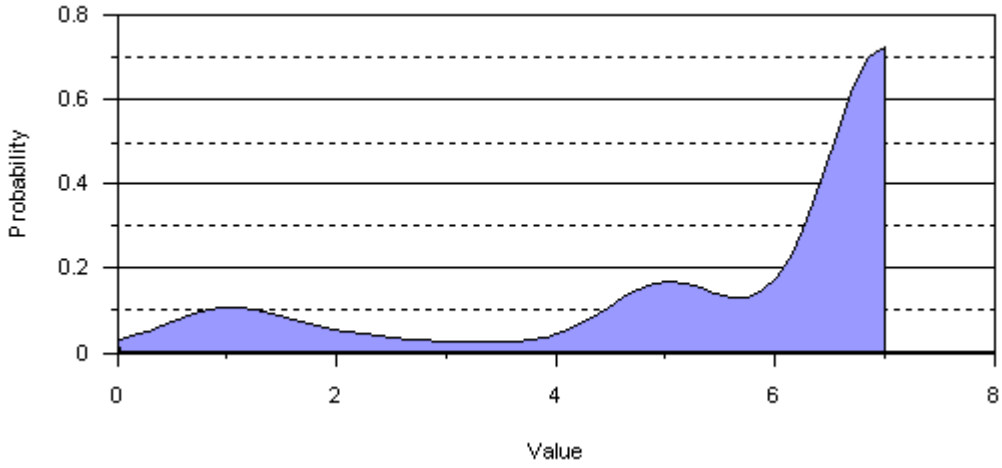


Average:	3.19
Standard Deviation:	2.31
Minimum:	1.00
Maximum:	7.00

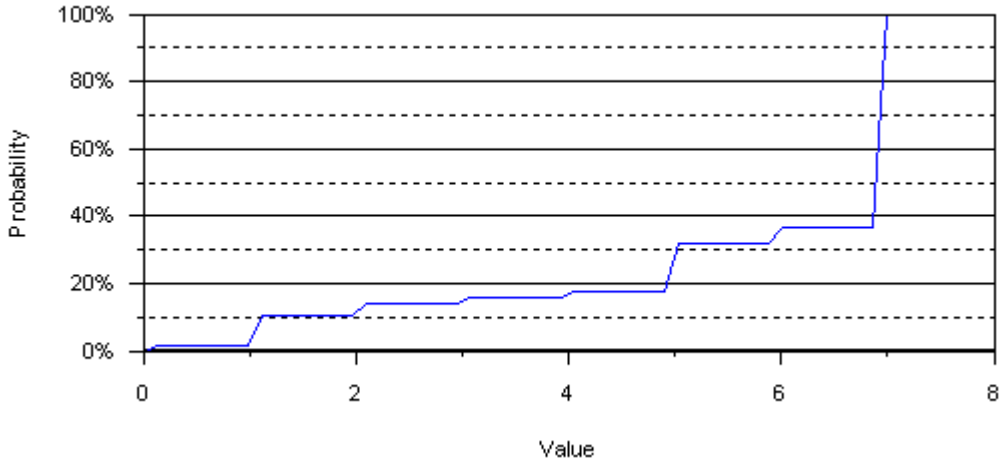
An answer to this question is not required and 355 of 407 respondents chose not to answer.

24f) Peer Review

Probability Density Function



Cumulative Distribution

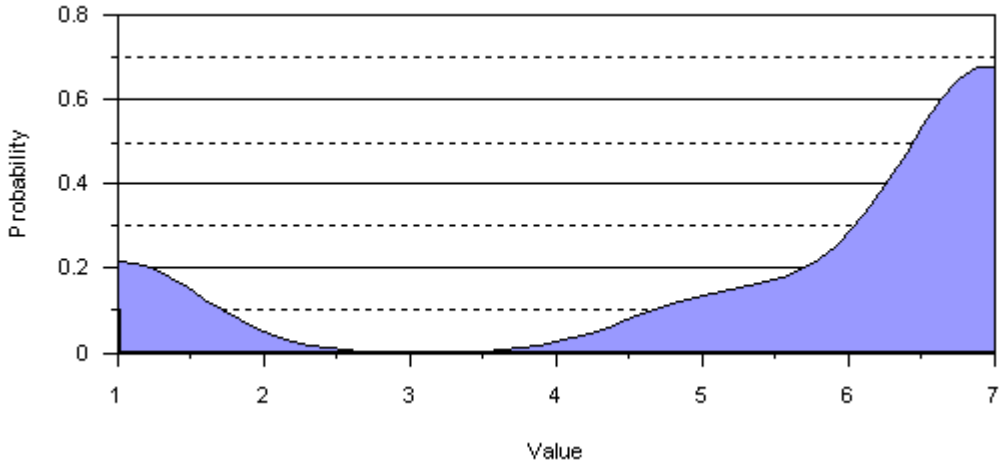


Average:	5.72
Standard Deviation:	2.09
Minimum:	0.00
Maximum:	7.00

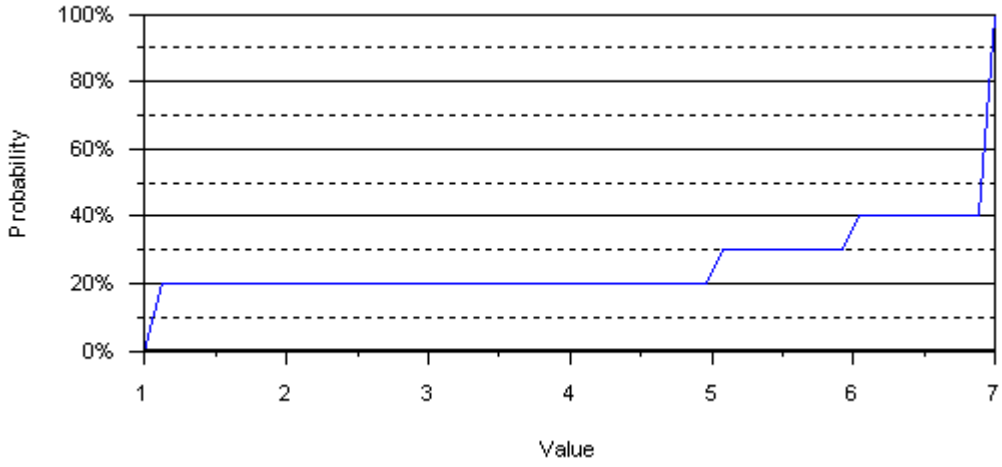
An answer to this question is not required and 350 of 407 respondents chose not to answer.

24g) Other: (specify)

Probability Density Function



Cumulative Distribution



Average:	5.50
Standard Deviation:	2.46
Minimum:	1.00
Maximum:	7.00

An answer to this question is not required and 397 of 407 respondents chose not to answer.

24h) If you checked "Other" above, (please specify QA/QC tests used):

- NFSTC Validation Kit performed also each batch a blank strip can, an IS recovery can, a gasoline kerosene diesel recovery can and a 50% evaporated can are run We also work with canine for testing of dog and our imethods
- proficiency testing also running known standards on our instruments
- proficency testing
- known IL standards

- n/a
- GC-FID and GC/MS on all fire debris samples
- Run ASTM1387 monthly, gasoline and method blank with each run, and solvent blank between each sample
- SAM mixture
- Daily Gasoline Standard

An answer to this question is not required and 398 of 407 respondents chose not to answer.

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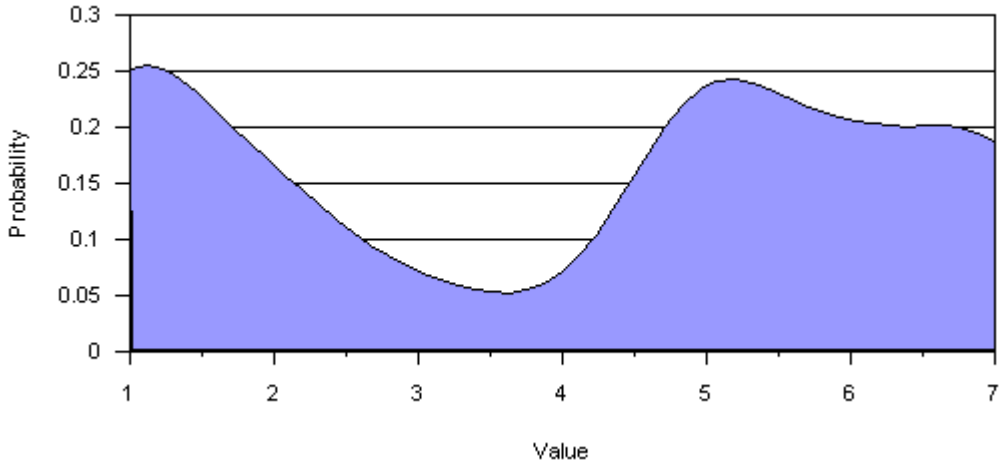
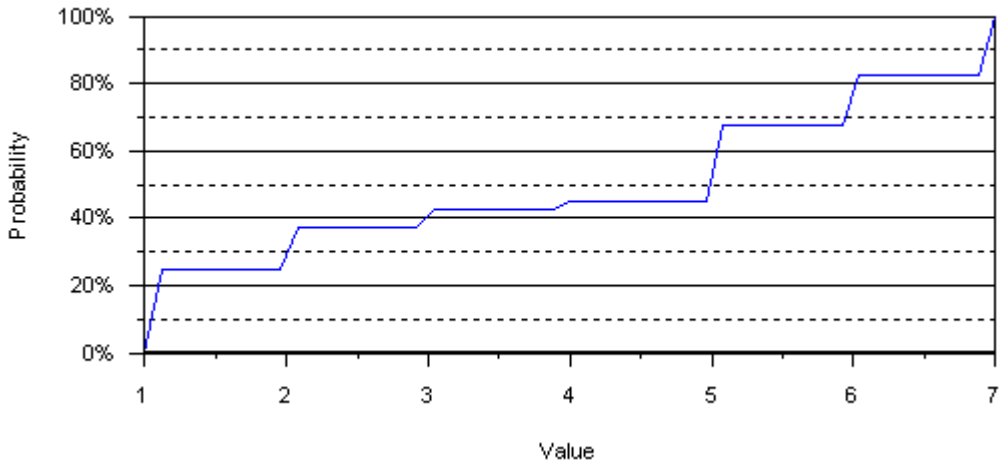
25) If you adhere to the following ASTM standards and guides, please indicate how closely you follow them? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

25a) ASTM-E 1387-01 (Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography)

Probability Density Function



Cumulative Distribution

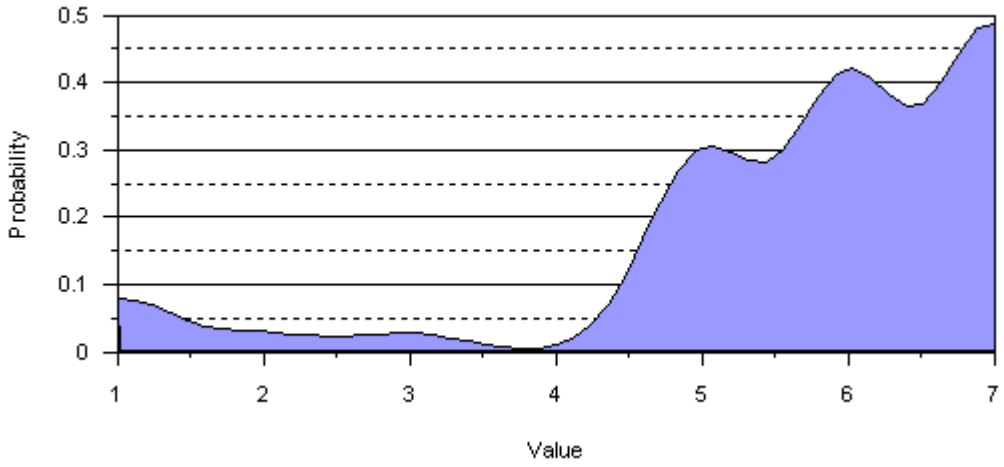


Average:	4.00
Standard Deviation:	2.31
Minimum:	1.00
Maximum:	7.00

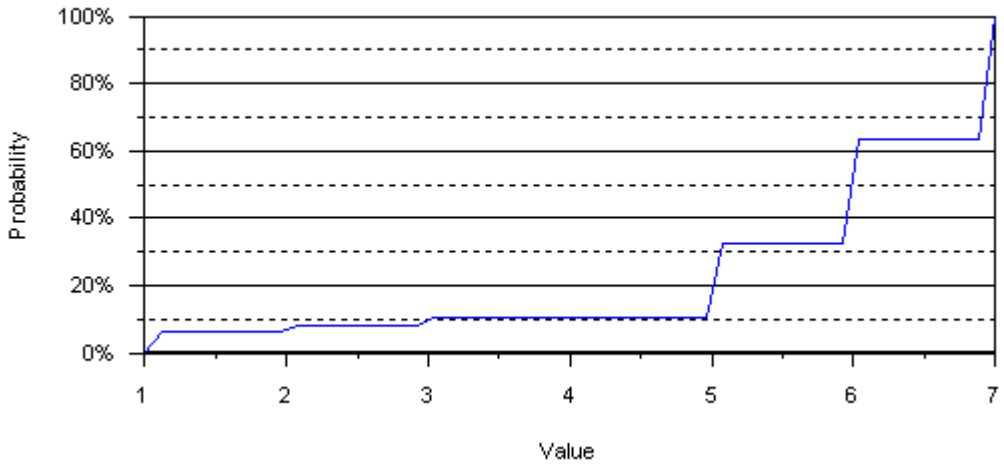
An answer to this question is not required and 367 of 407 respondents chose not to answer.

25b) ASTM-E 1618-06 (Standard Test Method for Ignitable Liquid Extracts by Gas Chromatography – Mass Spectrometry)

Probability Density Function



Cumulative Distribution

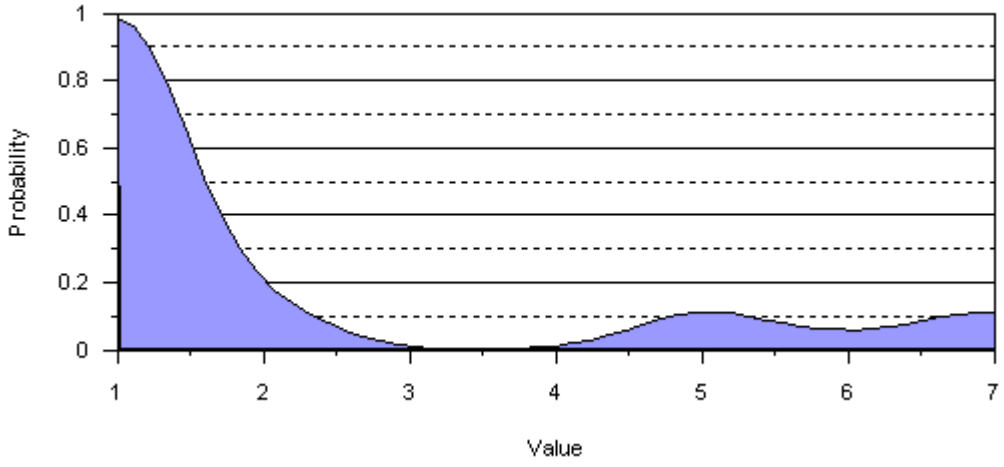


Average:	5.69
Standard Deviation:	1.61
Minimum:	1.00
Maximum:	7.00

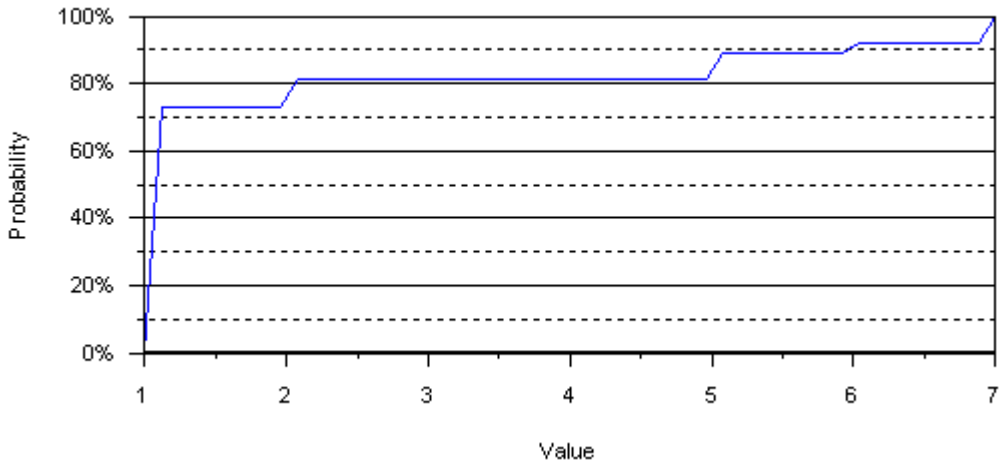
An answer to this question is not required and 358 of 407 respondents chose not to answer.

25c) ASTM-E 1385-00 (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Steam Distillation)

Probability Density Function



Cumulative Distribution

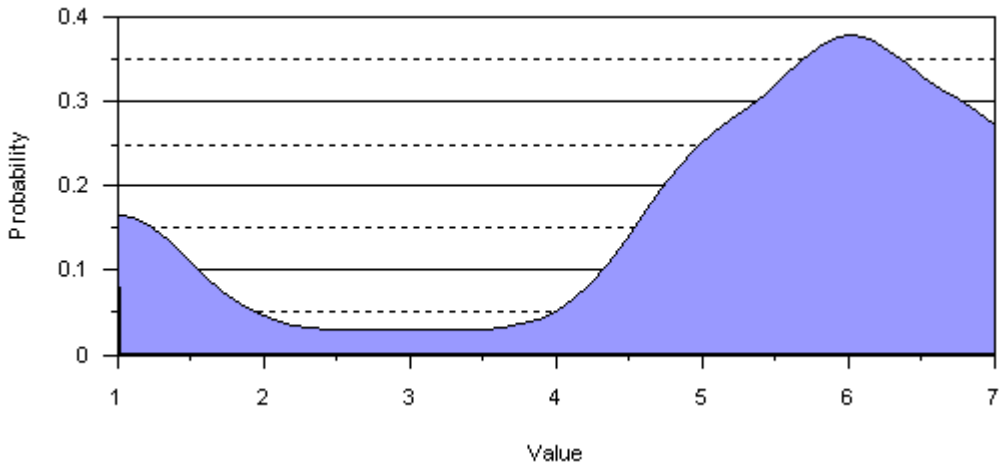


Average:	2.03
Standard Deviation:	2.01
Minimum:	1.00
Maximum:	7.00

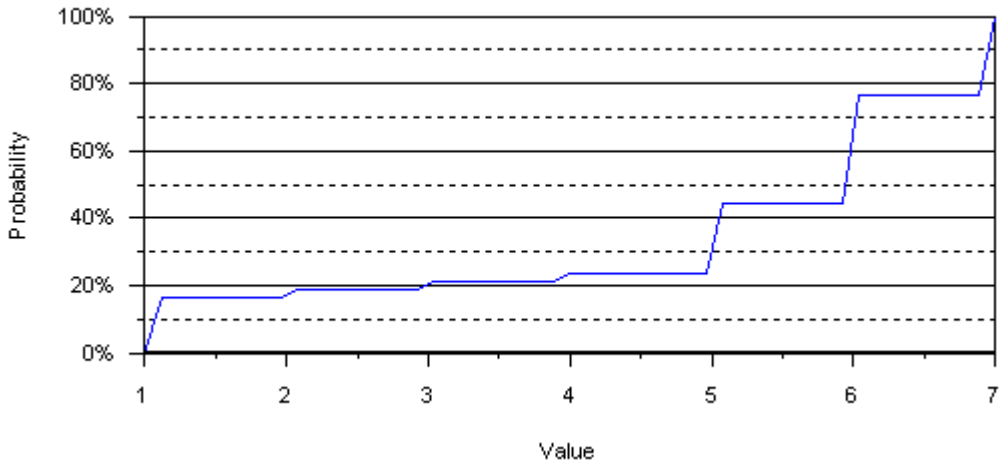
An answer to this question is not required and 370 of 407 respondents chose not to answer.

25d) ASTM-E 1412-00(2005) (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration)

Probability Density Function



Cumulative Distribution

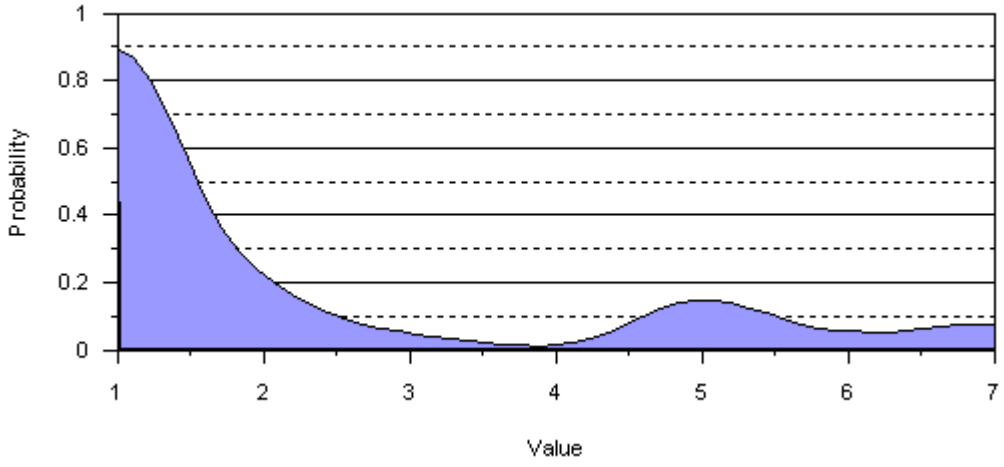


Average:	5.00
Standard Deviation:	2.07
Minimum:	1.00
Maximum:	7.00

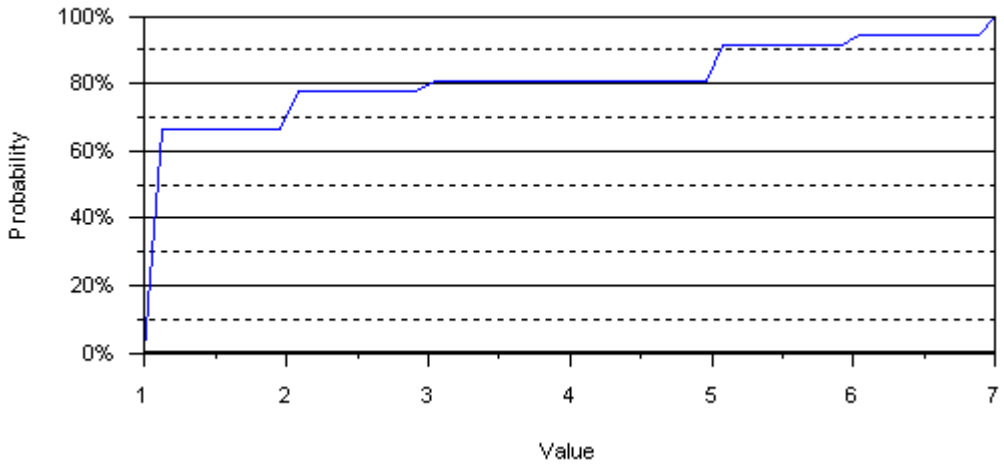
An answer to this question is not required and 364 of 407 respondents chose not to answer.

25e) ASTM-E 1413-06 (Standard Practice for Separation and Concentration of Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration)

Probability Density Function



Cumulative Distribution

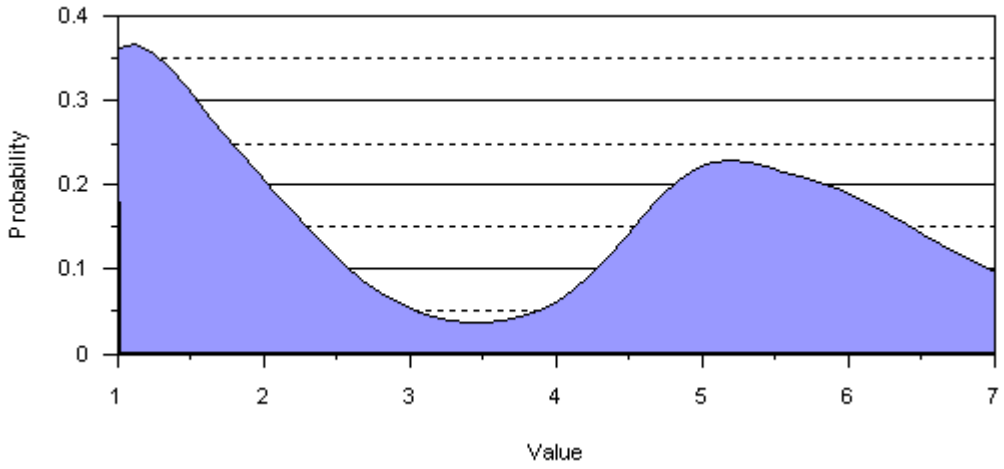


Average:	2.08
Standard Deviation:	1.90
Minimum:	1.00
Maximum:	7.00

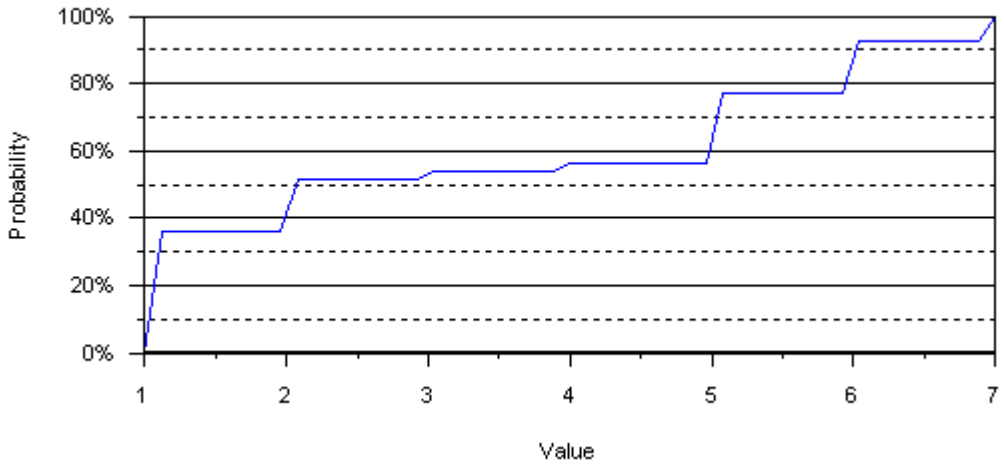
An answer to this question is not required and 371 of 407 respondents chose not to answer.

25f) ASTM-E 1388-05 (Standard Practice for Sampling of Vapors from Fire Debris Samples)

Probability Density Function



Cumulative Distribution

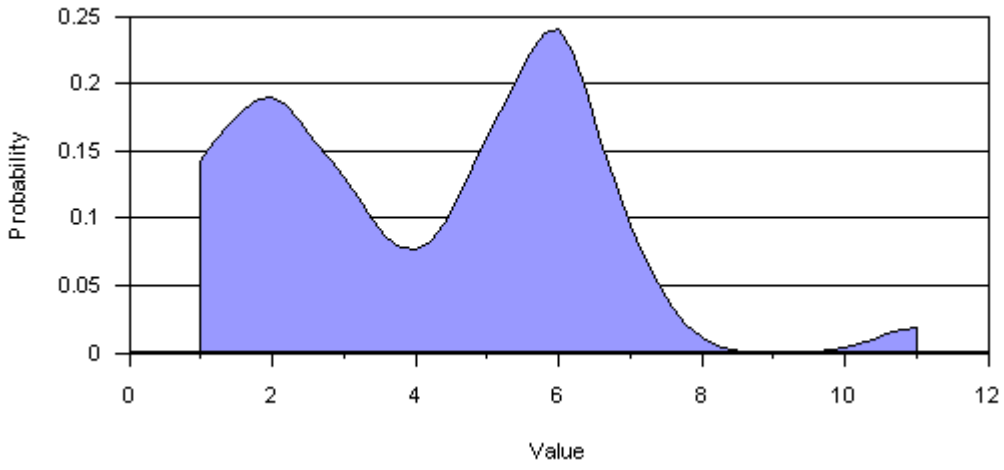


Average:	3.33
Standard Deviation:	2.25
Minimum:	1.00
Maximum:	7.00

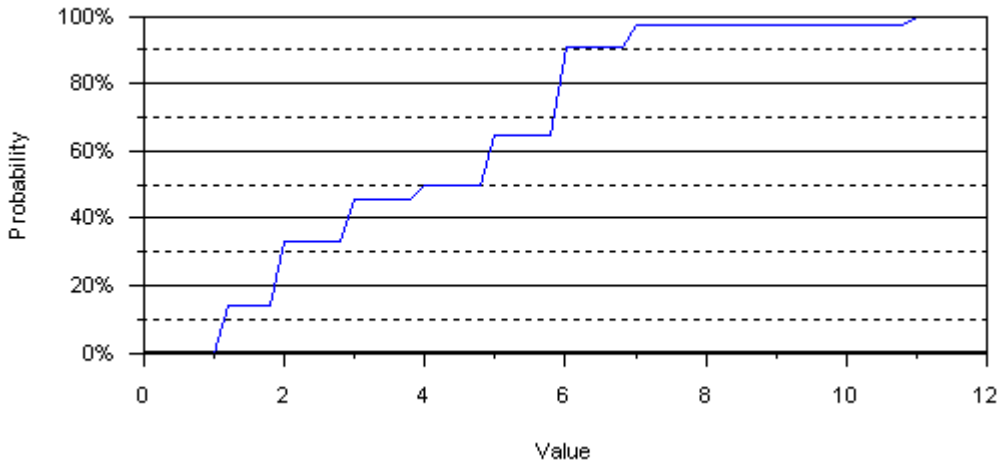
An answer to this question is not required and 368 of 407 respondents chose not to answer.

25g) ASTM-E 1386-00(2005) (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction)

Probability Density Function



Cumulative Distribution

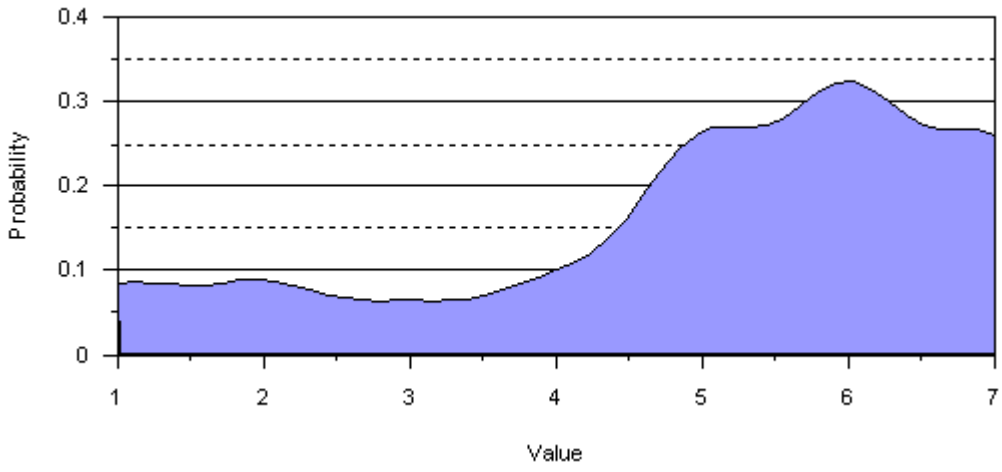


Average:	4.12
Standard Deviation:	2.30
Minimum:	1.00
Maximum:	11.00

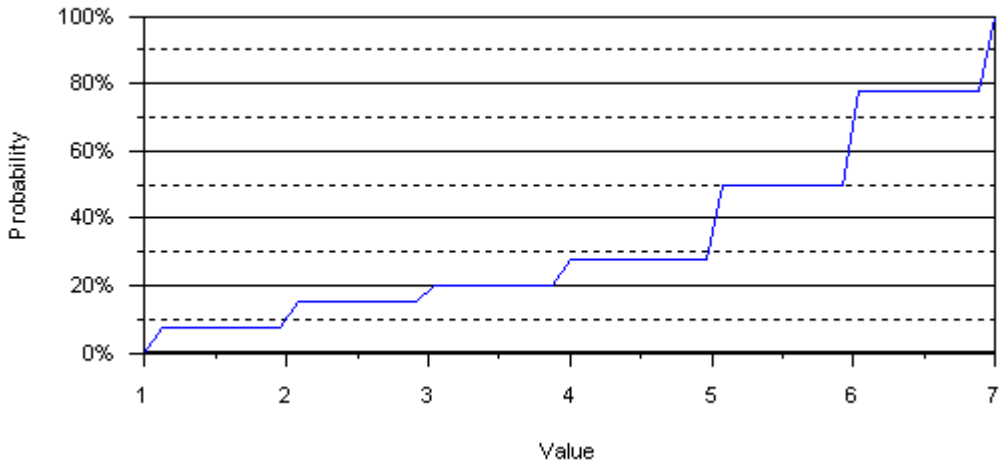
An answer to this question is not required and 365 of 407 respondents chose not to answer.

25h) ASTM-E 1492-05 (Standard Practice for Receiving, Documenting, Storing and Retrieving Evidence in a Forensic Science Laboratory)

Probability Density Function



Cumulative Distribution

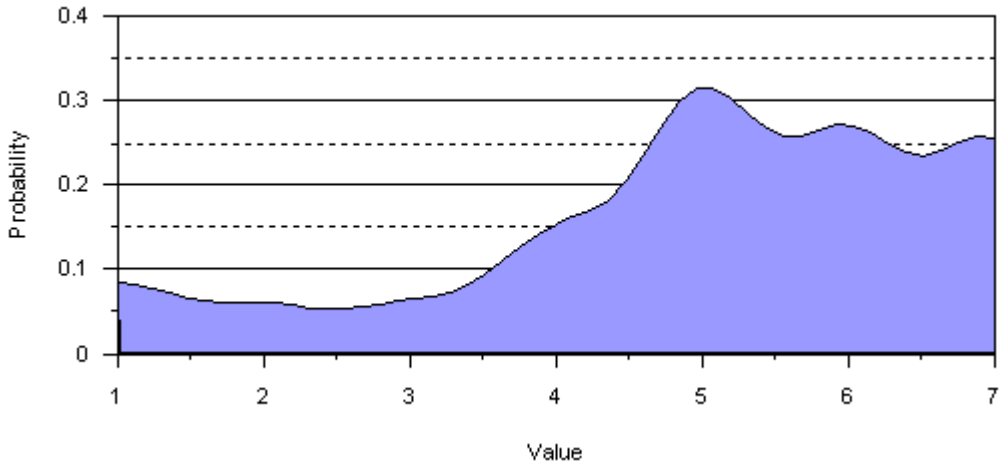


Average:	5.03
Standard Deviation:	1.85
Minimum:	1.00
Maximum:	7.00

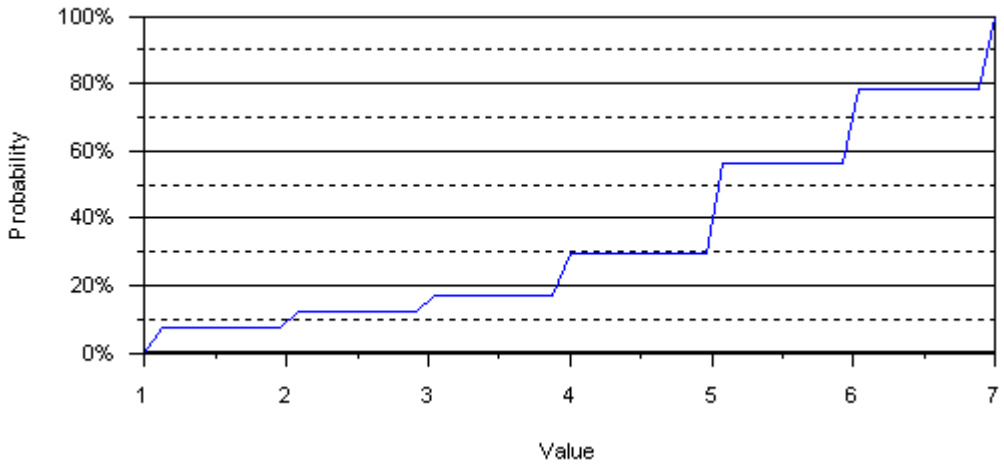
An answer to this question is not required and 367 of 407 respondents chose not to answer.

25i) ASTM-E 1459-92(2005) (Physical Evidence Labeling and Related Documentation)

Probability Density Function



Cumulative Distribution



Average:	5.00
Standard Deviation:	1.76
Minimum:	1.00
Maximum:	7.00

An answer to this question is not required and 366 of 407 respondents chose not to answer.

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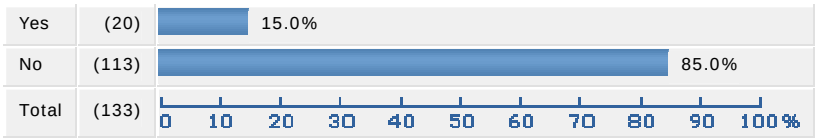
26) Are you aware of new equipment or techniques on the market or in development that could be potentially of use in fire debris analysis? These may be in the extraction, analysis, instrumentation, or interpretation of fire debris and ignitable liquids. Please indicate the type of potential improvement such as: reduction of analysis time, elimination of background, specificity of identification, etc…?



An answer to this question is not required and 274 of 407 respondents chose not to answer.

26a) Description and/or Contact

- Galaxie Software
- I would like to develop a GC/MS/MS method on Saturn 2000 If anyone has info
  I worked a NASA for a five years and we recovered used TENAX Solid Sorbant Materials , collected with SAS and then cryo focused GC/MS I do not have the preconcentrator or instrumentation but I do believe we could have excellent recovery, maybe try different combos of sorbents

- Jeff Foust; tower112@verizon.net
- GC-GC, coelution software
- Flash GC/saves time
- Currently developing a database of pyrolysis products
- 1. GC X GC/MS - Coast Guard
  2. FT-Ion Cyclotron MS - Alan Marshal @ Florida State
  3. Stable Isotope Ratio MS - John Jasper
  4. DART with JEOL
- Rapid idaho tech.
- Statical methods for automated searches of a database. Contact Dr. Michael Sigman of the National Center for Forensic Science.
- All of our samples are sent out to State/Federal labs for analysis
- not new - but dflex apparatus when put into can during evidence collection seem to mitigate effects of length between collection and examination on samples
- Not brand new but we are using ALS (Alternative Light)
- reduction of analysis time-custom column
- Lt. Joe Powell
- fast GC, GC-IRMS
- Time of Flight GC-MS

An answer to this question is not required and 391 of 407 respondents chose not to answer.

---

27) What are the short-term needs in analytical methods for fire debris analysis?

- Faster turn-around time, more personnel, better software
- More pyrolysis matrix practice!
- more rapid turn around times from the laboratories doing the analysis
- Better information on background interferences
- Higher Resolution
- Comparison improvement in selectivity
- updated software, GC comsumables
- Better method for recovery of light oxygenates in every sample (i.e. without special prep, separate extraction, etc,)
- Access to standards
- Replacing CS2 as a solvent
  Alternate extraction media other than the ACS
- More training opportunities
- HAving State LAbs process Faster COOK COUNTY IL
- Faster analysis
- N/A for our investigation team
- Fire debris control samples and fire debris other than ignitable liquids
- Financial
- None
- GREATER PERSONNEL

- N/A
- Reduction in analysis time.
- Our team dooesn't deal in these matters.
- Not a lab guy, can't tell you other than the ISP lab is awful and never gets a positive sample.
- better communication between technicians and investigators
- Field GC
- update standards and pyrolysis database
- GC/MS in all labs
- simple/reliable/testifible on scene real time hit on accelerents-either polar or non-polar.
- N/A

An answer to this question is not required and 379 of 407 respondents chose not to answer.

---

28) What are the long-term needs in analytical methods for fire debris analysis?

- fingerprinting of ignitable liquids, expecially in regards to relating the liquid found at the scene to the liquid found in t he fire debris.
- Database of pyrolysis products and pyrolysis/ILR mix
  More sensitive and discriminating sorbant develop.
- same a #27, often results are received too late to be of much help to an investigation.
- A comprehensive library of ignitable liquids with TIC and EIC of compounds
- See #27
- Library Searches on TIC
- Better containers
- TRACEABLE STANDARDS
- Pyrolysis database
  Classes offered for interpretation of pyrolysis products
  Classes offered for advance organic chemistry for fire debris analysts
- pyrolysis standards, extensive training of recovery of materail, access to new technology
- More info about petroleum products in background materials (quantities, types, etc.)
- Sharing of data nationwide
- Consistency of reports and better interaction between laboratory analysts and fire investigators
- Indiviualization of IL found on two sources - matching.
  Pyrolisis Product Standards.
  Applying FAST GC
  Items in #
- Shorter run times, extraction times
- effects of ignitable liquids on the human body
- On site initial testing - example a small kit
- unknown
- Influence of heat and fire on materials
- Financial
- Better adherence to ASTM standards
- IN DEPTH SCIENTIFIC METHOD

- We would like to see production of DFLEX resume.
- N/A
- Consistency and increased specificity in data interpretation. Reduce effects from interfering products.
- N/A
- see above
- reduced costs associated with modern instrumentation
- update instrumentations
- New/better adsorption media, solventless elutions
- nationally recognized varifiable results from documented on scene equipment, used by on scene investigators
- new equipment

An answer to this question is not required and 375 of 407 respondents chose not to answer.

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v) **Part E. Fire Debris Data Interpretation (Check an answer only on those questions which apply to you)**

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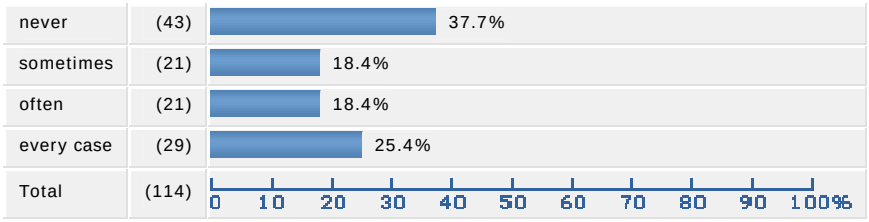
29) How often do you use an in-house ignitable liquid reference collection in case work?



An answer to this question is not required and 293 of 407 respondents chose not to answer.

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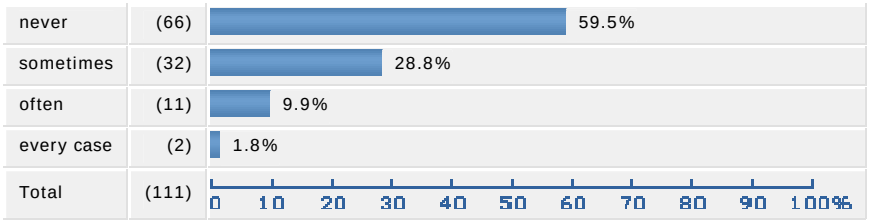
30) How often have you used the on-line Ignitable Liquid Reference Collection (ILRC) in case work? (See http://ncfs.ucf.edu/databases.html for more information about this database)



An answer to this question is not required and 296 of 407 respondents chose not to answer.

---

31) How does your laboratory routinely identify an ignitable liquid in fire debris (check one):

Pattern recognition by FID pattern alone	(3)	4.2%
Pattern recognition by TIC pattern alone	(2)	2.8%
Pattern recognition by mass chromatography (extracted ion chromatogram or extracted ion profile)	(52)	73.2%
target analysis	(0)	0.0%
Identification of individual components	(5)	7.0%
Other: (specify)	(9)	12.7%
Total	(71)	

An answer to this question is not required and 336 of 407 respondents chose not to answer.

31a) If you checked "Other" above please specify how your laboratory would identify an ignitable liquid:

- all of the above
- Combination of TIC, EIC and component identification
- TIC also
- Combo of pattern recognition by TIC, EIC and identification of target compounds.
- Acombination of all of them: pattern from the TIC, and individual componenets within the pattern
- N/A
- outsourced
- N/A
- Tic Pattern, extracted ion pattern, and identification of individual components

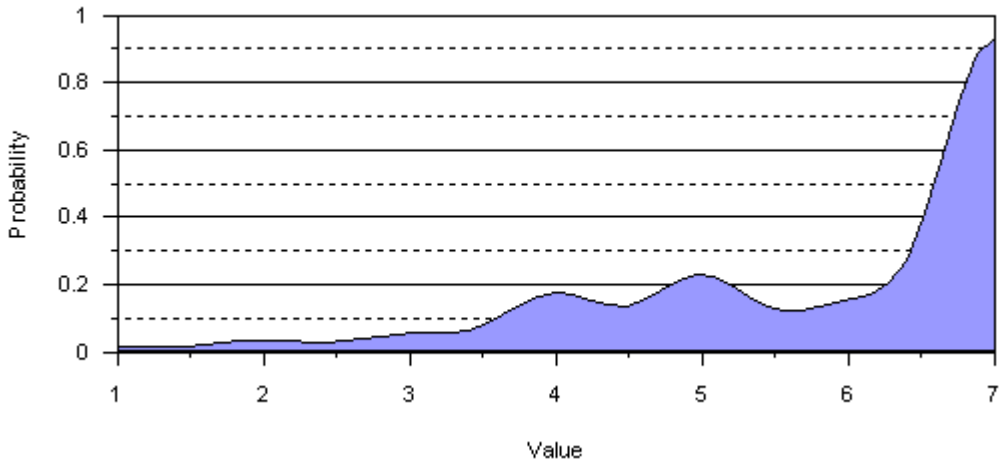
An answer to this question is not required and 398 of 407 respondents chose not to answer.

---

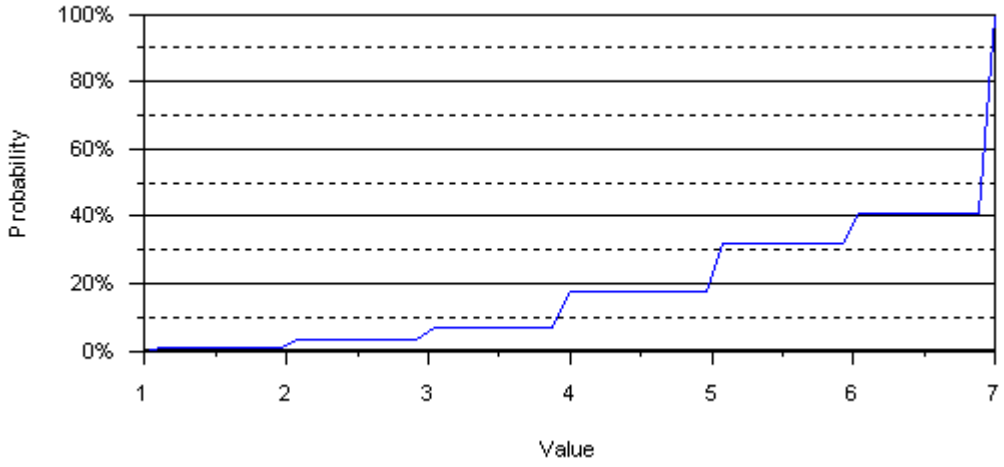
32) Rate the importance of the following courses as part of the education of fire debris analysts. (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

32a) General chemistry

Probability Density Function



Cumulative Distribution

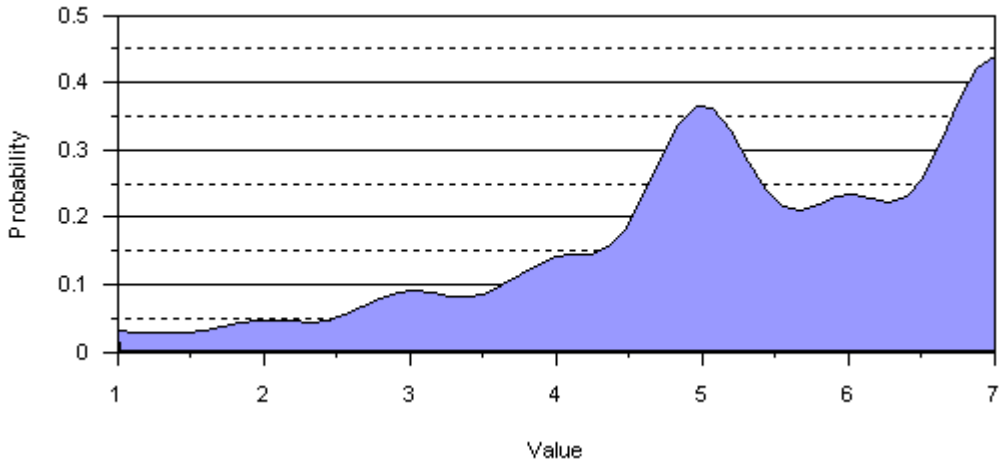


Average:	5.99
Standard Deviation:	1.46
Minimum:	1.00
Maximum:	7.00

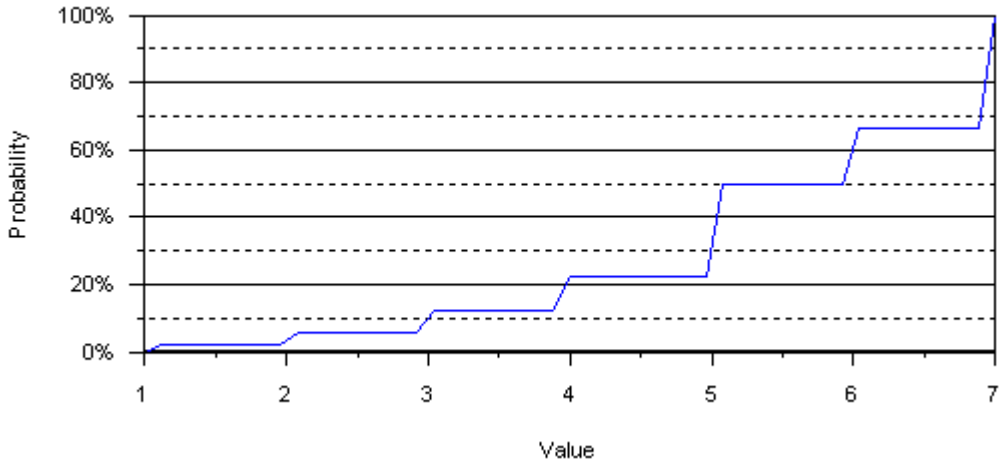
An answer to this question is not required and 316 of 407 respondents chose not to answer.

32b) Advanced organic chemistry

Probability Density Function



Cumulative Distribution

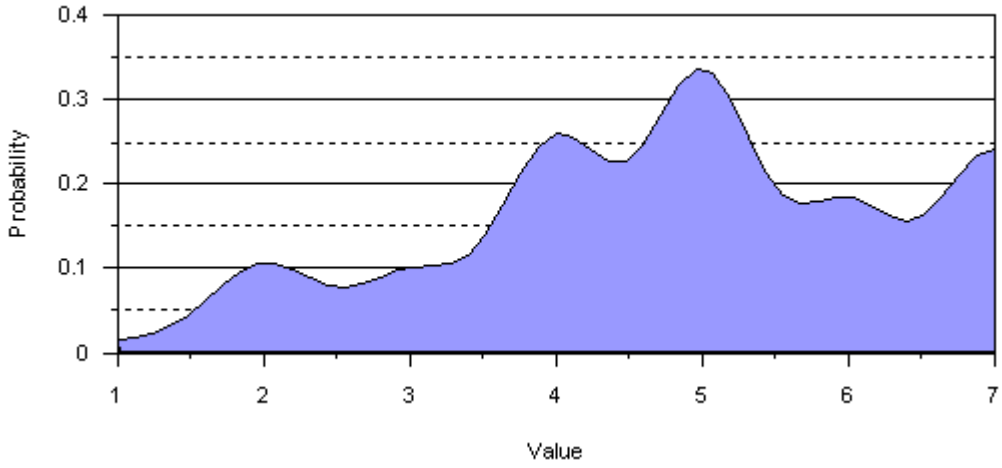


Average:	5.41
Standard Deviation:	1.54
Minimum:	1.00
Maximum:	7.00

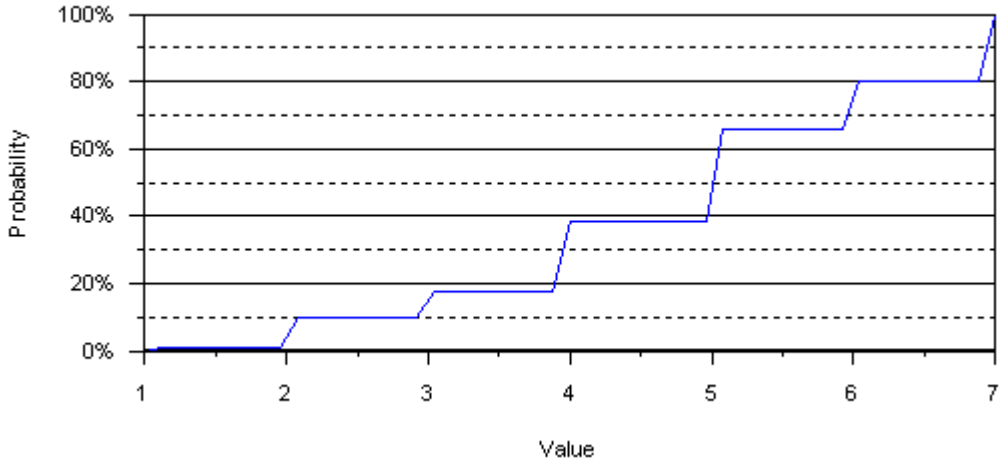
An answer to this question is not required and 317 of 407 respondents chose not to answer.

32c) Inorganic chemistry

Probability Density Function



Cumulative Distribution

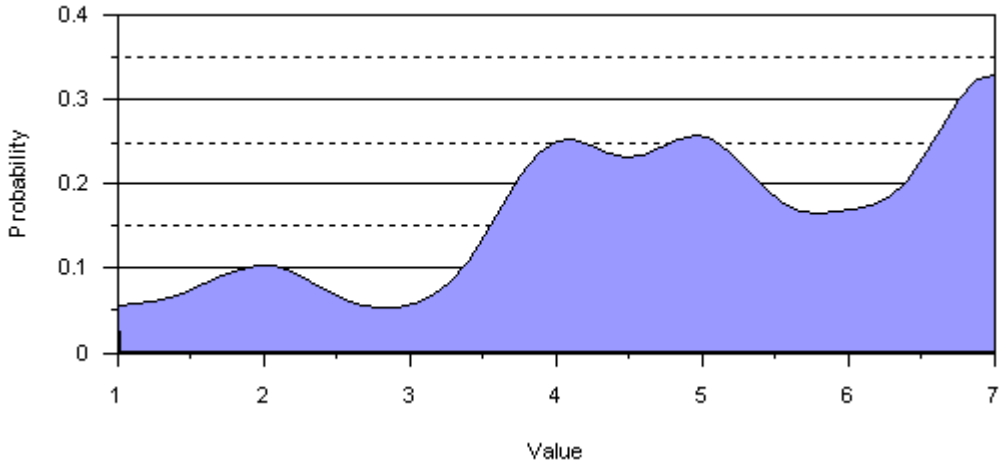


Average:	4.87
Standard Deviation:	1.56
Minimum:	1.00
Maximum:	7.00

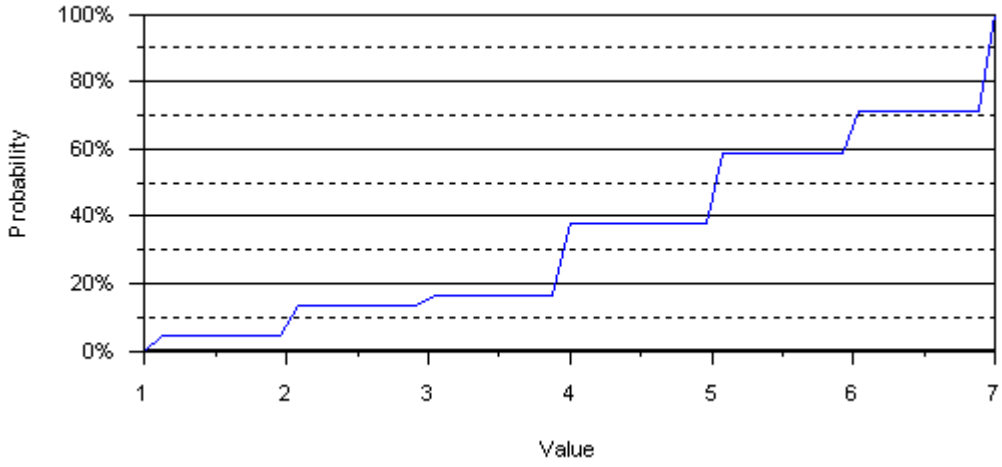
An answer to this question is not required and 316 of 407 respondents chose not to answer.

32d) Introductory physics

Probability Density Function



Cumulative Distribution

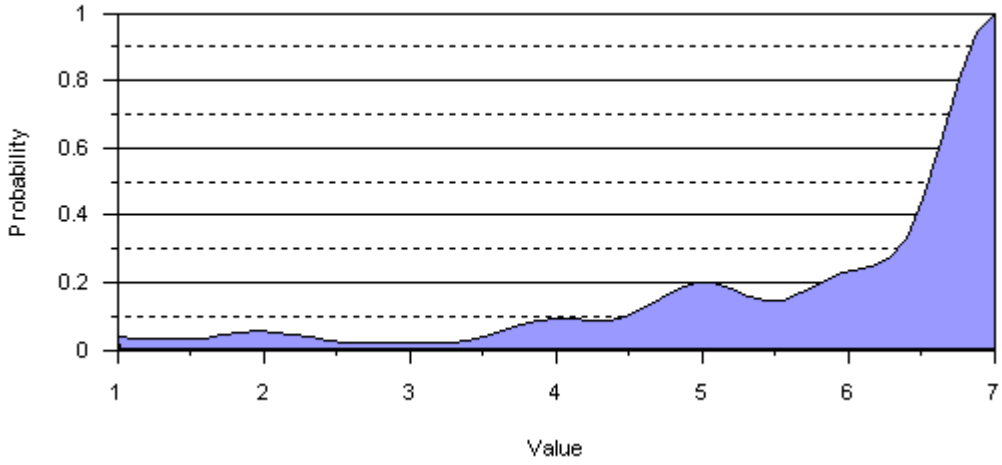


Average:	4.98
Standard Deviation:	1.78
Minimum:	1.00
Maximum:	7.00

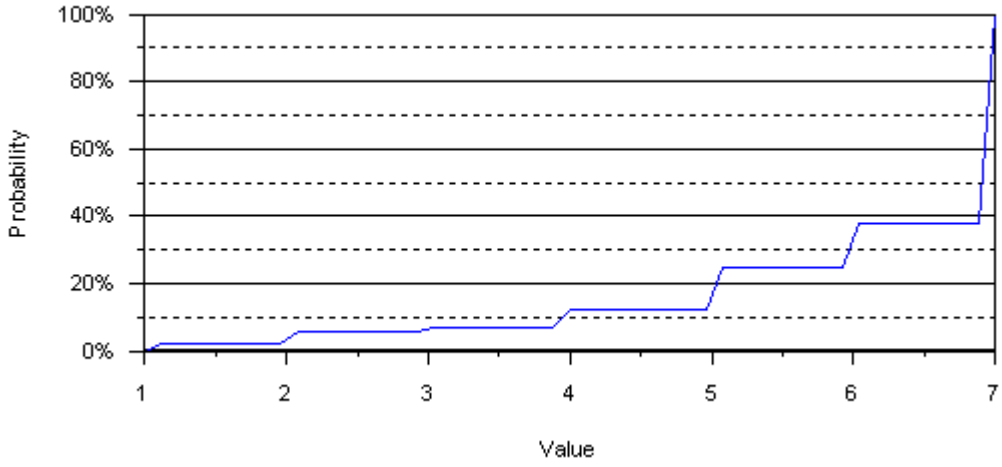
An answer to this question is not required and 317 of 407 respondents chose not to answer.

32e) Instrumental analysis

Probability Density Function



Cumulative Distribution

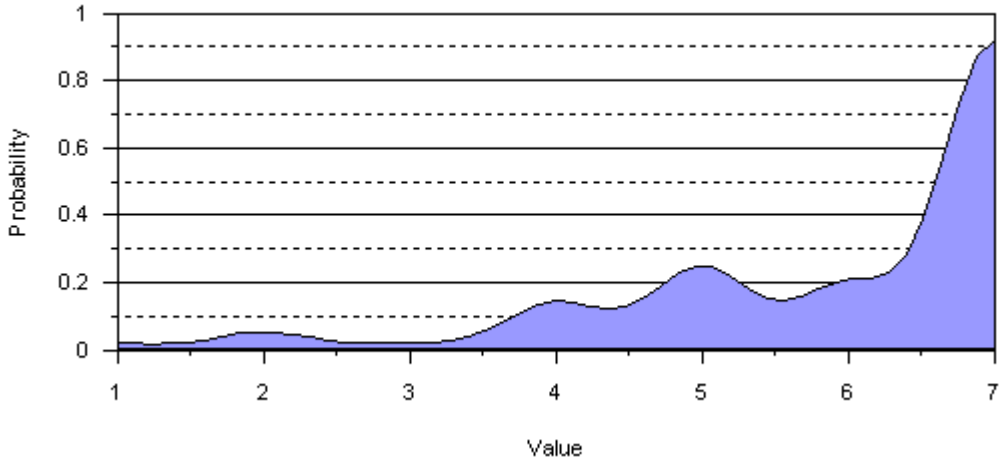


Average:	6.11
Standard Deviation:	1.47
Minimum:	1.00
Maximum:	7.00

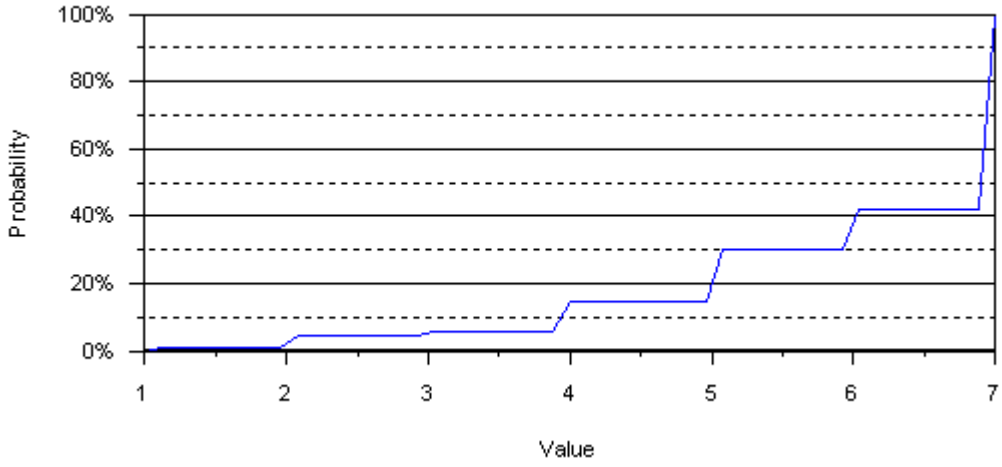
An answer to this question is not required and 317 of 407 respondents chose not to answer.

32f) Organic chemistry

Probability Density Function



Cumulative Distribution

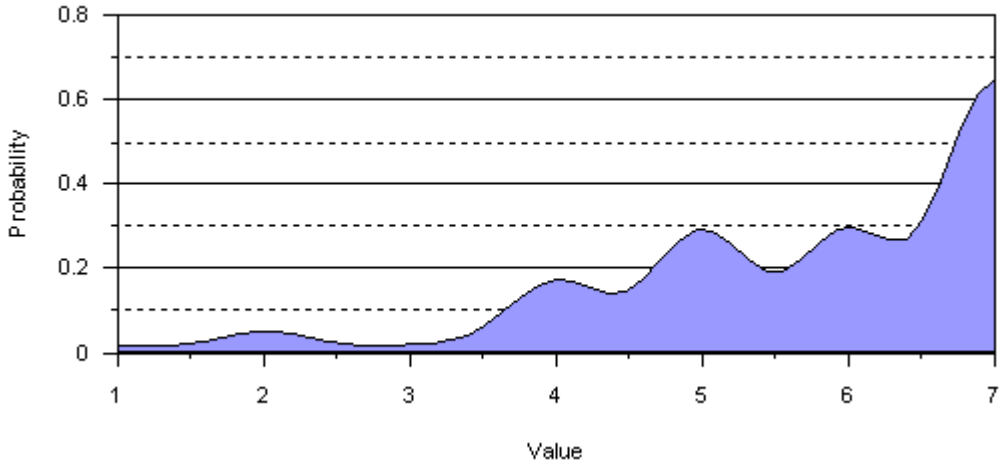


Average:	6.02
Standard Deviation:	1.42
Minimum:	1.00
Maximum:	7.00

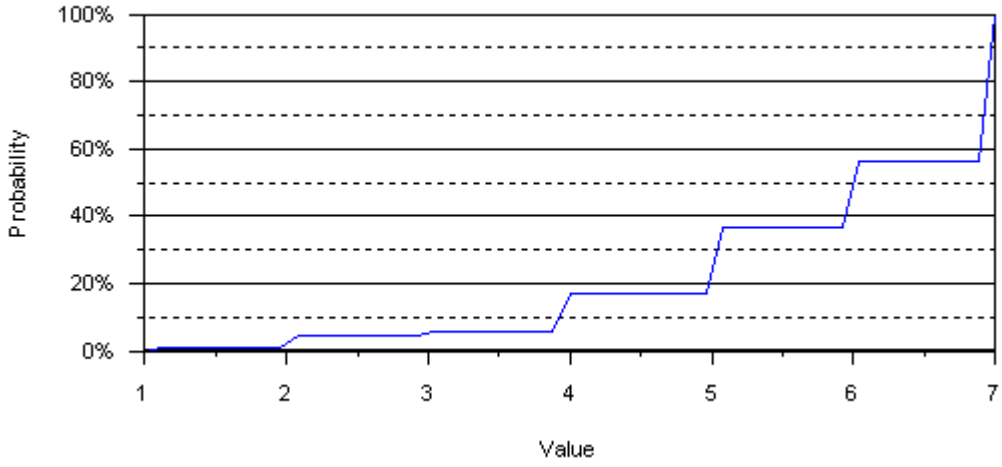
An answer to this question is not required and 317 of 407 respondents chose not to answer.

32g) Analytical chemistry

Probability Density Function



Cumulative Distribution

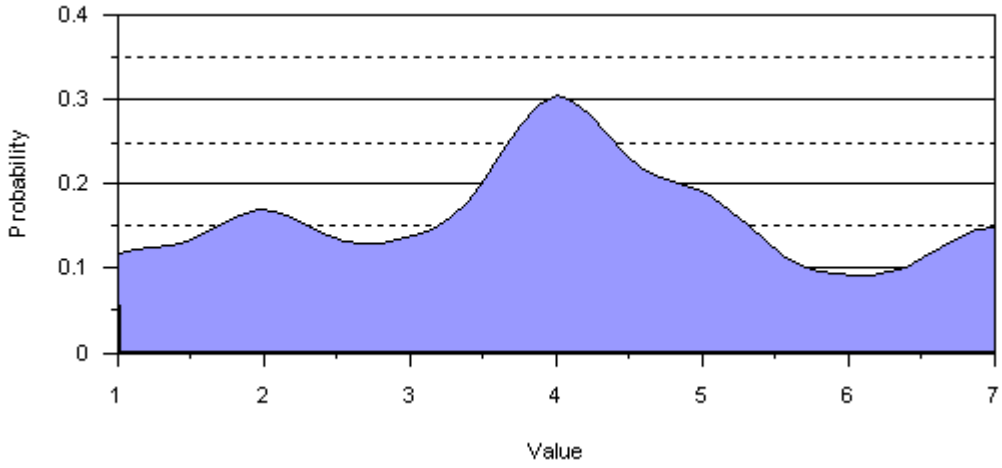


Average:	5.78
Standard Deviation:	1.42
Minimum:	1.00
Maximum:	7.00

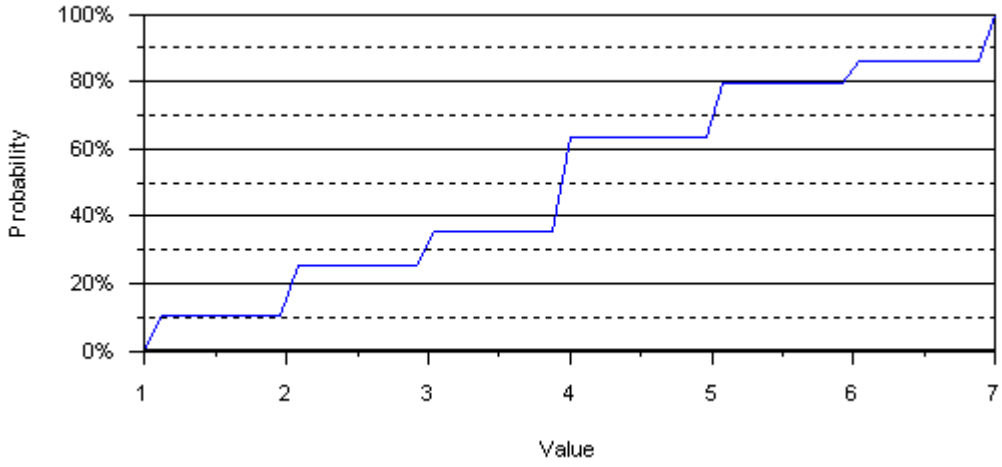
An answer to this question is not required and 320 of 407 respondents chose not to answer.

32h) Advanced physics

Probability Density Function



Cumulative Distribution

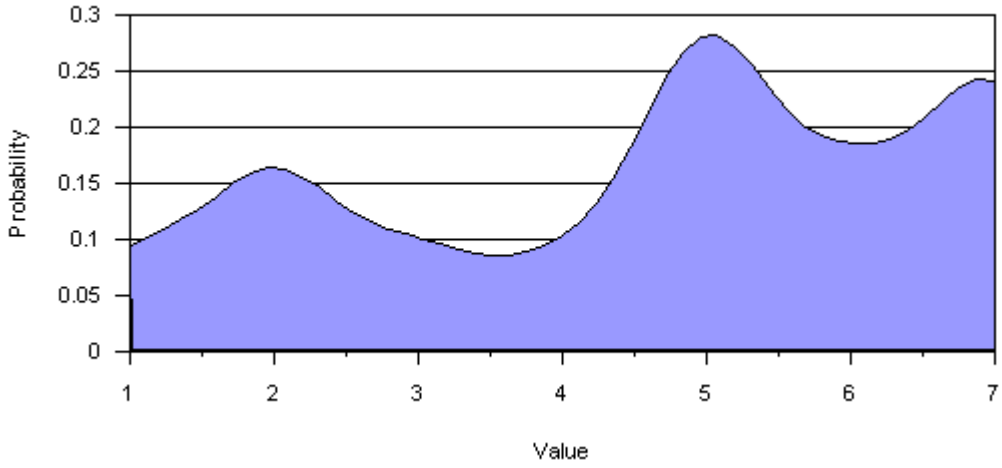


Average:	4.00
Standard Deviation:	1.83
Minimum:	1.00
Maximum:	7.00

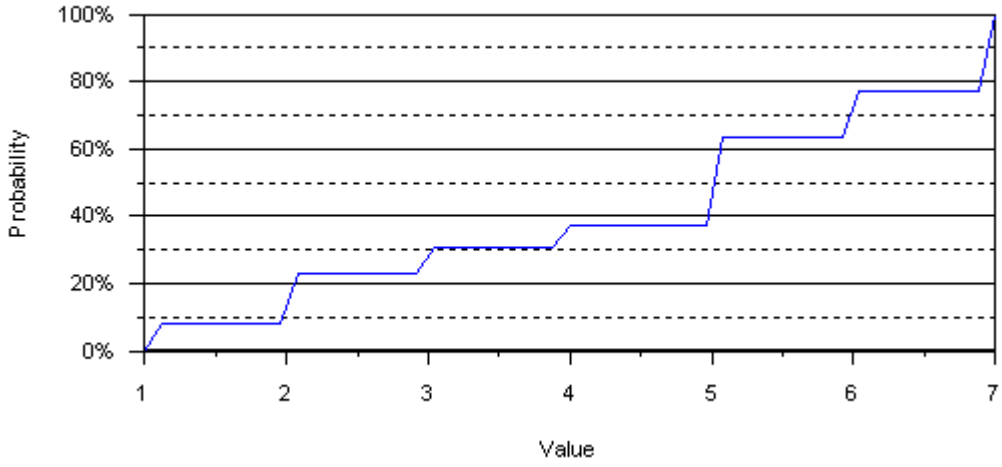
An answer to this question is not required and 320 of 407 respondents chose not to answer.

32i) Physical chemistry

Probability Density Function



Cumulative Distribution

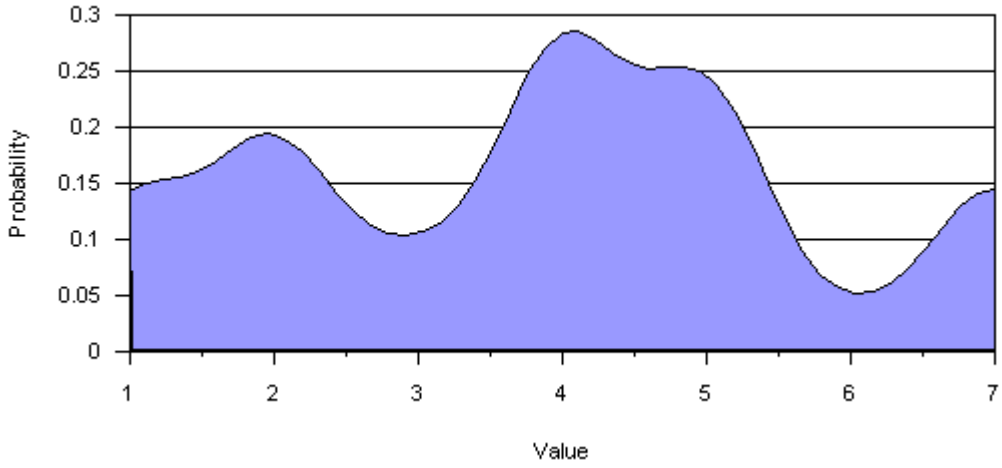


Average:	4.60
Standard Deviation:	1.98
Minimum:	1.00
Maximum:	7.00

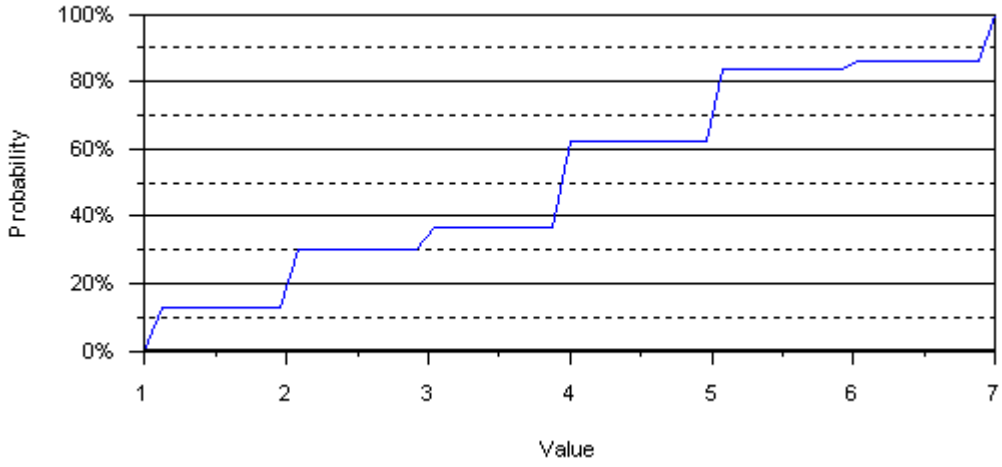
An answer to this question is not required and 319 of 407 respondents chose not to answer.

32j) Advanced physics

Probability Density Function



Cumulative Distribution

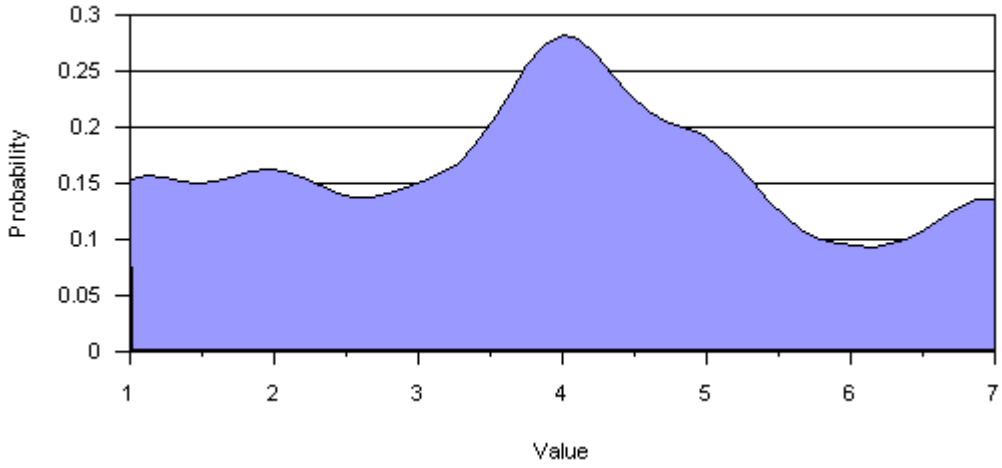


Average:	3.89
Standard Deviation:	1.86
Minimum:	1.00
Maximum:	7.00

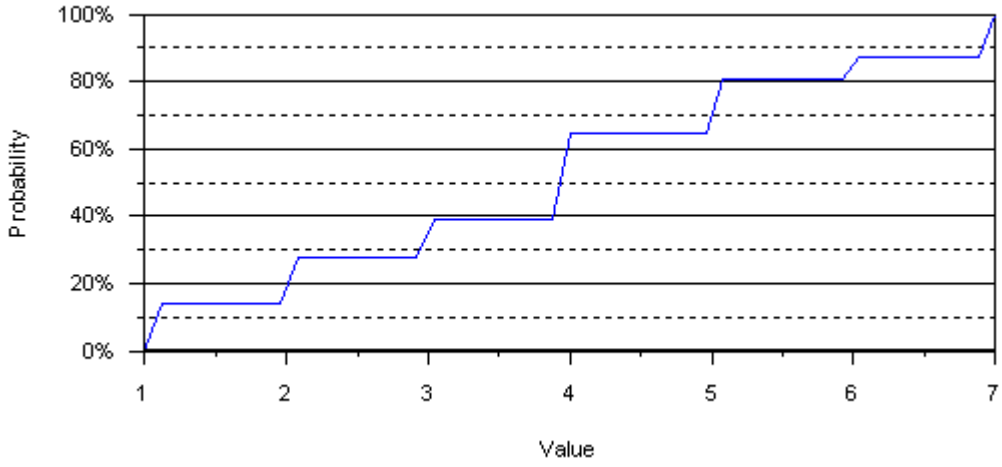
An answer to this question is not required and 320 of 407 respondents chose not to answer.

32k) Advanced mathematics

Probability Density Function



Cumulative Distribution



Average:	3.87
Standard Deviation:	1.87
Minimum:	1.00
Maximum:	7.00

An answer to this question is not required and 320 of 407 respondents chose not to answer.

32l) Other:

- 7
- 7
- 5
- 7

An answer to this question is not required and 403 of 407 respondents chose not to answer.

32m) (if other please indicate course names here):

- One needs either a degree in chemistry or sufficient chemistry, physics and math . I personally went back to school after already having a B>A> and took sciene and egineering courses-eventually received an MS-mainly though in house continuous learning on the job is a must!!
- Spectroscopy / Structural Elucidation
- Combustion gas analysis
- Digital Imaging
- logic

An answer to this question is not required and 402 of 407 respondents chose not to answer.

---

vi) **Part F. Explosives Analysis Case Work (Check an answer only on those questions which apply to you)**

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vii) Please indicate which, if any, of the following explosives analytical laboratory procedures your agency performed (items 34 through 41) and the number of times they were performed items 42 through 49) in 2006:

Analytical Procedure (Yes/No)

---

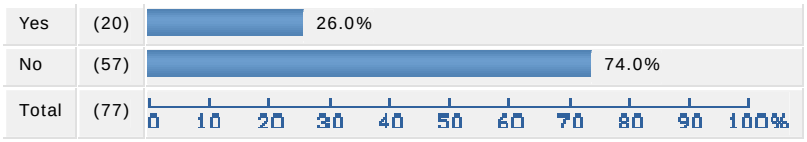
33) Intact Low Explosives

Yes	(35)	44.9%
No	(43)	55.1%
Total	(78)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 329 of 407 respondents chose not to answer.

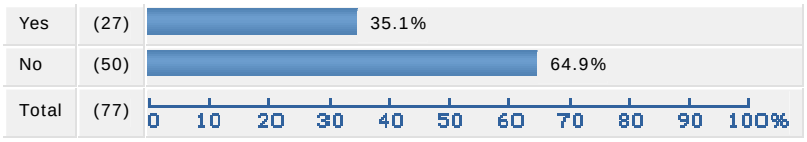
---

34) Intact High Explosives



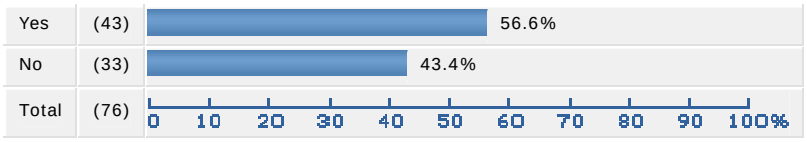
An answer to this question is not required and 330 of 407 respondents chose not to answer.

35) Intact IED's



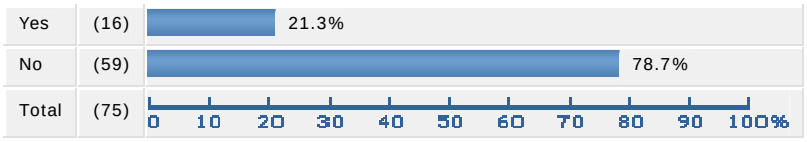
An answer to this question is not required and 330 of 407 respondents chose not to answer.

36) Post-Blast Low Explosives



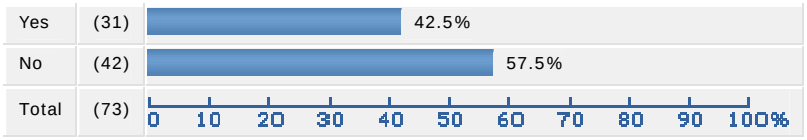
An answer to this question is not required and 331 of 407 respondents chose not to answer.

37) Post Blast High Explosives



An answer to this question is not required and 332 of 407 respondents chose not to answer.

38) Post Blast IED's



An answer to this question is not required and 334 of 407 respondents chose not to answer.

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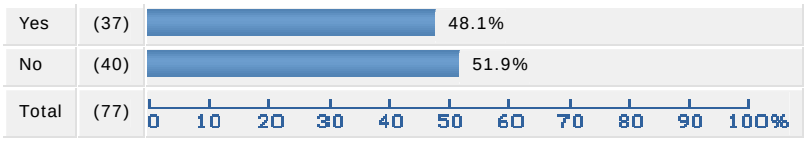
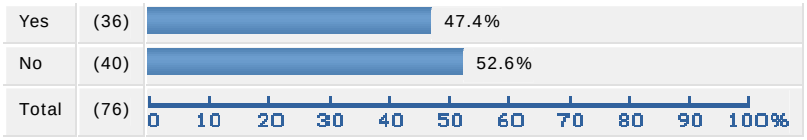
39) Intact Incendiary Device



An answer to this question is not required and 330 of 407 respondents chose not to answer.

---

40) Post-Reaction incendiary



An answer to this question is not required and 331 of 407 respondents chose not to answer.

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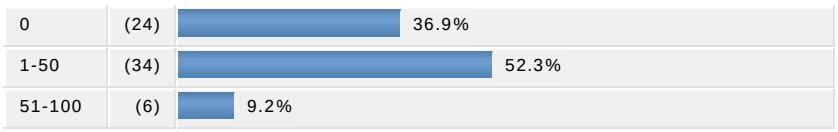
41) Intact Low Explosives



101-150	(0)	0.0%
151-200	(0)	0.0%
201-250	(0)	0.0%
251-300	(0)	0.0%
>300	(1)	1.5%
Total	(65)	

An answer to this question is not required and 342 of 407 respondents chose not to answer.

---

42) Intact High Explosives

0	(40)	65.6%
1-50	(20)	32.8%
51-100	(1)	1.6%
101-150	(0)	0.0%
151-200	(0)	0.0%
201-250	(0)	0.0%
251-300	(0)	0.0%
>300	(0)	0.0%
Total	(61)	

An answer to this question is not required and 346 of 407 respondents chose not to answer.

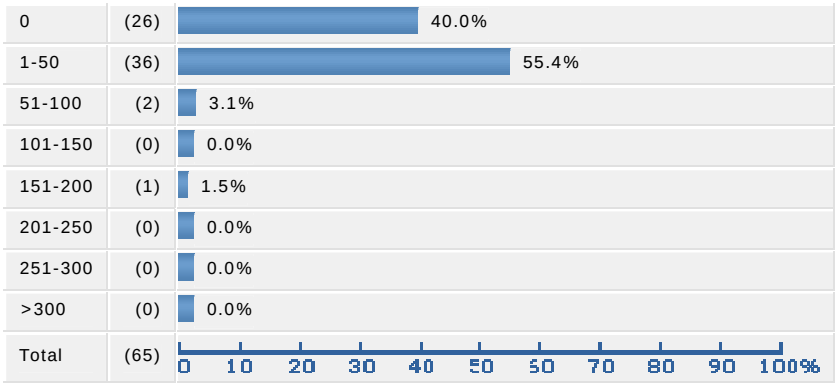
---

43) Intact IED's

0	(37)	56.9%
1-50	(26)	40.0%
51-100	(1)	1.5%
101-150	(1)	1.5%
151-200	(0)	0.0%
201-250	(0)	0.0%
251-300	(0)	0.0%
>300	(0)	0.0%
Total	(65)	

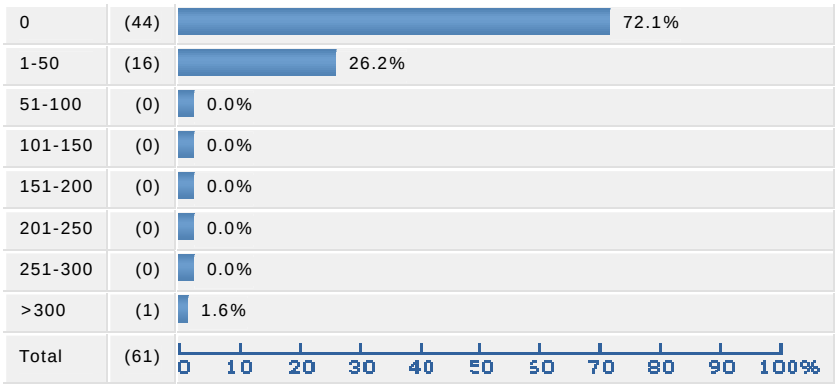
An answer to this question is not required and 342 of 407 respondents chose not to answer.

44) Post-Blast Low



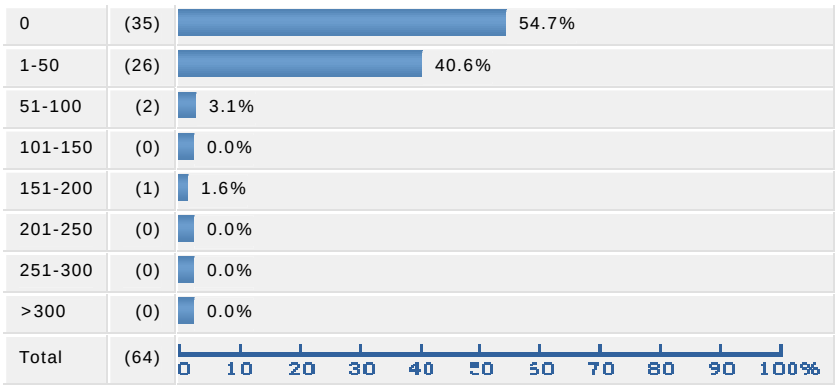
An answer to this question is not required and 342 of 407 respondents chose not to answer.

45) Post Blast High



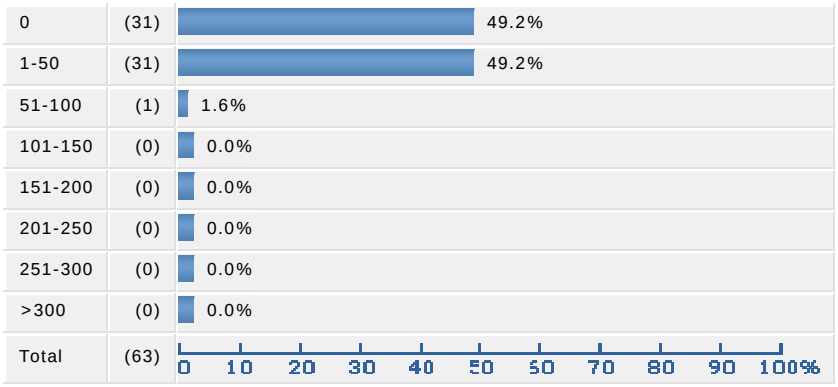
An answer to this question is not required and 346 of 407 respondents chose not to answer.

46) Post Blast IED's



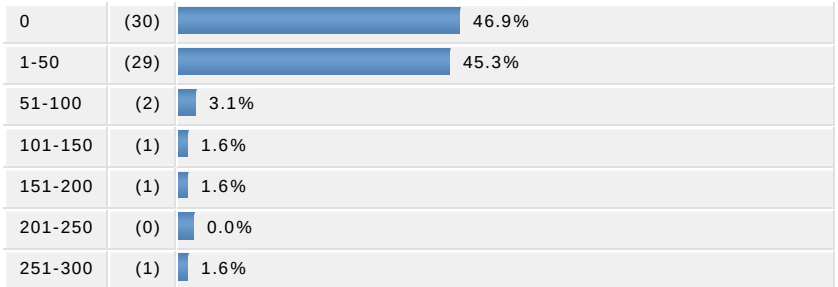
An answer to this question is not required and 343 of 407 respondents chose not to answer.

47) Intact Incendiary Device



An answer to this question is not required and 344 of 407 respondents chose not to answer.

48) Post-Reaction incendiary



>300	(0)	0.0%
Total	(64)	0 10 20 30 40 50 50 70 80 90 100%

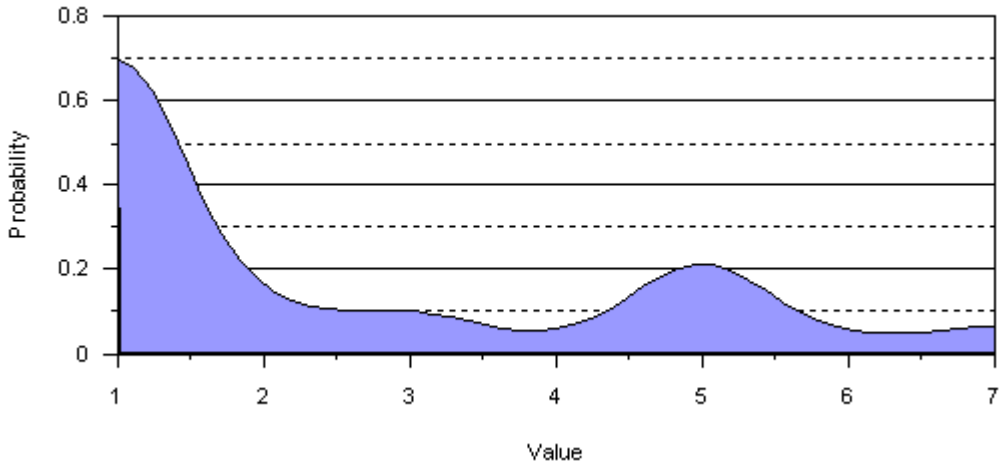
An answer to this question is not required and 343 of 407 respondents chose not to answer.

viii) **Part G. Explosives Analytical Methods (Check an answer only on those questions which apply to you)**

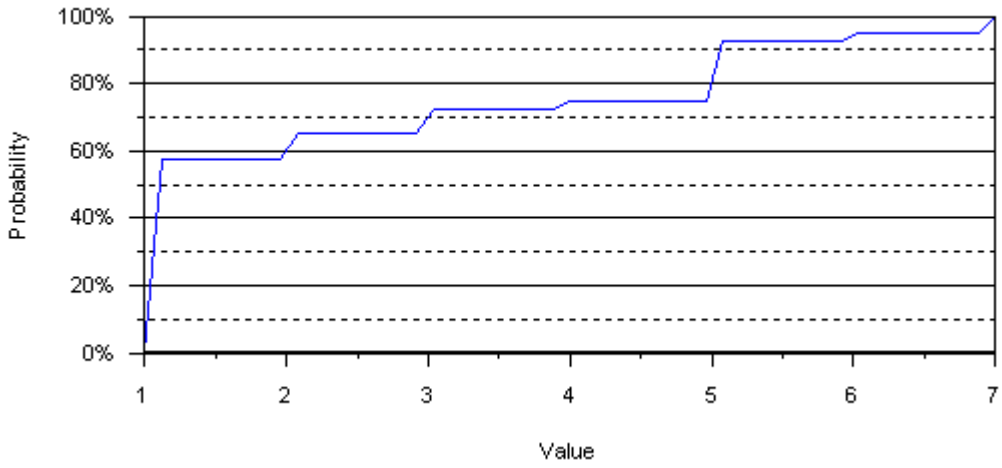
49) In explosives analyses, how often do you use each of the following analytical techniques? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

49a) Microchemical analysis using PLM

Probability Density Function



Cumulative Distribution

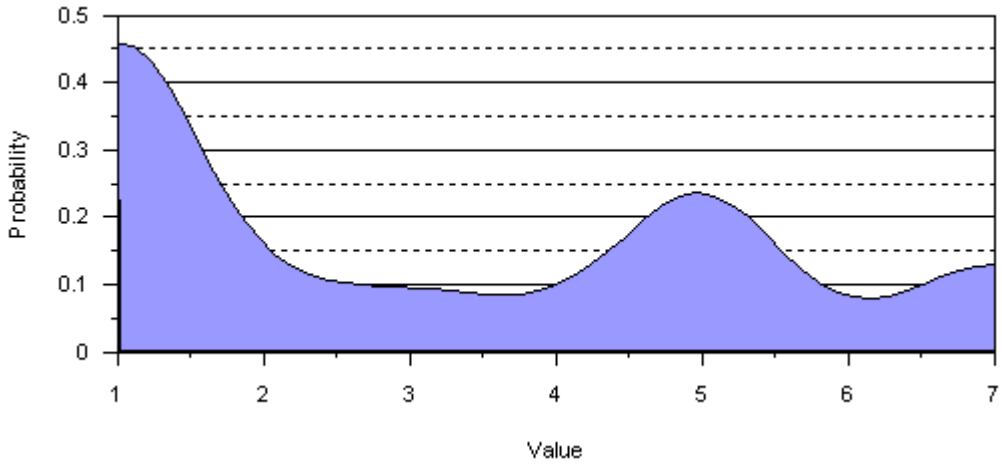


Average:	2.42
Standard Deviation:	1.97
Minimum:	1.00
Maximum:	7.00

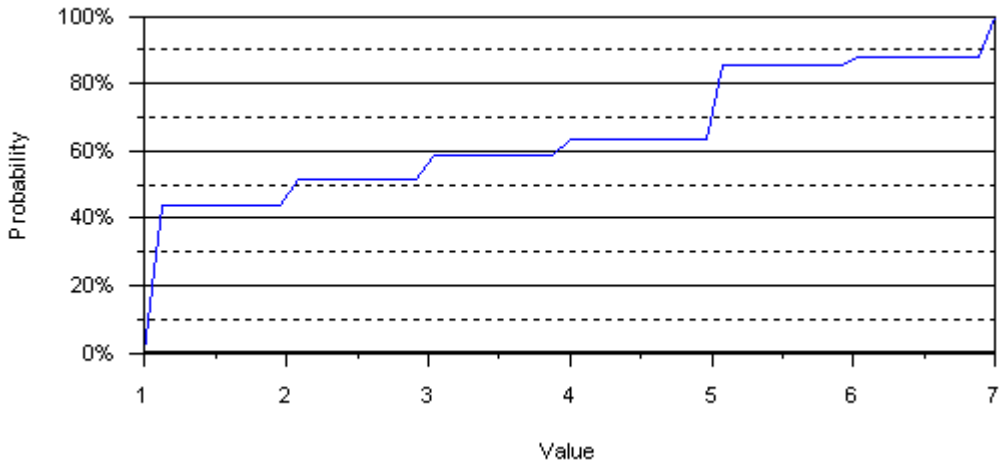
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49b) Spot tests

Probability Density Function



Cumulative Distribution

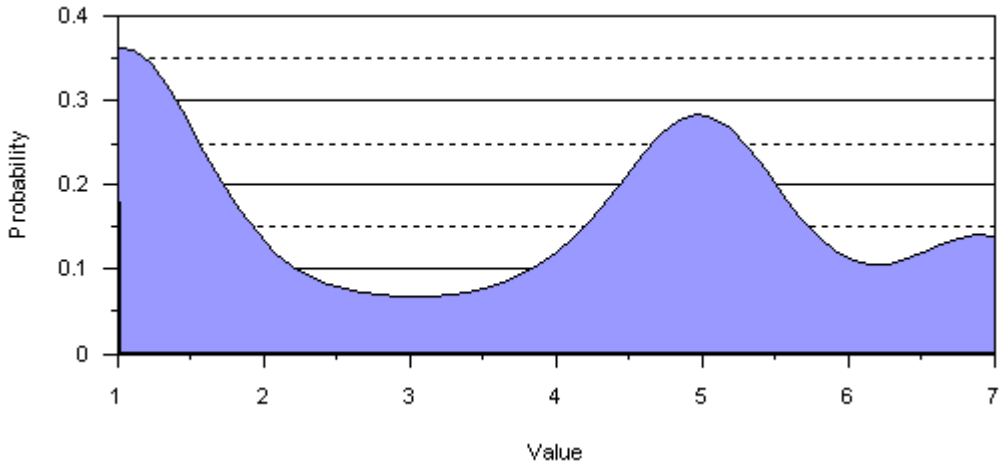


Average:	3.10
Standard Deviation:	2.25
Minimum:	1.00
Maximum:	7.00

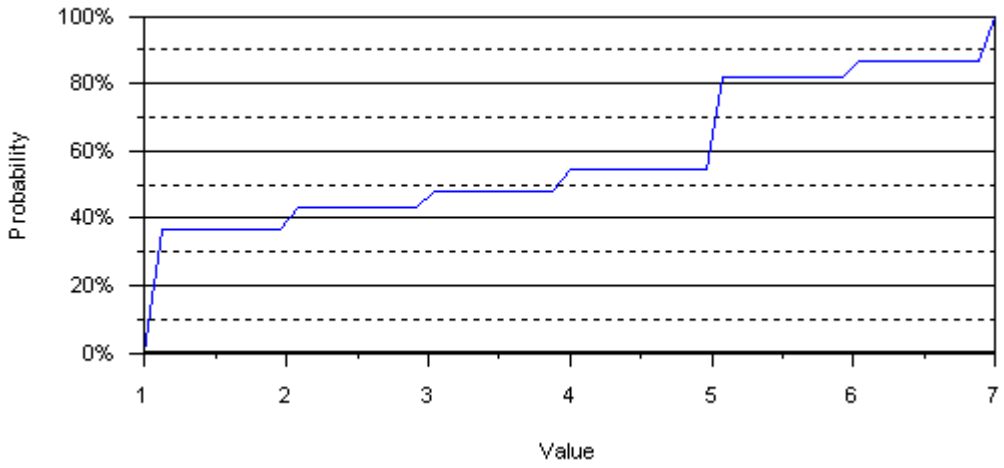
An answer to this question is not required and 366 of 407 respondents chose not to answer.

49c) Ignition analysis

Probability Density Function



Cumulative Distribution

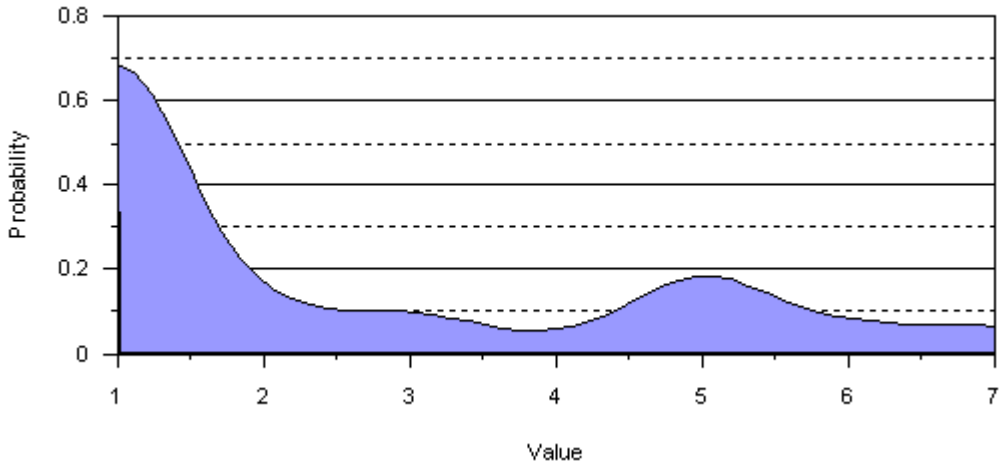


Average:	3.50
Standard Deviation:	2.27
Minimum:	1.00
Maximum:	7.00

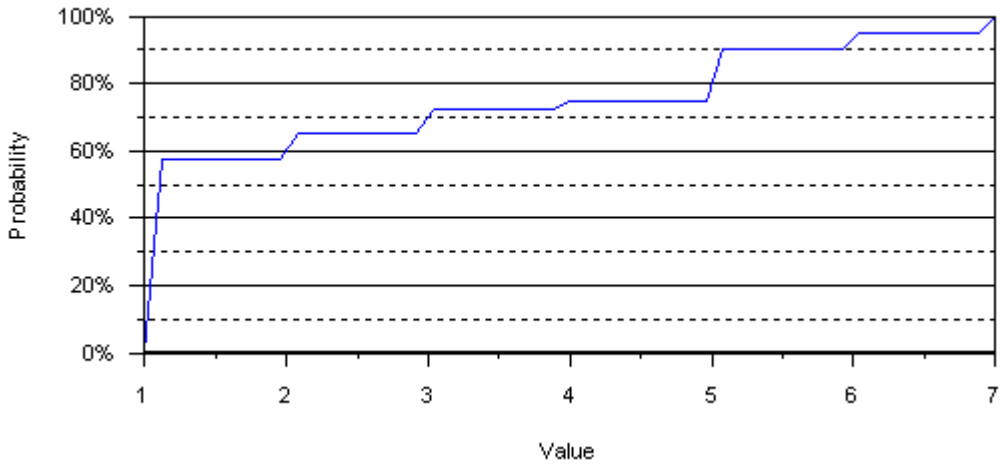
An answer to this question is not required and 363 of 407 respondents chose not to answer.

49d) Microchemical analysis using stereomicroscopy

Probability Density Function



Cumulative Distribution

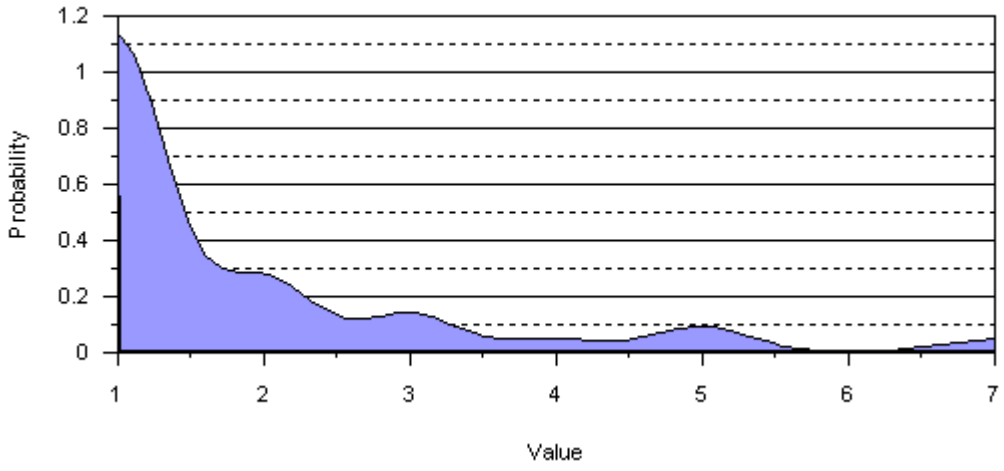


Average:	2.45
Standard Deviation:	2.01
Minimum:	1.00
Maximum:	7.00

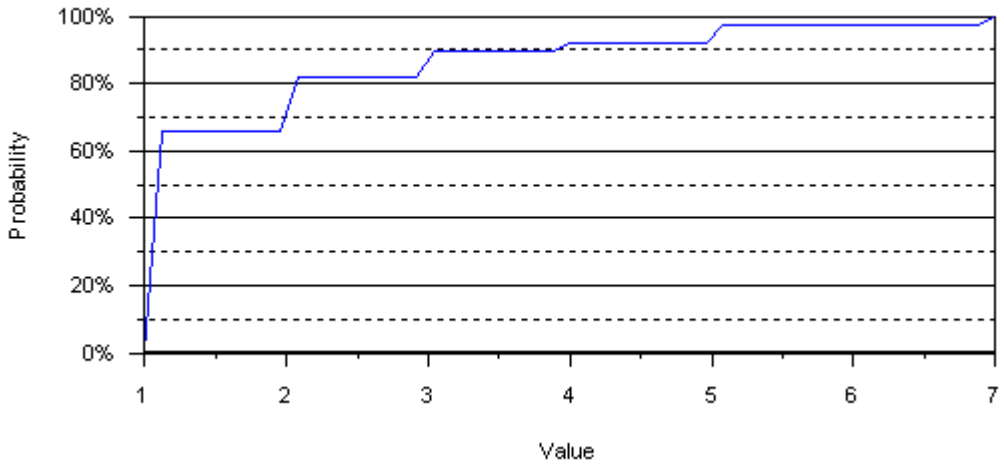
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49e) TLC

Probability Density Function



Cumulative Distribution

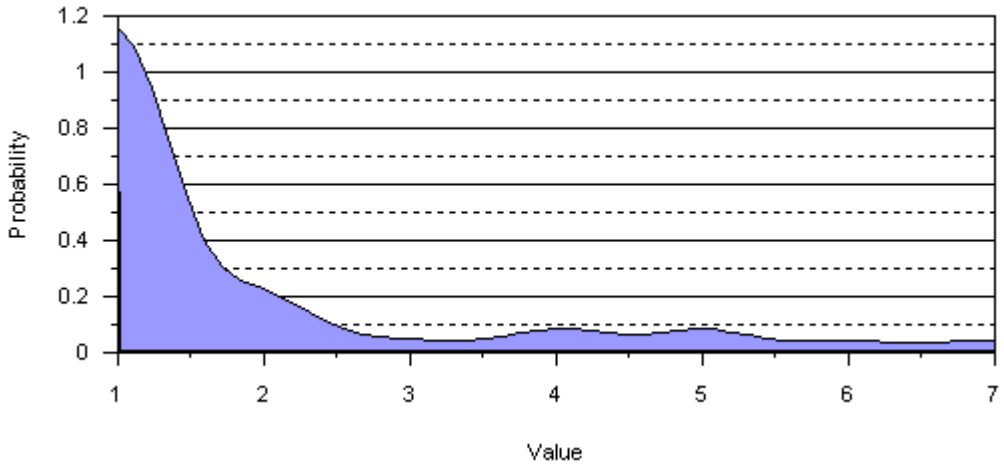


Average:	1.76
Standard Deviation:	1.40
Minimum:	1.00
Maximum:	7.00

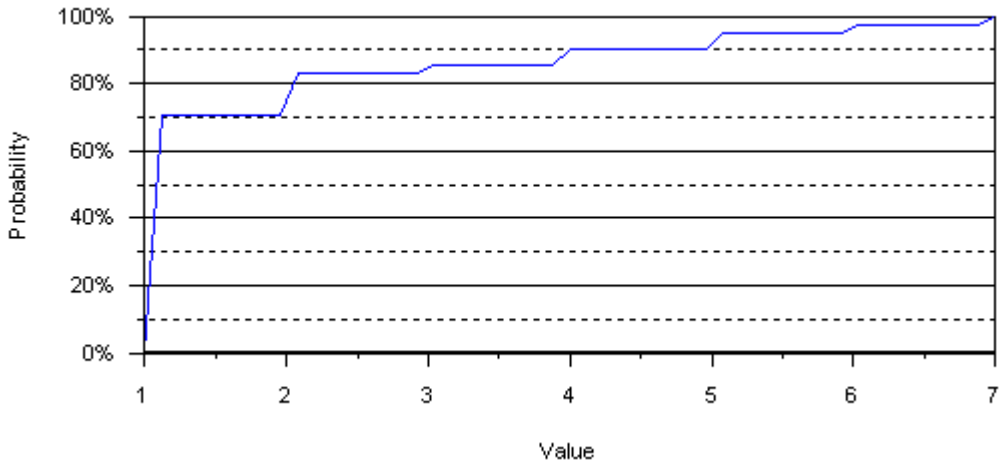
An answer to this question is not required and 369 of 407 respondents chose not to answer.

49f) Field explosives screening

Probability Density Function



Cumulative Distribution

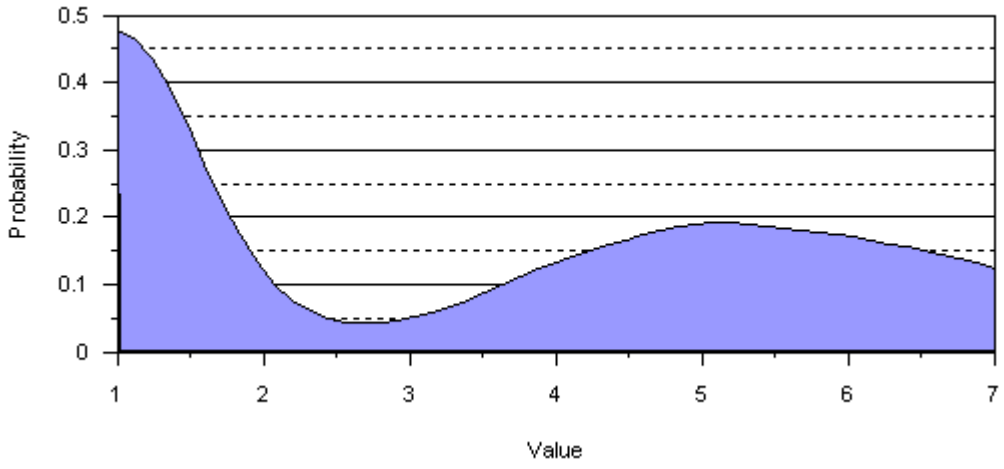


Average:	1.78
Standard Deviation:	1.54
Minimum:	1.00
Maximum:	7.00

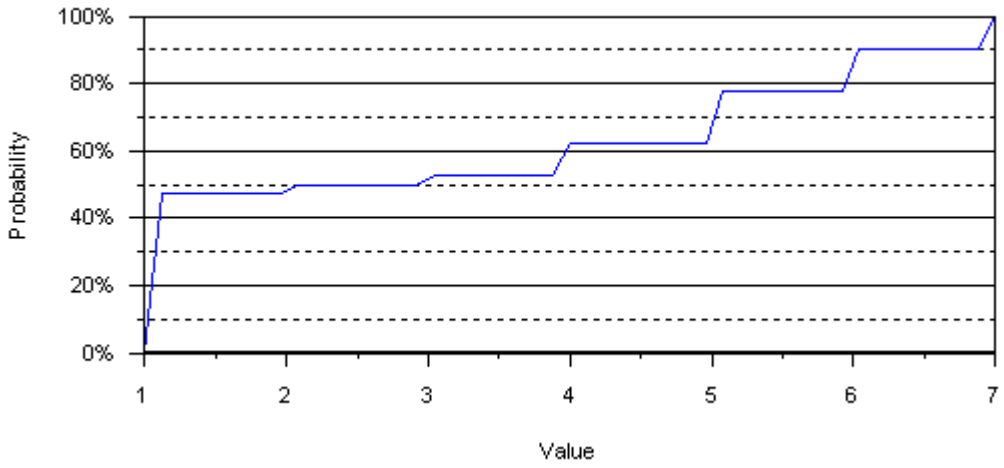
An answer to this question is not required and 366 of 407 respondents chose not to answer.

49g) IR

Probability Density Function



Cumulative Distribution

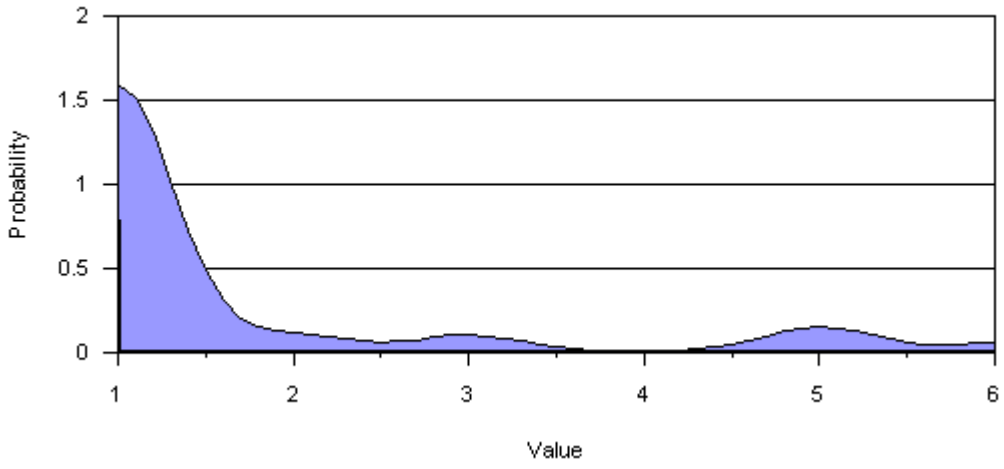


Average:	3.20
Standard Deviation:	2.33
Minimum:	1.00
Maximum:	7.00

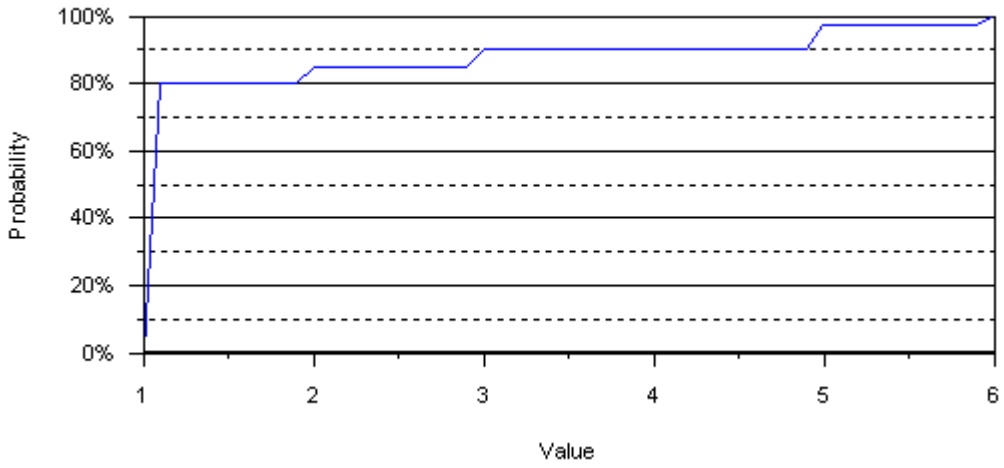
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49h) Raman spectroscopy

Probability Density Function



Cumulative Distribution

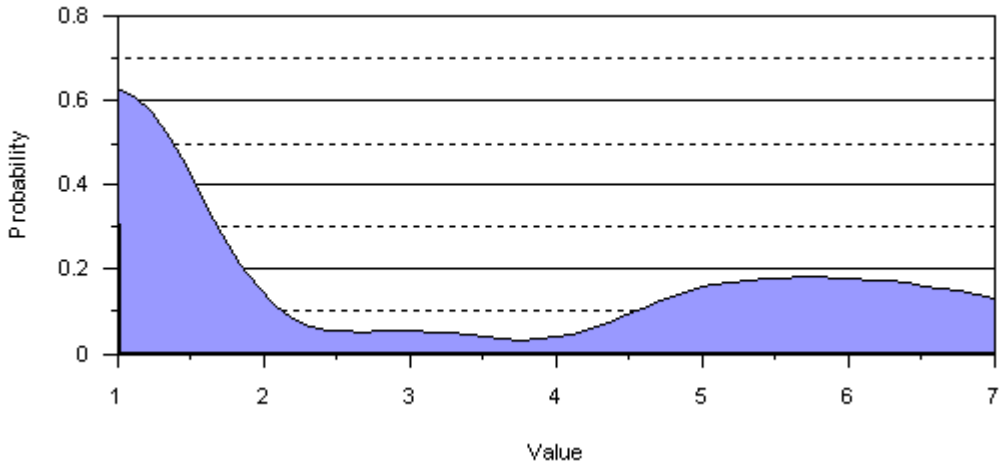


Average:	1.57
Standard Deviation:	1.34
Minimum:	1.00
Maximum:	6.00

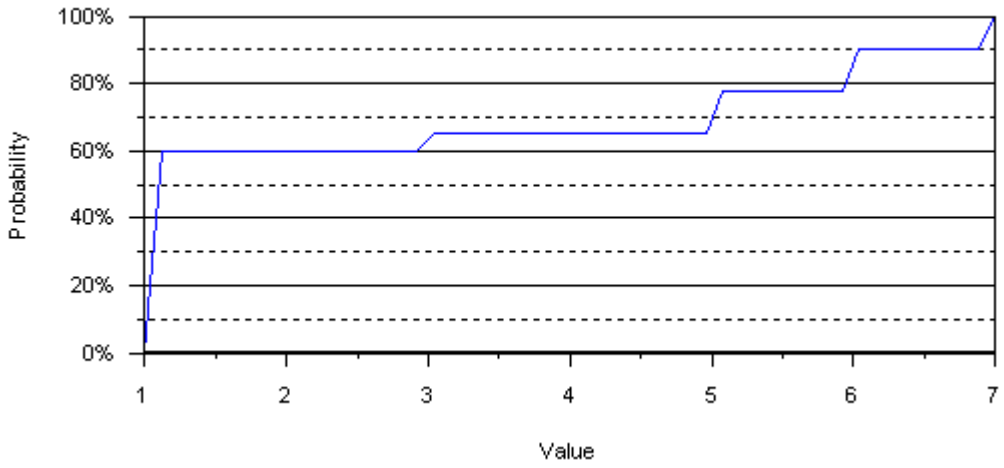
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49i) SEM-EDX

Probability Density Function



Cumulative Distribution

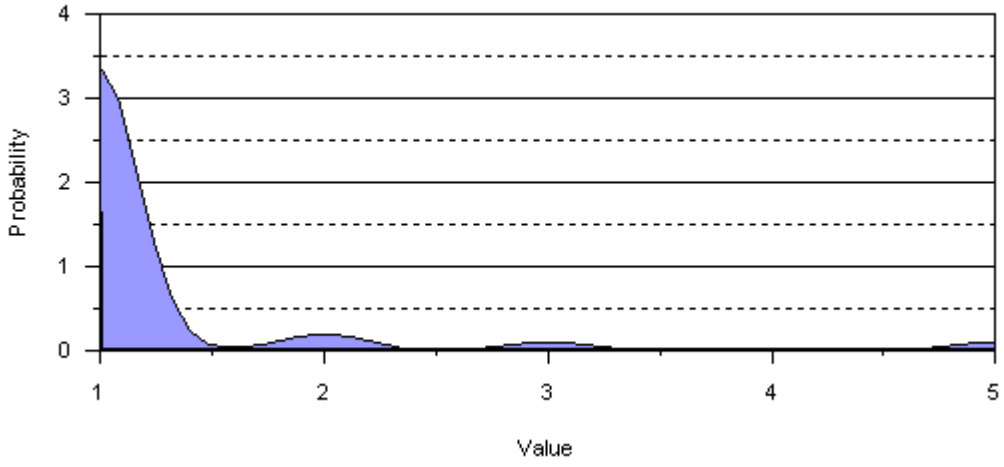


Average:	2.83
Standard Deviation:	2.40
Minimum:	1.00
Maximum:	7.00

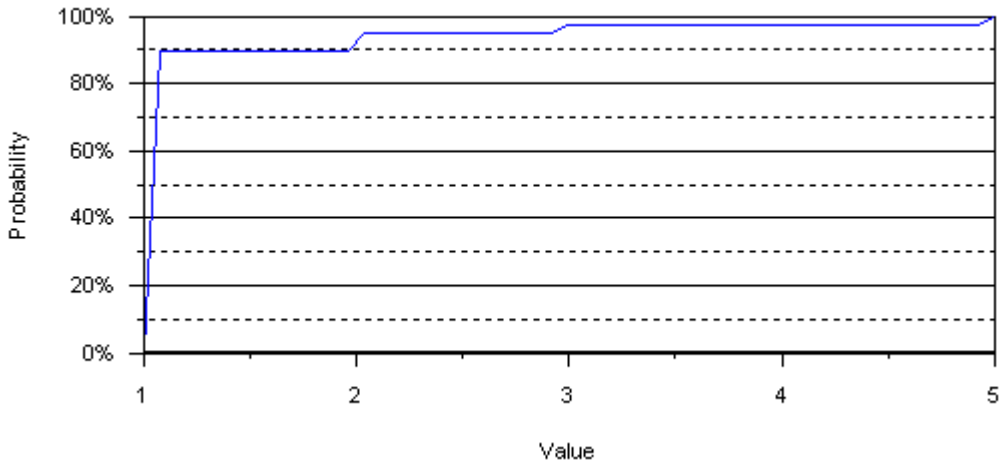
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49j) ICP

Probability Density Function



Cumulative Distribution

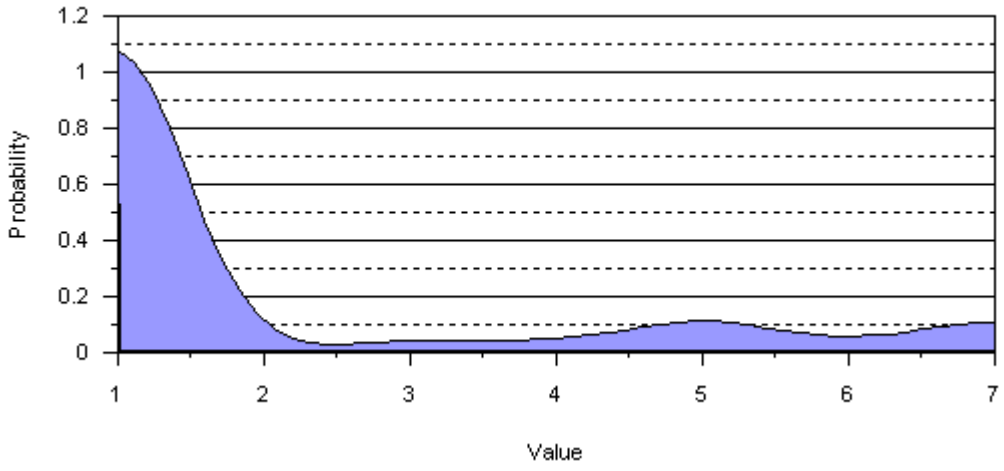


Average:	1.21
Standard Deviation:	0.73
Minimum:	1.00
Maximum:	5.00

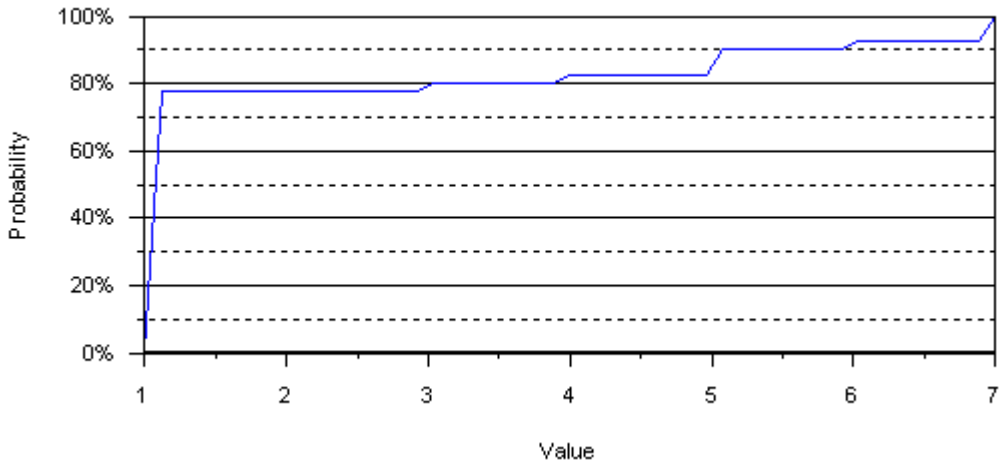
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49k) XRF

Probability Density Function



Cumulative Distribution

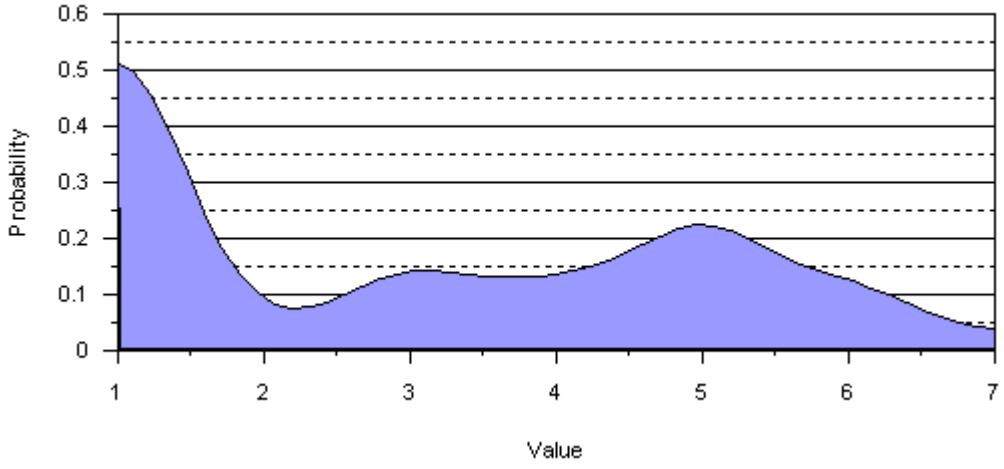


Average:	2.00
Standard Deviation:	1.99
Minimum:	1.00
Maximum:	7.00

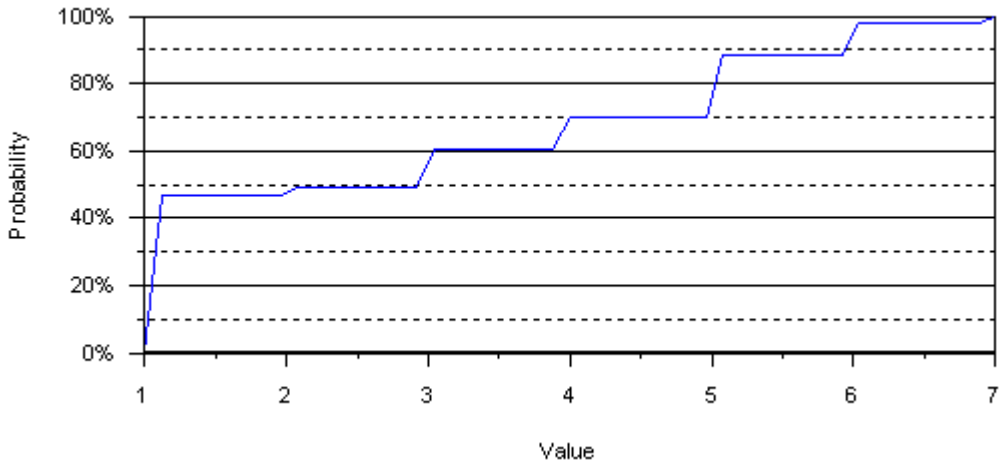
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49I) GC/MS

Probability Density Function



Cumulative Distribution

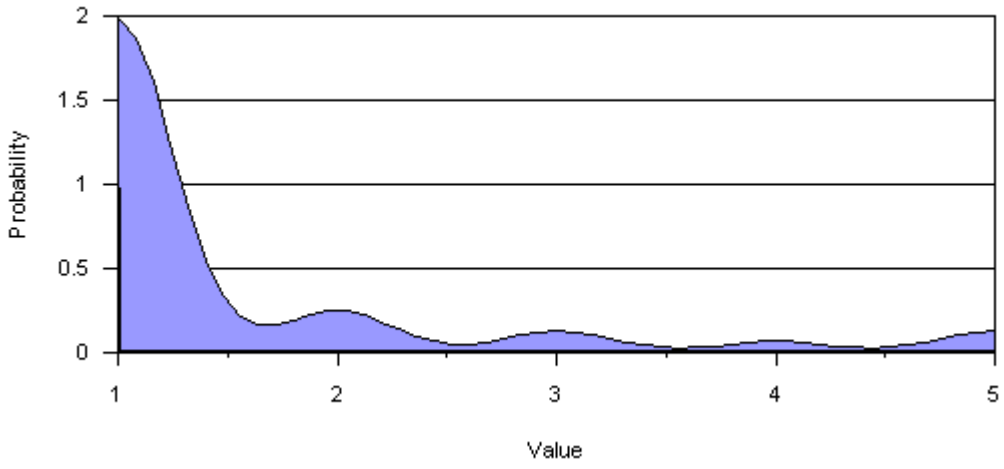


Average:	2.88
Standard Deviation:	2.00
Minimum:	1.00
Maximum:	7.00

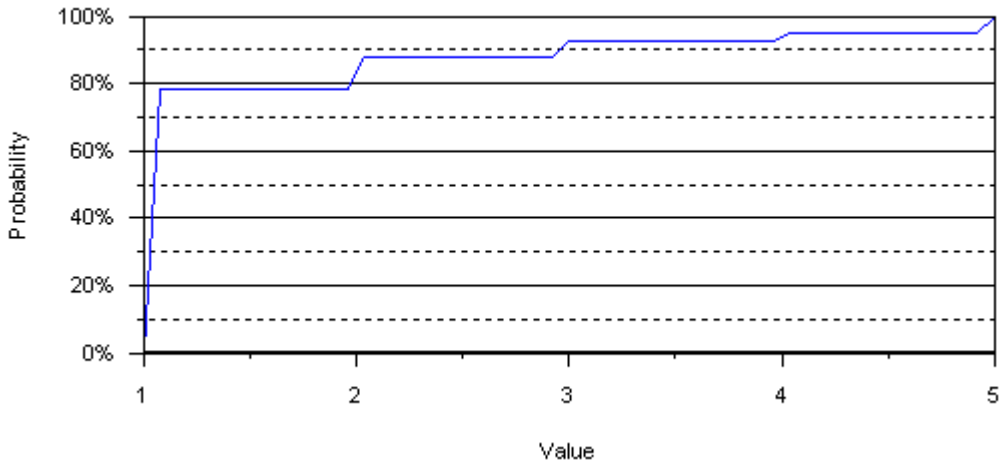
An answer to this question is not required and 364 of 407 respondents chose not to answer.

49m)GC/FID

Probability Density Function



Cumulative Distribution

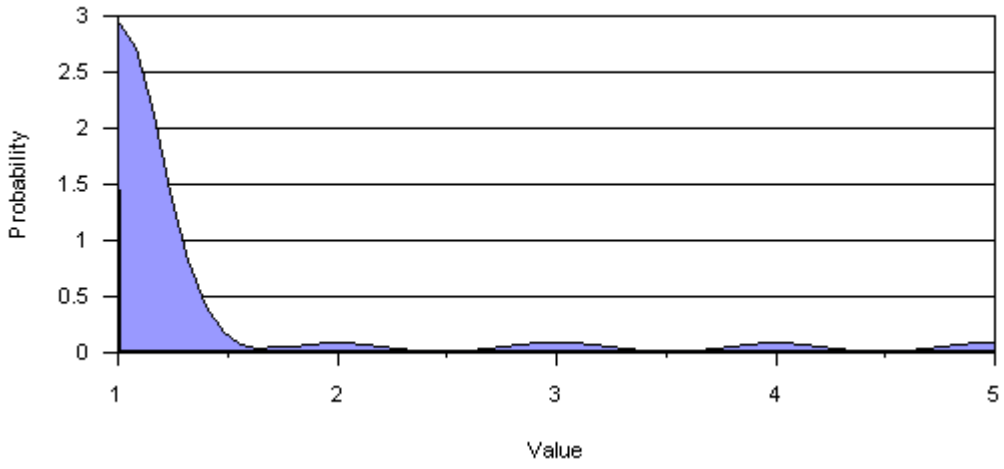


Average:	1.46
Standard Deviation:	1.05
Minimum:	1.00
Maximum:	5.00

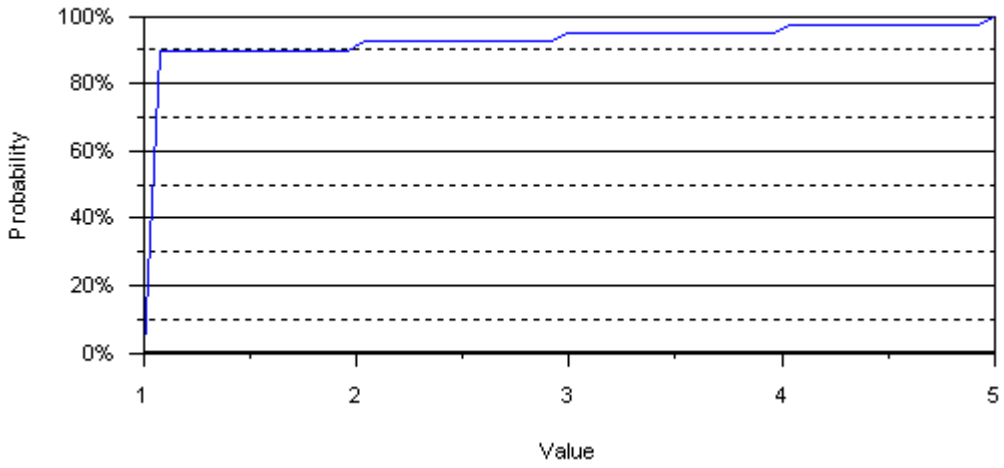
An answer to this question is not required and 366 of 407 respondents chose not to answer.

49n) CE

Probability Density Function



Cumulative Distribution

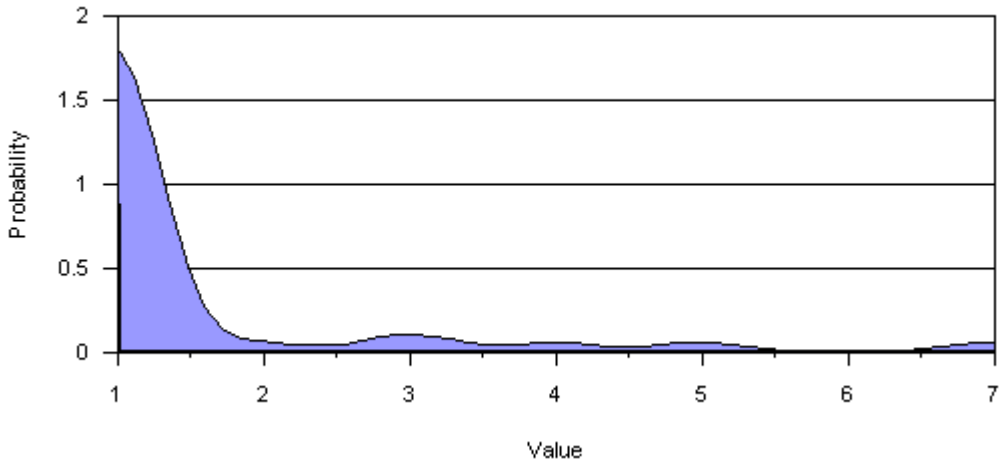


Average:	1.26
Standard Deviation:	0.85
Minimum:	1.00
Maximum:	5.00

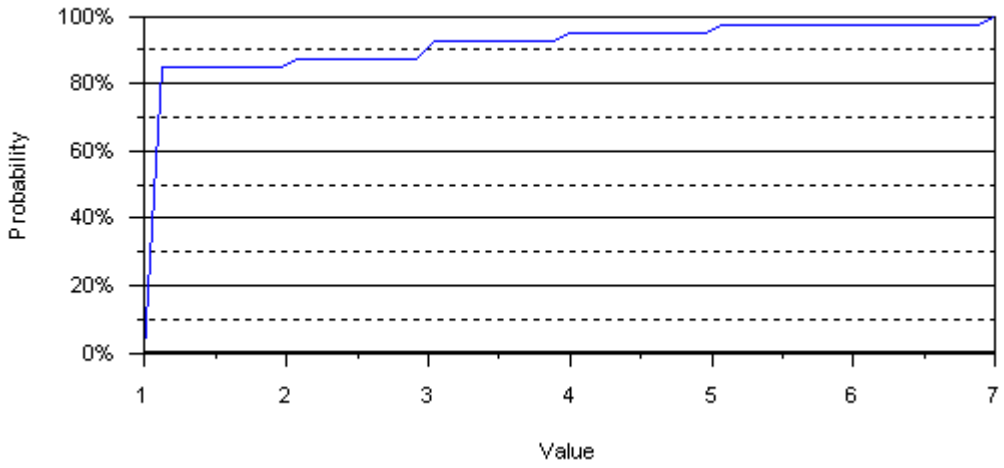
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49o) HPLC

Probability Density Function



Cumulative Distribution

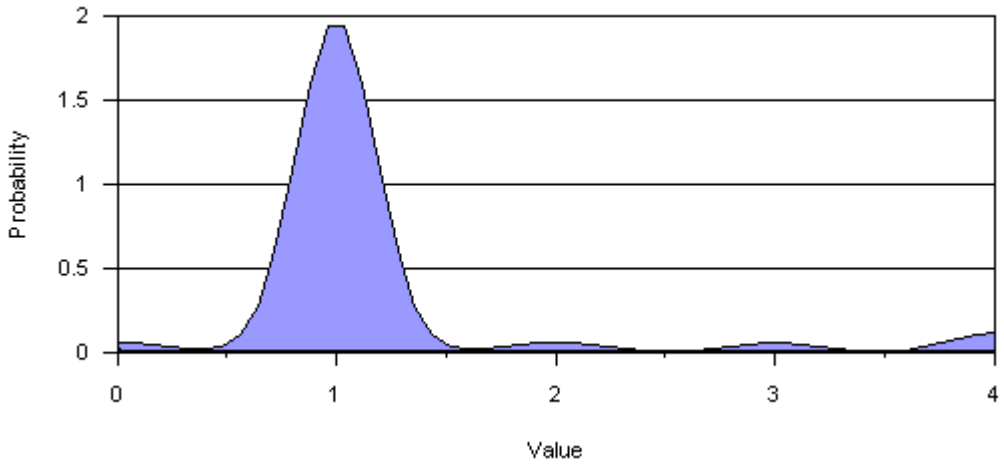


Average:	1.46
Standard Deviation:	1.27
Minimum:	1.00
Maximum:	7.00

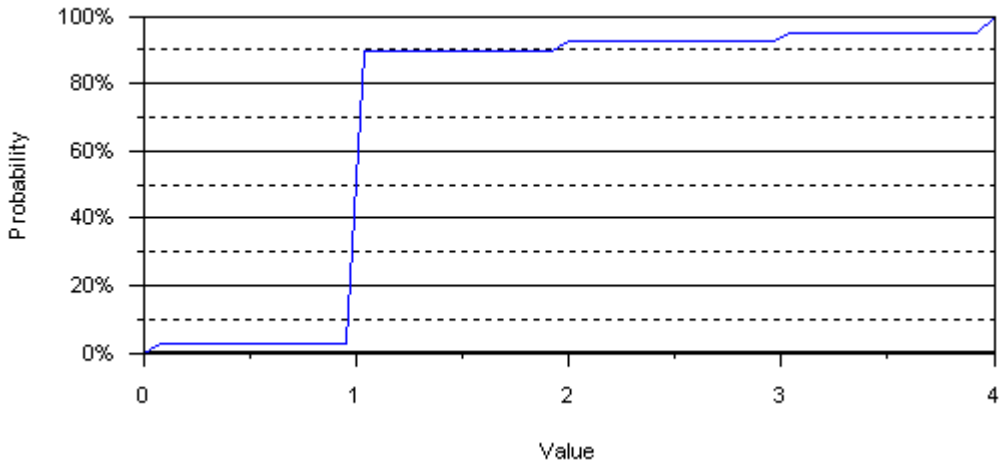
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49p) HPLC/TEA

Probability Density Function



Cumulative Distribution

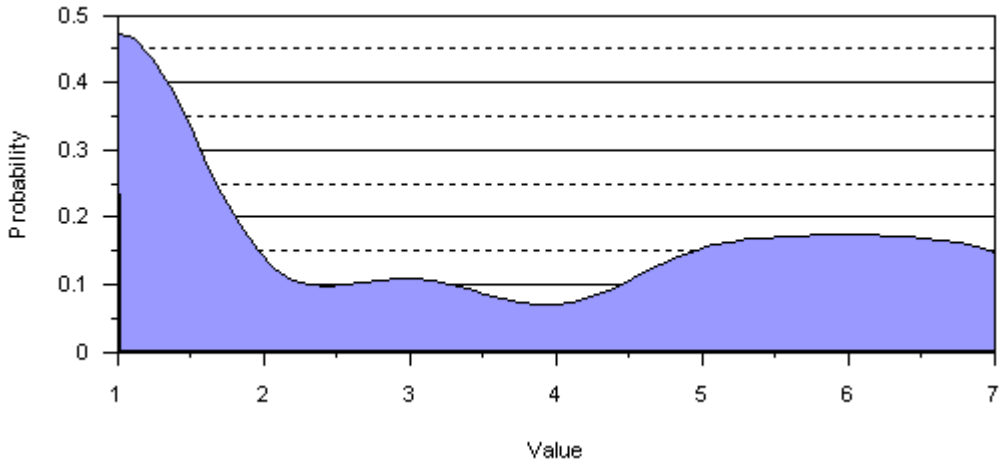


Average:	1.21
Standard Deviation:	0.77
Minimum:	0.00
Maximum:	4.00

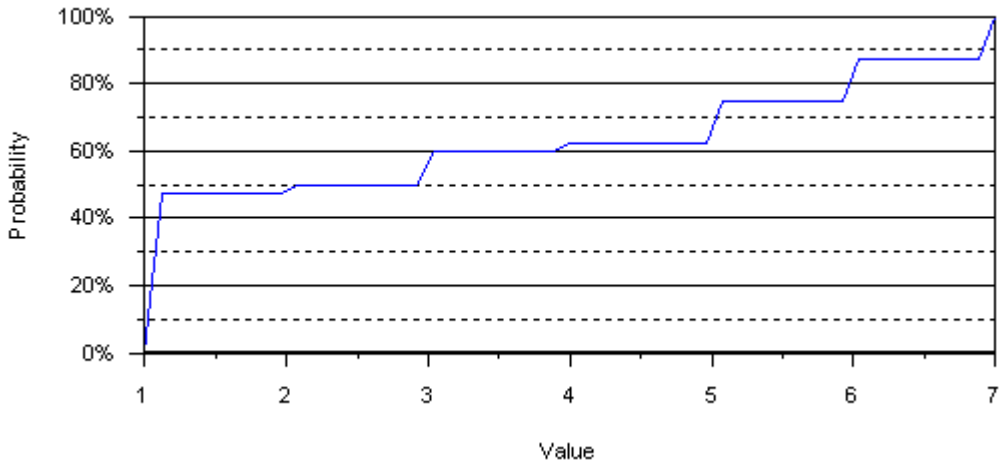
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49q) FTIR

Probability Density Function



Cumulative Distribution

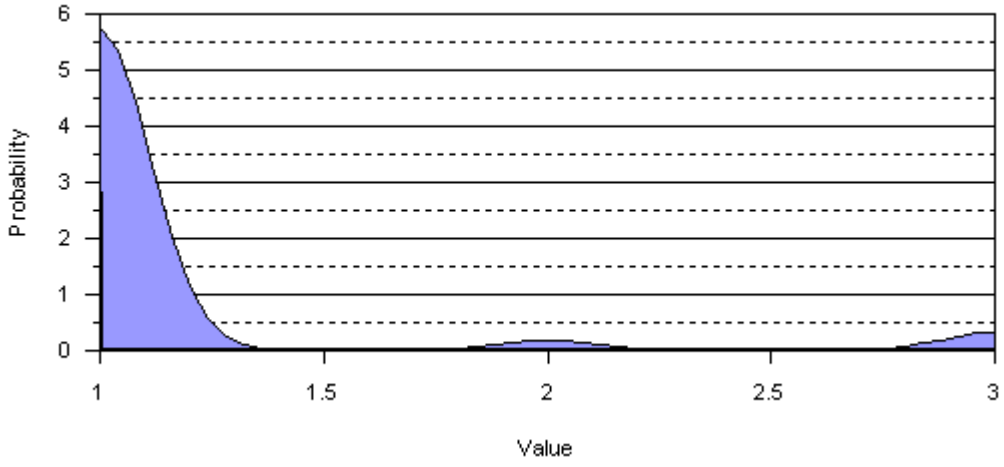


Average:	3.17
Standard Deviation:	2.38
Minimum:	1.00
Maximum:	7.00

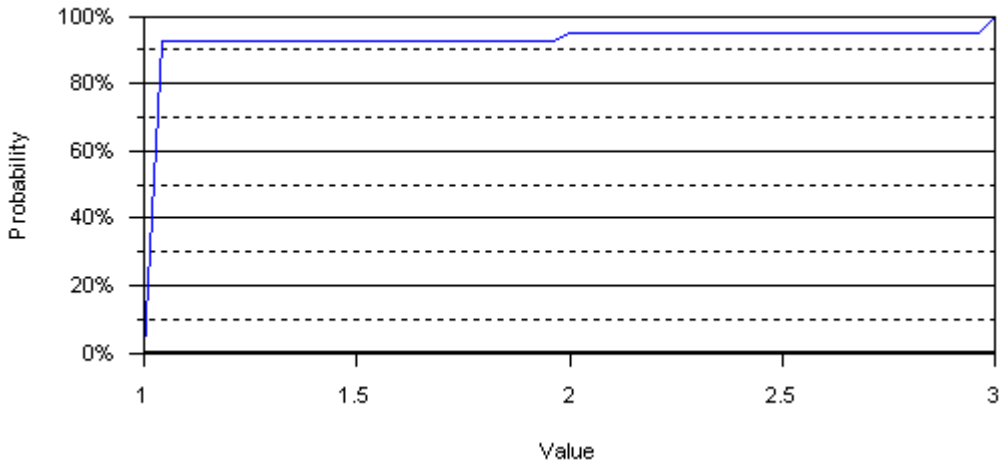
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49r) NMR

Probability Density Function



Cumulative Distribution

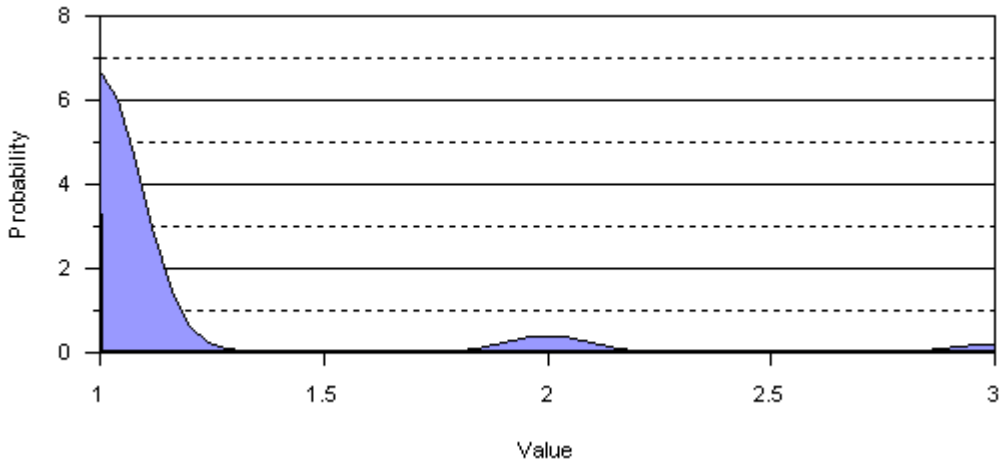


Average:	1.13
Standard Deviation:	0.47
Minimum:	1.00
Maximum:	3.00

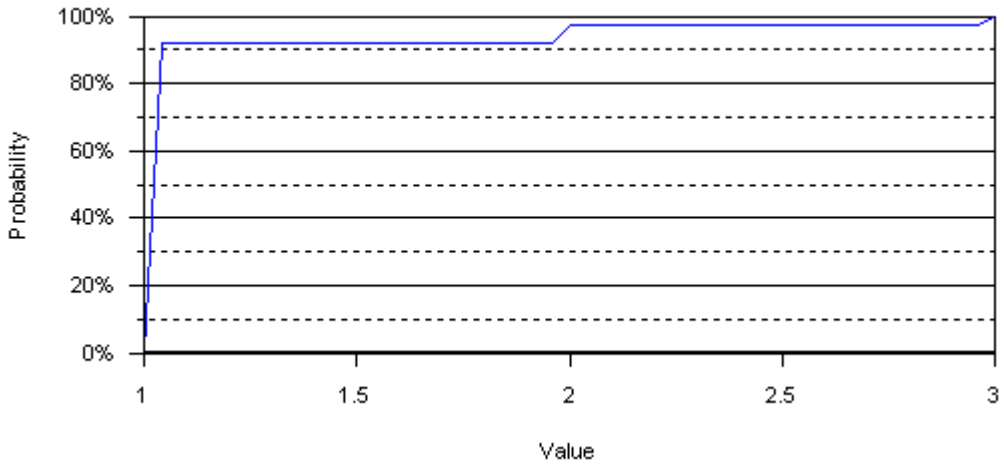
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49s) SEM-WDX

Probability Density Function



Cumulative Distribution

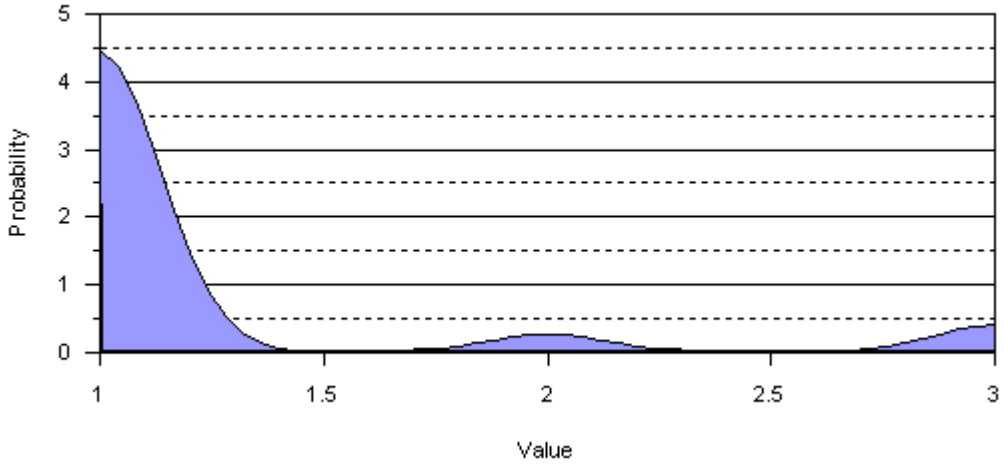


Average:	1.11
Standard Deviation:	0.39
Minimum:	1.00
Maximum:	3.00

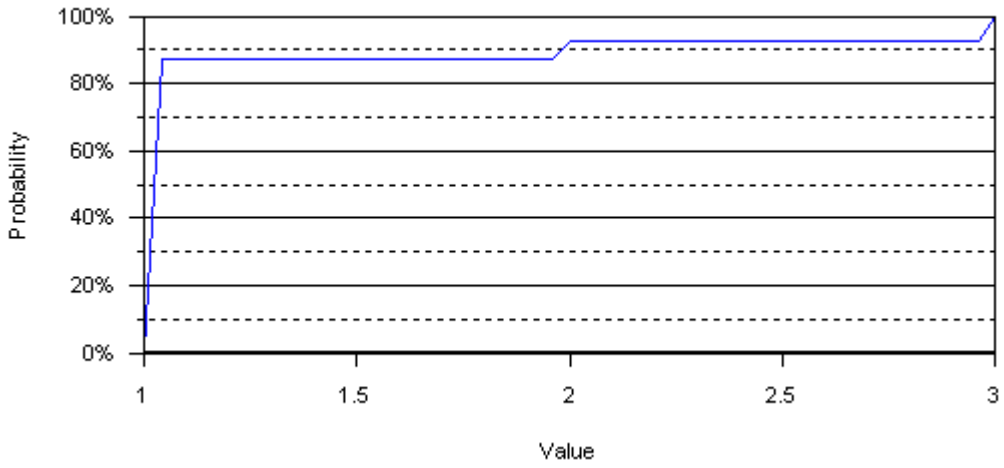
An answer to this question is not required and 369 of 407 respondents chose not to answer.

49t) IMS

Probability Density Function



Cumulative Distribution

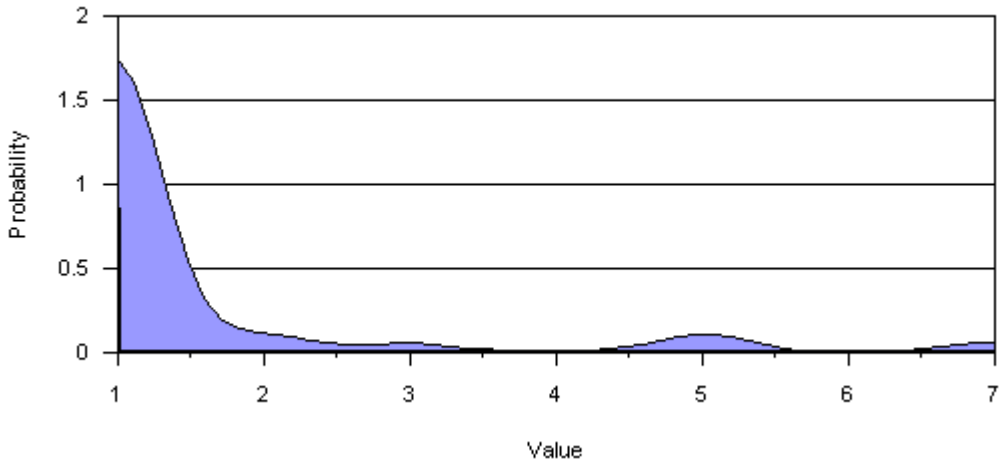


Average:	1.21
Standard Deviation:	0.57
Minimum:	1.00
Maximum:	3.00

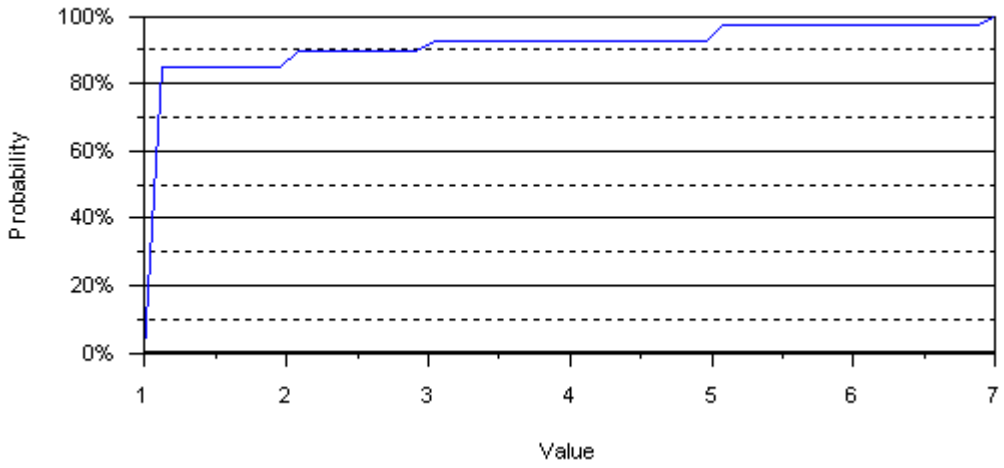
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49u) XRD

Probability Density Function



Cumulative Distribution

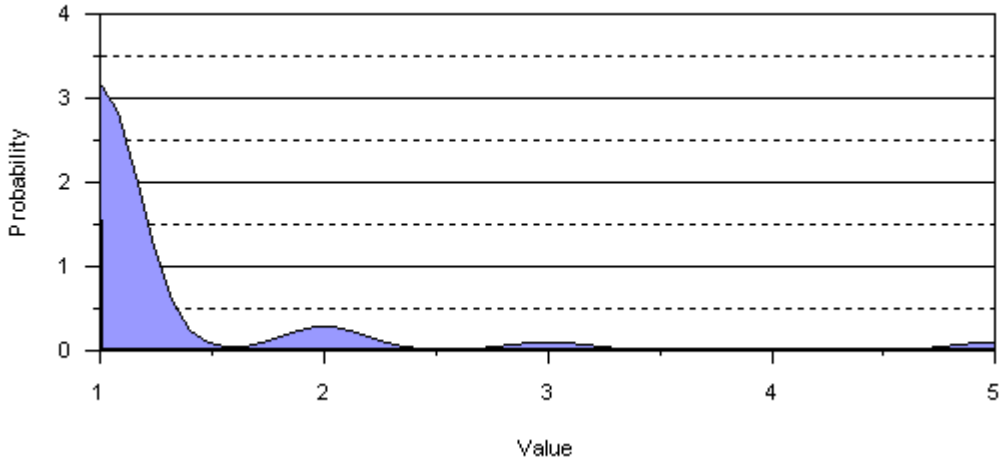


Average:	1.46
Standard Deviation:	1.31
Minimum:	1.00
Maximum:	7.00

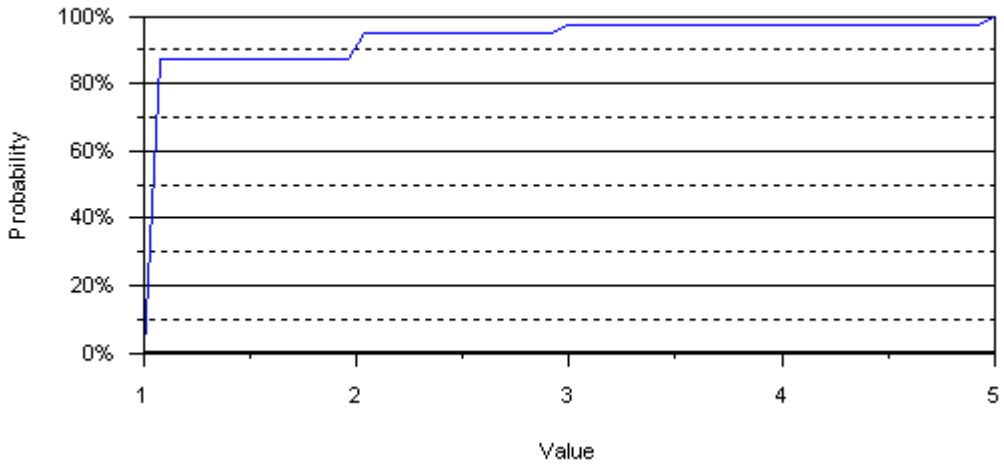
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49v) GC/TEA

Probability Density Function



Cumulative Distribution

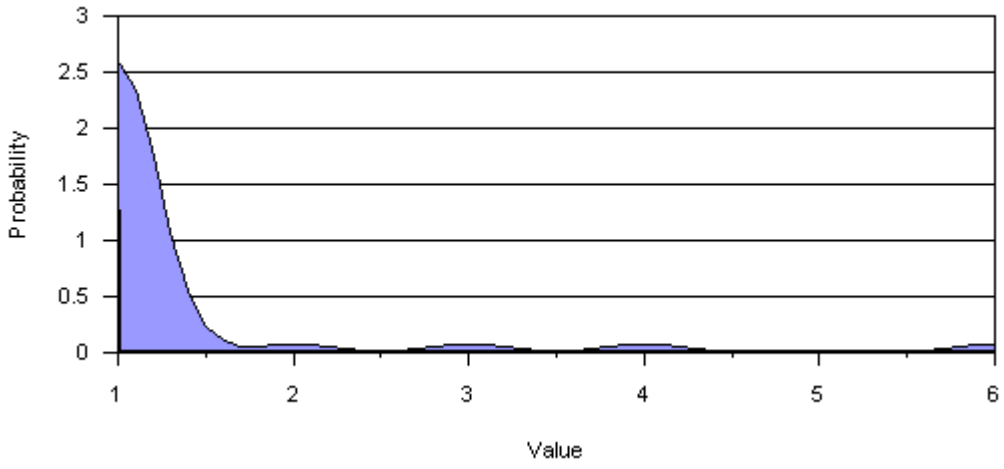


Average:	1.23
Standard Deviation:	0.74
Minimum:	1.00
Maximum:	5.00

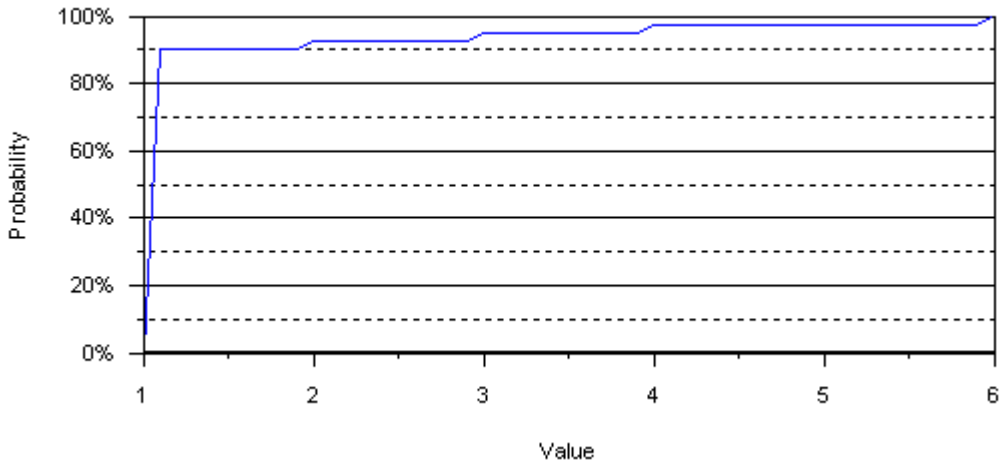
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49w) GC/ECD

Probability Density Function



Cumulative Distribution

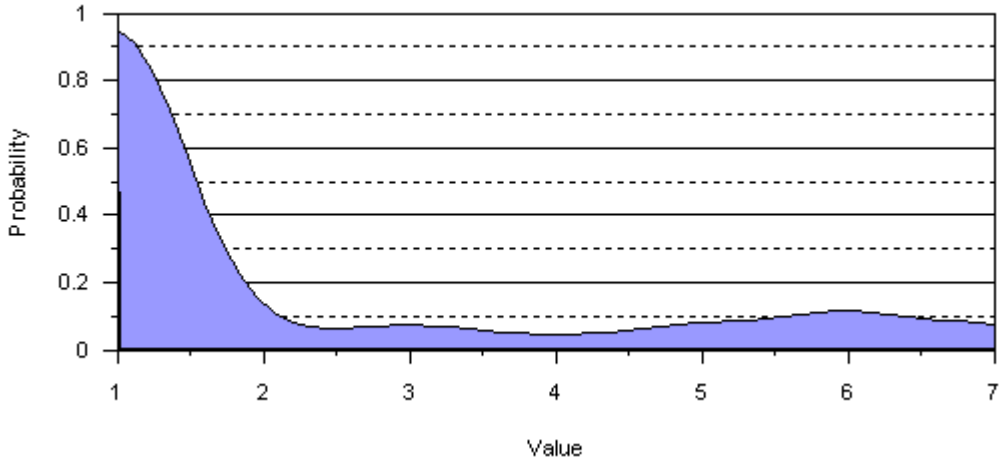


Average:	1.27
Standard Deviation:	0.96
Minimum:	1.00
Maximum:	6.00

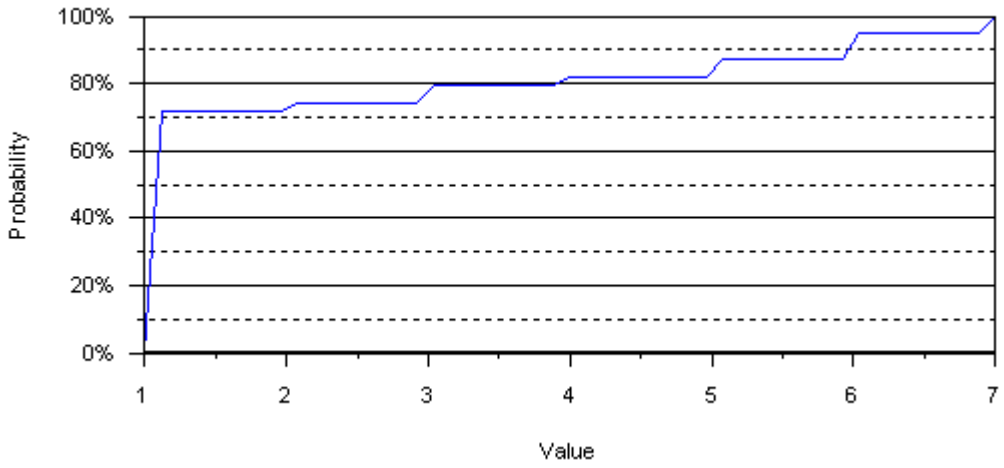
An answer to this question is not required and 367 of 407 respondents chose not to answer.

49x) IC

Probability Density Function



Cumulative Distribution

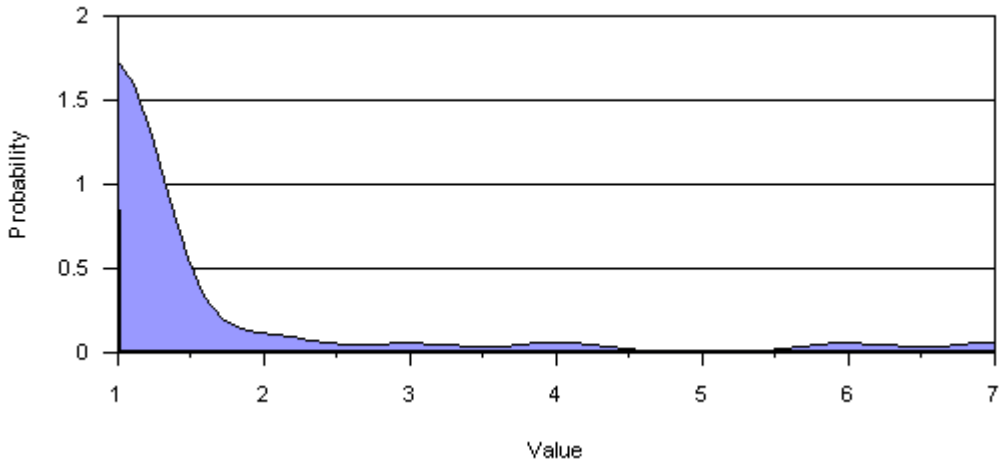


Average:	2.10
Standard Deviation:	1.98
Minimum:	1.00
Maximum:	7.00

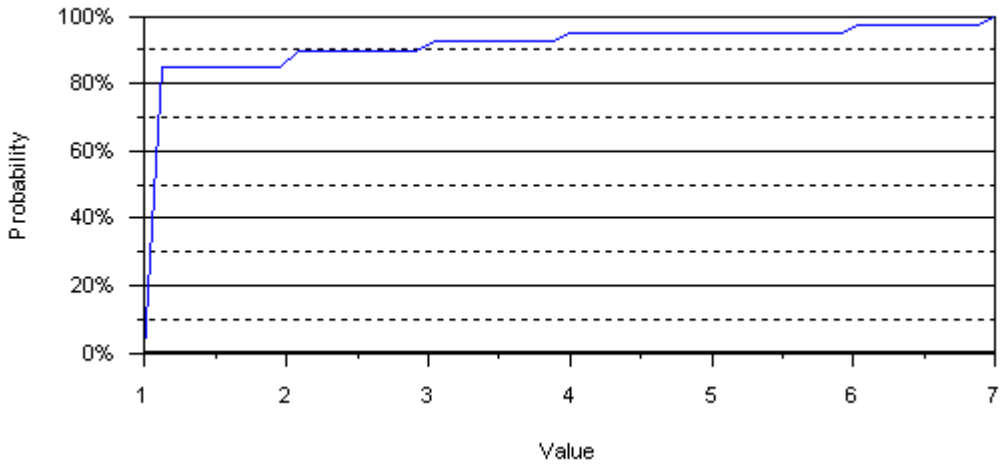
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49y) HPLC/MS

Probability Density Function



Cumulative Distribution

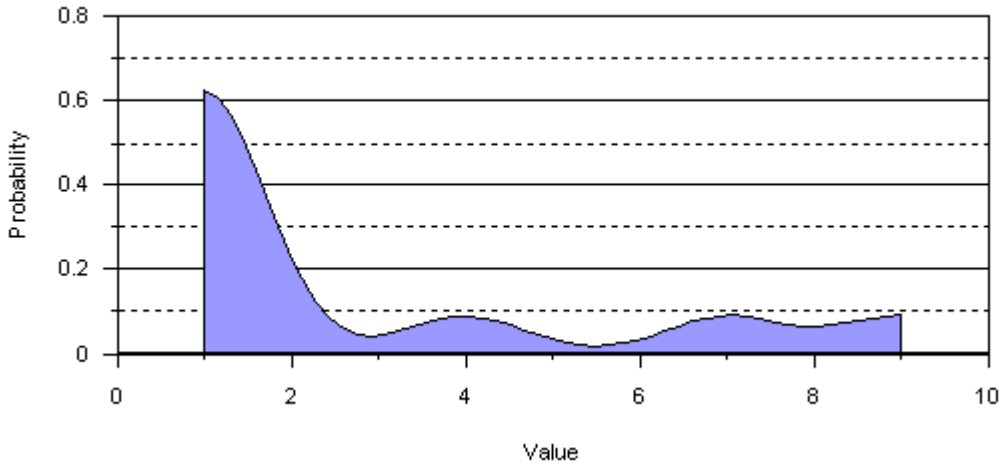


Average:	1.46
Standard Deviation:	1.33
Minimum:	1.00
Maximum:	7.00

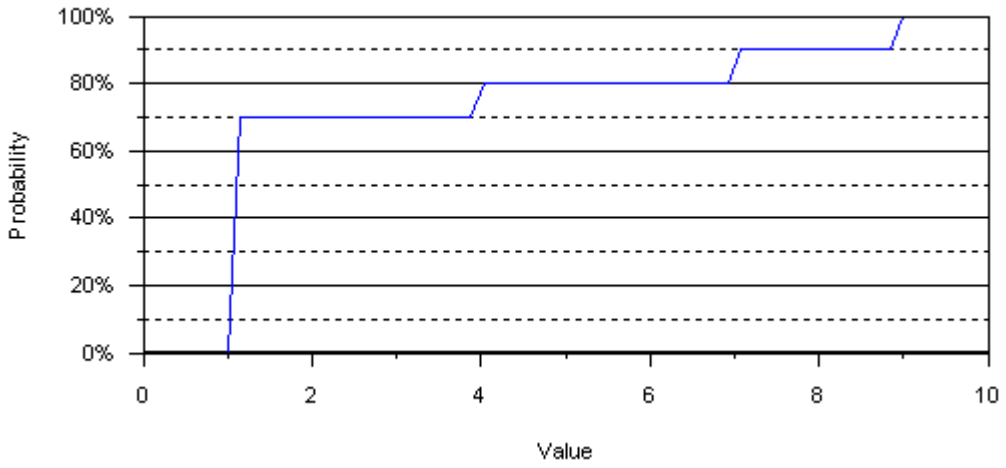
An answer to this question is not required and 368 of 407 respondents chose not to answer.

49z) Other:

Probability Density Function



Cumulative Distribution



Average:	2.70
Standard Deviation:	2.98
Minimum:	1.00
Maximum:	9.00

An answer to this question is not required and 397 of 407 respondents chose not to answer.

49aa)(please indicate):

- We do not have SOPs for explosives -all we do is possibly process, visually inspect and call ATF or FBI
- Have none available to us
- Didnt receive samples for analysis
- N/A
- 1

An answer to this question is not required and 402 of 407 respondents chose not to answer.

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50) Are you aware of new equipment or techniques on the market or in development that could be potentially of use in explosives analysis? These improvements may be in analytical instrumentation, recovery of post-explosion residue, isolation of un-reacted products, component reconstruction, etc… Please indicate the type of potential improvement such as: reduction of analysis time, elimination of background, specificity of identification, etc…?

Yes	(13)	14.0%
No	(80)	86.0%
Total	(93)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 314 of 407 respondents chose not to answer.

50a) Description and/or Contact

- IMS (I did my MS on this instrument) is not new but a drift tube GC/MS , electronic sniffer-
- Jeff Foust; tower112@verizon.net
- lc-ms
- Arkansas State Crime Laboratory
- air sampling detection devices
- not at this time
- jamesp.taylor@dc.gov
- Capillary Electrophoresis

An answer to this question is not required and 399 of 407 respondents chose not to answer.

---

51) What are the short-term needs in analytical methods for explosives analysis?

- Education on what is out there -we are located in the refinery and Ship Channel area of HOuston
- There needs to be some comprehensive methods or maybe just training procedures for analysis published by swgfex. What is there is, is good but it is more of an outline than a comprehensive how-to.
- Basic/Advanced Course in Explosive Analysis and a Federal mandate ordering departments to allow their EOD teams to allow for analysis in each case.
- training in explosive chemical composition, analysis, and availability of resources.
- Training course for laboratory analysts that deals specifically with the chemistry and analysis of explosive materials (the two federal courses I've attended are geared toward investigators and put all the emphasis on post-blast scene processing)
- Explosives materials analytical data database by analytical method
- Unknown
- Financial
- Digital imaging training
- analysis of items for investigative purpose- no suspect no tests.
- GREATER ROBOTICS TECHNOLOGY
- Sample collection
- N/A
- Resources and training
- simple field explosive analytical analysis system
- Trained technicians who communicate well with investigators.
- My agency doesn't currently have the means for this.
- on scene analysis of suspect explosive compounds

- Rapid in field use

An answer to this question is not required and 388 of 407 respondents chose not to answer.

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52) What are the long-term needs in analytical methods for explosives analysis?

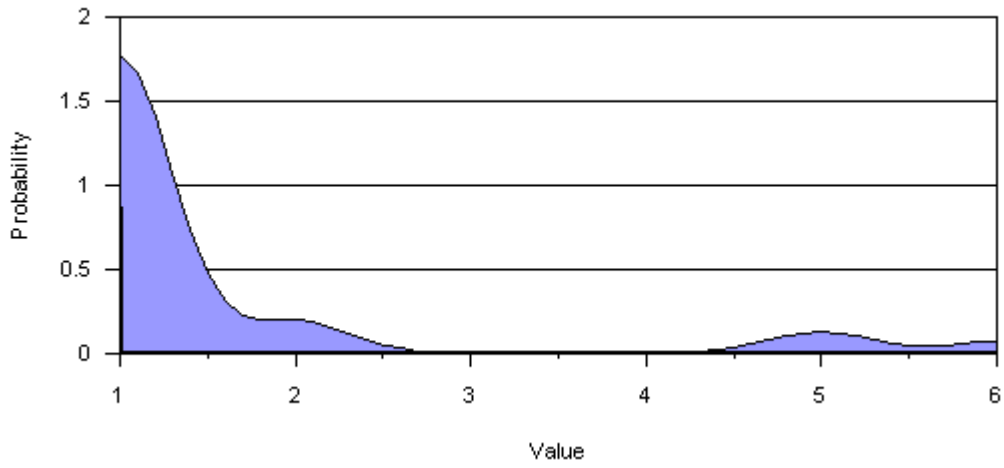
- Developing relationship or support for agency
- There needs to be more sharing of information and analytical techniques especially by the federal agencies as they have abundant resources and encounter more than the state or local laboratories.
- on-going training
- Derivitization protocols to allow alternate analytical methods.
- Unknown
- Financial
- Digital imaging training
- GREATER PREVENTION METHODS FOR FUTURE GENERATIONS
- Equipment and training
- N/A
- resources and training
- simple field explosive analytical analysis system
- Reduced costs for modern instrumentation.
- Have the capability to complete this.
- Maricopa County Crime Lab has no resources in explosive analysis
- lost cost simple analysis
- We would like to start analyzing explosives

An answer to this question is not required and 390 of 407 respondents chose not to answer.

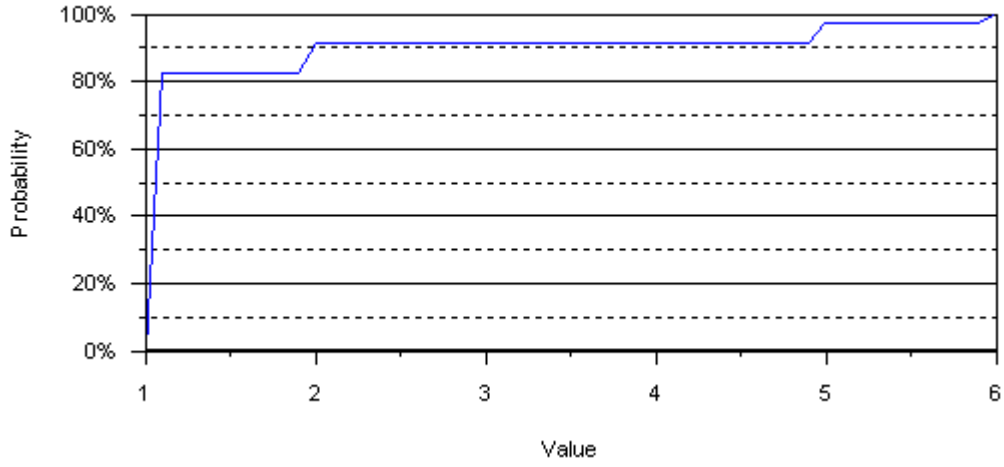
53) For explosives/explosives residue analysis, how often do you see the following QA/QC tests: (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

53a) 8095 Calibration Mix A

Probability Density Function



Cumulative Distribution

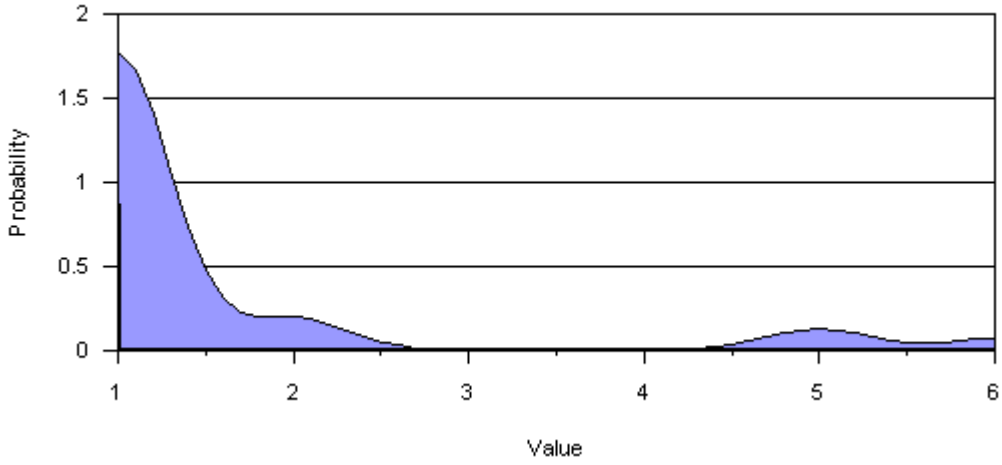


Average:	1.47
Standard Deviation:	1.26
Minimum:	1.00
Maximum:	6.00

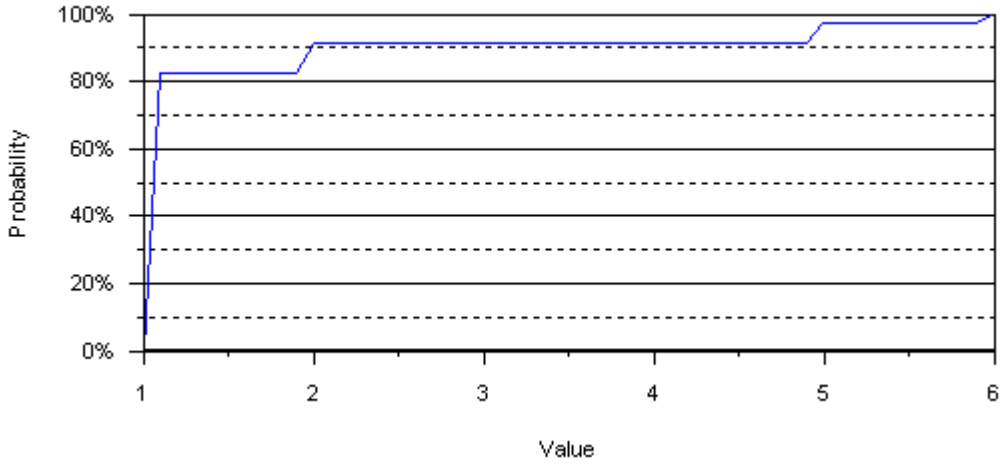
An answer to this question is not required and 373 of 407 respondents chose not to answer.

53b) 8095 Calibration Mix B

Probability Density Function



Cumulative Distribution

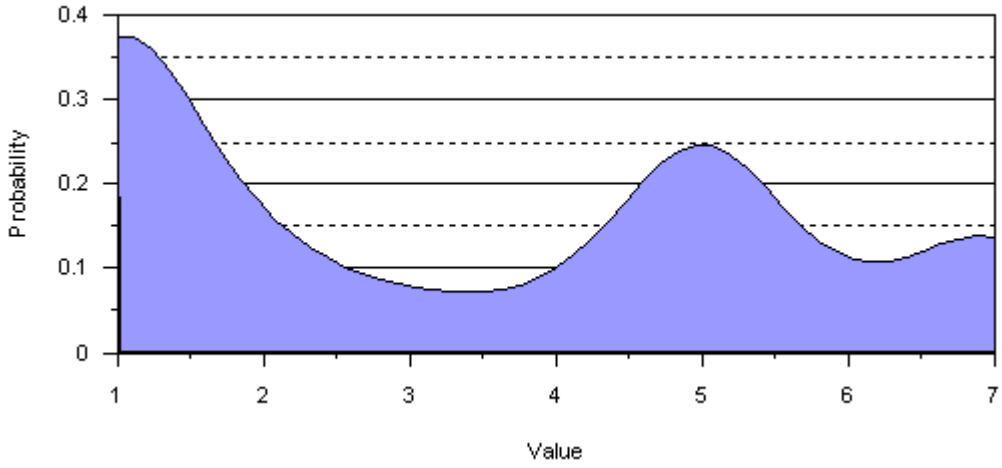


Average:	1.47
Standard Deviation:	1.26
Minimum:	1.00
Maximum:	6.00

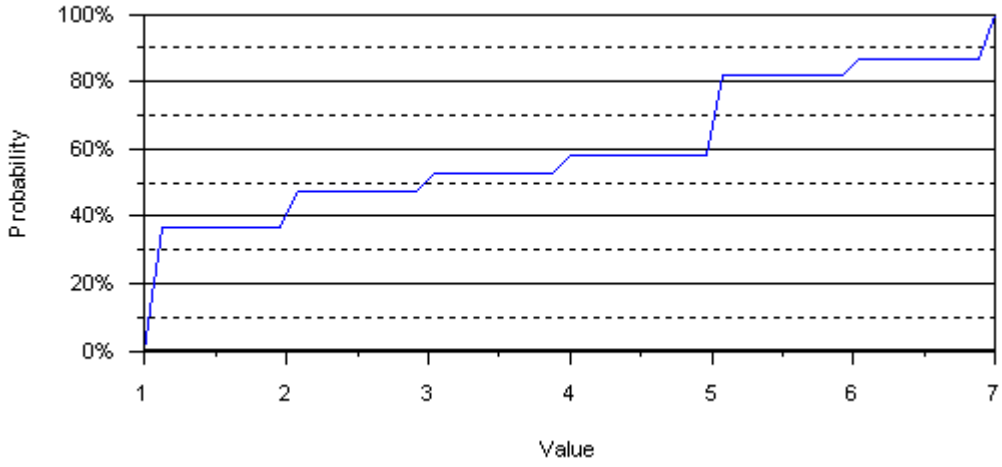
An answer to this question is not required and 373 of 407 respondents chose not to answer.

53c) Smokeless Powder (or similar) mixture

Probability Density Function



Cumulative Distribution

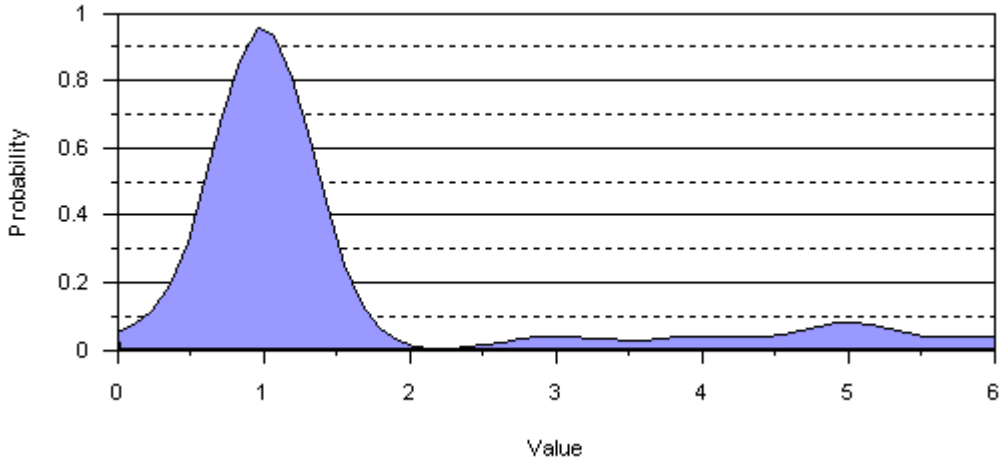


Average:	3.37
Standard Deviation:	2.27
Minimum:	1.00
Maximum:	7.00

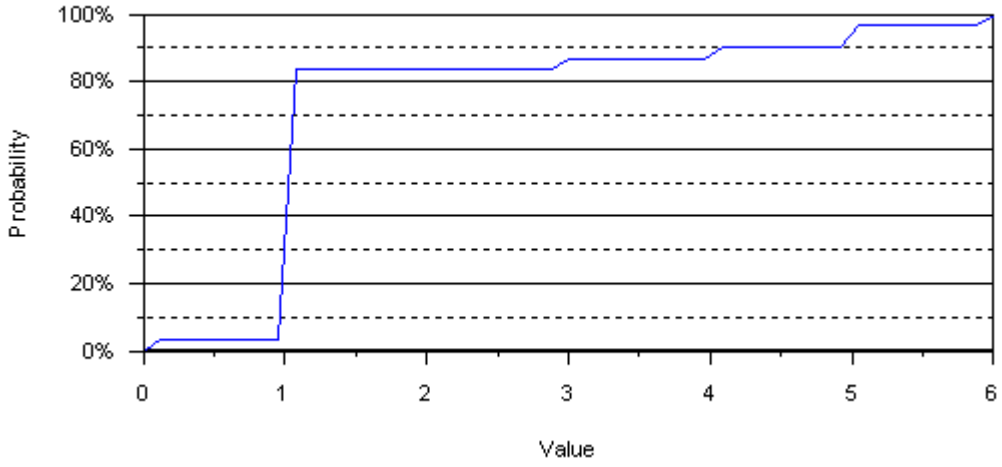
An answer to this question is not required and 369 of 407 respondents chose not to answer.

53d) Internal Standard

Probability Density Function



Cumulative Distribution



Average:	1.57
Standard Deviation:	1.45
Minimum:	0.00
Maximum:	6.00

An answer to this question is not required and 377 of 407 respondents chose not to answer.

53e) (please indicate):

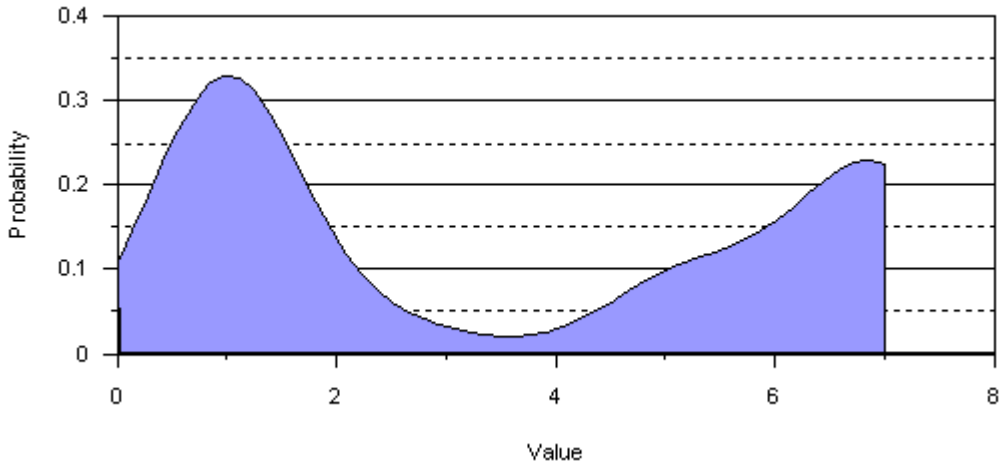
- 5 nitro 2 fluoro toluene
- 1
- 1
- 1
- 1

- IC Standards

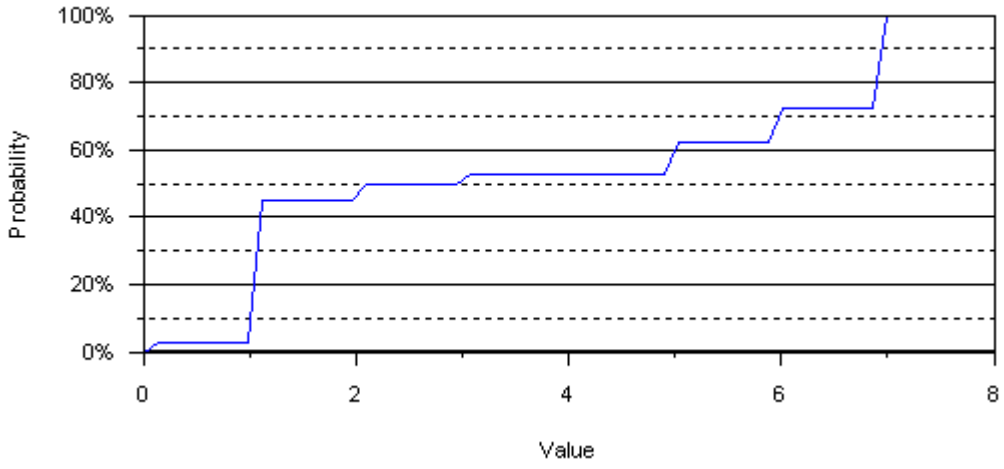
An answer to this question is not required and 401 of 407 respondents chose not to answer.

53f) Solvent Blank

Probability Density Function



Cumulative Distribution

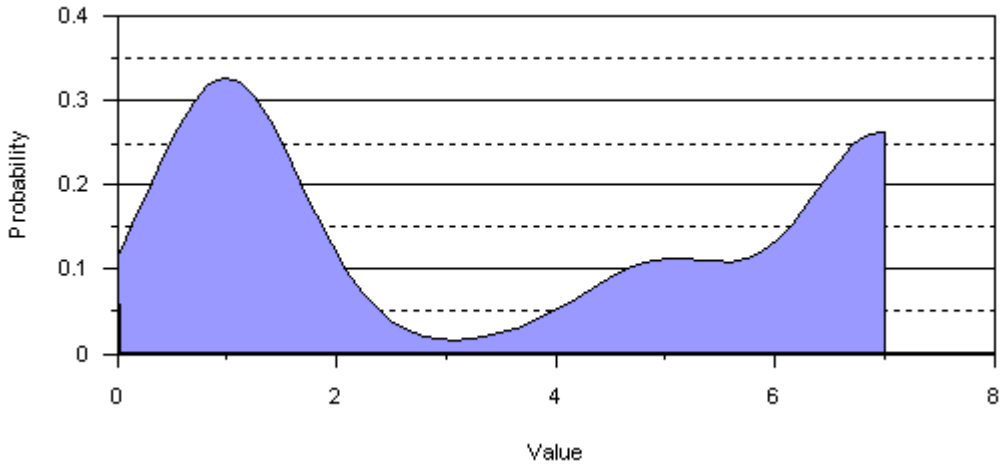


Average:	3.62
Standard Deviation:	2.73
Minimum:	0.00
Maximum:	7.00

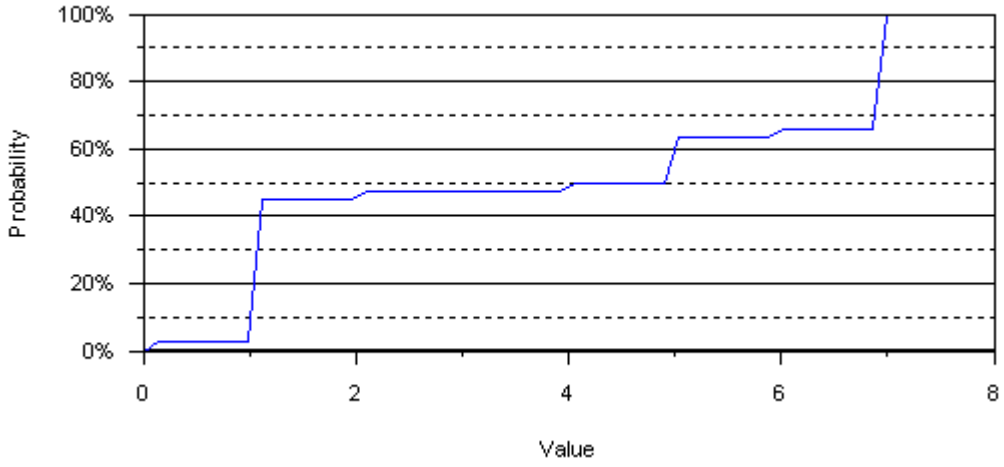
An answer to this question is not required and 367 of 407 respondents chose not to answer.

53g) Peer Review

Probability Density Function



Cumulative Distribution



Average:	3.79
Standard Deviation:	2.79
Minimum:	0.00
Maximum:	7.00

An answer to this question is not required and 369 of 407 respondents chose not to answer.

53h) Other:

- 1
- 7
- 6
- 7
- 7
- 1
- 1
- 0
- 1
- 5
- 1
- 1

An answer to this question is not required and 395 of 407 respondents chose not to answer.

53i) (please indicate):

- proficiency testing, standards of explosives run on our instruments
- known chemical compounds and mixtures
- in house standards
- "known" reference standard are run prior to any testing performed (ie color tests for anions, etc.)
- no samples were received for analysis
- N/A
- 1
- 1

An answer to this question is not required and 399 of 407 respondents chose not to answer.

---

ix) **Part H. Explosives Data Interpretation (Check an answer only on those questions which apply to you)**

---

54) How often do you use an in-house explosives reference collection in case work?

never	(30)	36.6%
sometimes	(31)	37.8%

often	(12)	14.6%
every case	(9)	11.0%
Total	(82)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 325 of 407 respondents chose not to answer.

---

55) Would you use an on-line explosives data (morphological descriptions, microphotographs, IR, MS, etc…) in case work?

never	(14)	17.7%
sometimes	(30)	38.0%
often	(27)	34.2%
every case	(8)	10.1%
Total	(79)	0 10 20 30 40 50 60 70 80 90 100%

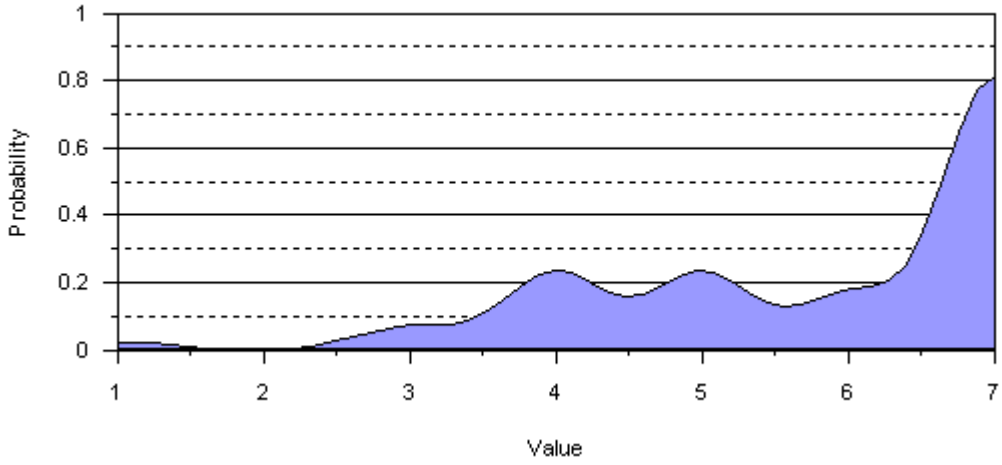
An answer to this question is not required and 328 of 407 respondents chose not to answer.

---

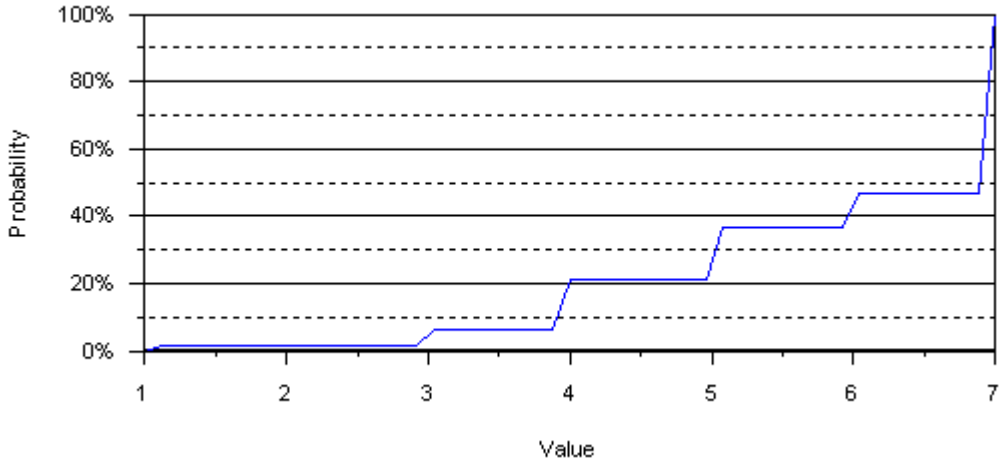
56) Rate the importance of the following courses as part of the education of explosives analysts. (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

56a) General Chemistry

Probability Density Function



Cumulative Distribution

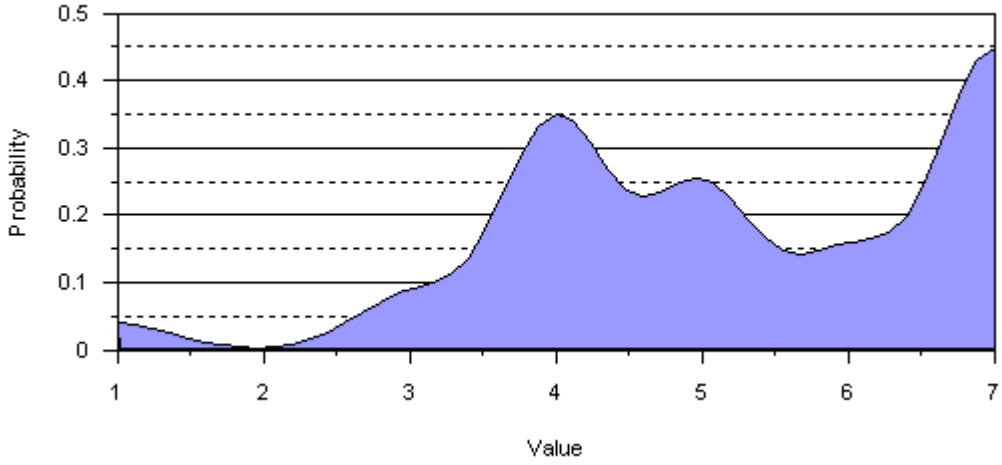


Average:	5.86
Standard Deviation:	1.45
Minimum:	1.00
Maximum:	7.00

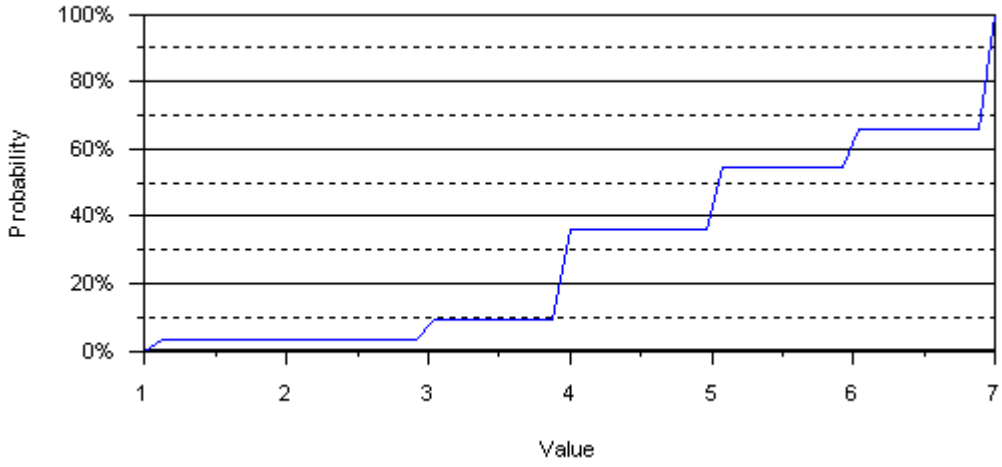
An answer to this question is not required and 341 of 407 respondents chose not to answer.

56b) Advanced organic chemistry

Probability Density Function



Cumulative Distribution

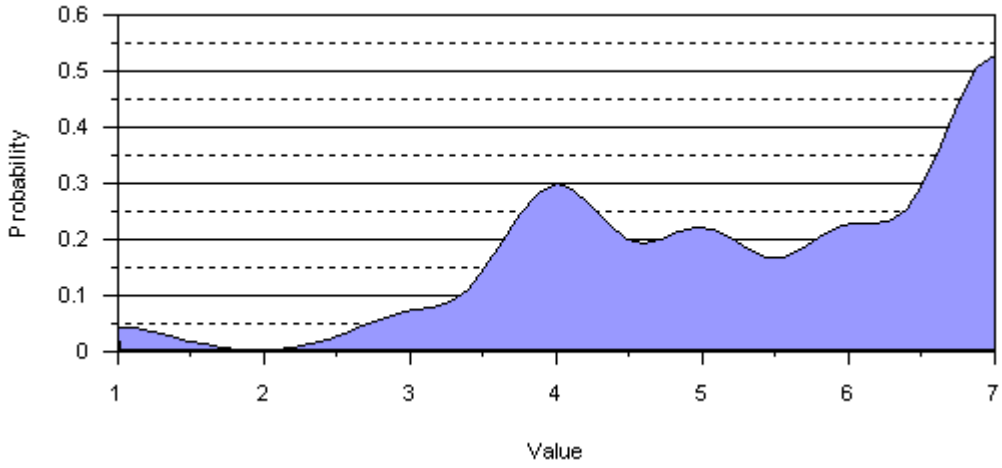


Average:	5.28
Standard Deviation:	1.57
Minimum:	1.00
Maximum:	7.00

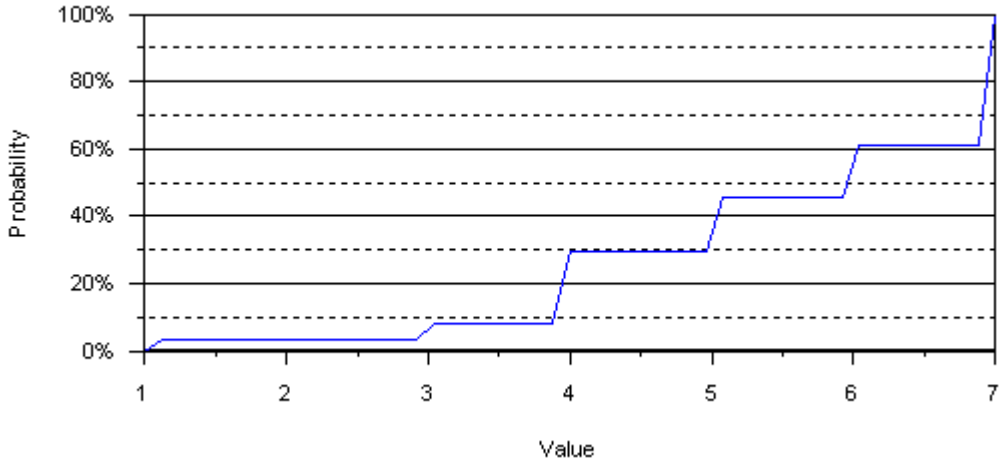
An answer to this question is not required and 343 of 407 respondents chose not to answer.

56c) Inorganic chemistry

Probability Density Function



Cumulative Distribution

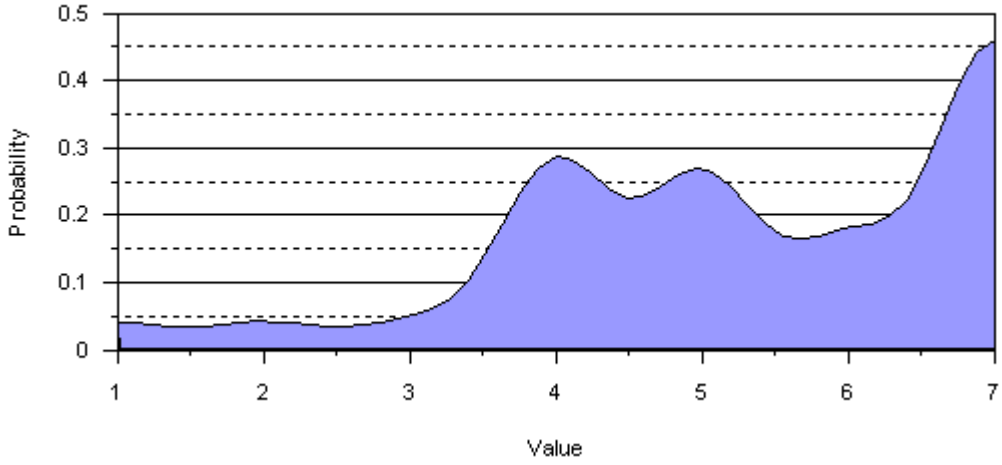


Average:	5.50
Standard Deviation:	1.55
Minimum:	1.00
Maximum:	7.00

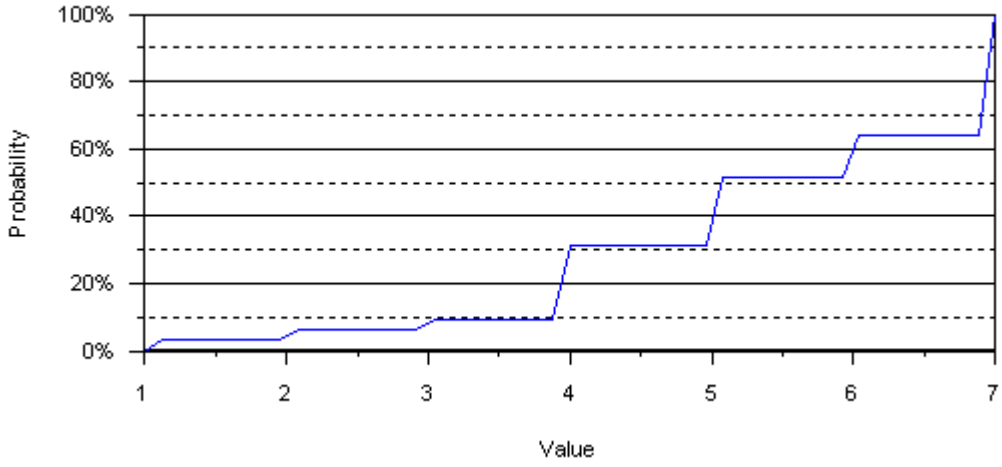
An answer to this question is not required and 343 of 407 respondents chose not to answer.

56d) Introductory physics

Probability Density Function



Cumulative Distribution

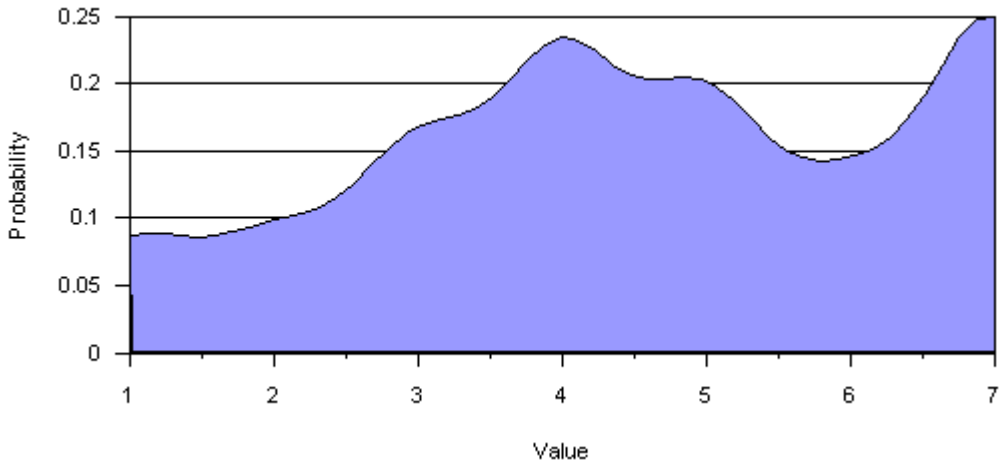


Average:	5.34
Standard Deviation:	1.62
Minimum:	1.00
Maximum:	7.00

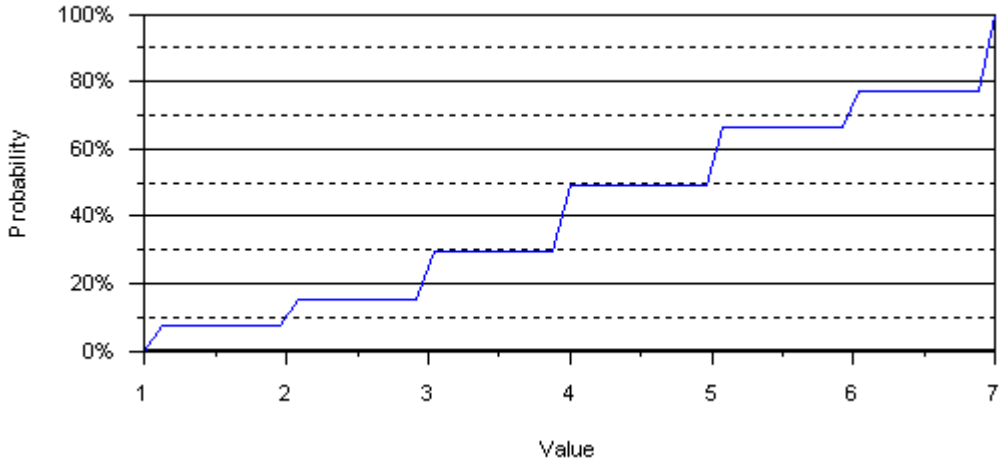
An answer to this question is not required and 343 of 407 respondents chose not to answer.

56e) Advanced physics

Probability Density Function



Cumulative Distribution

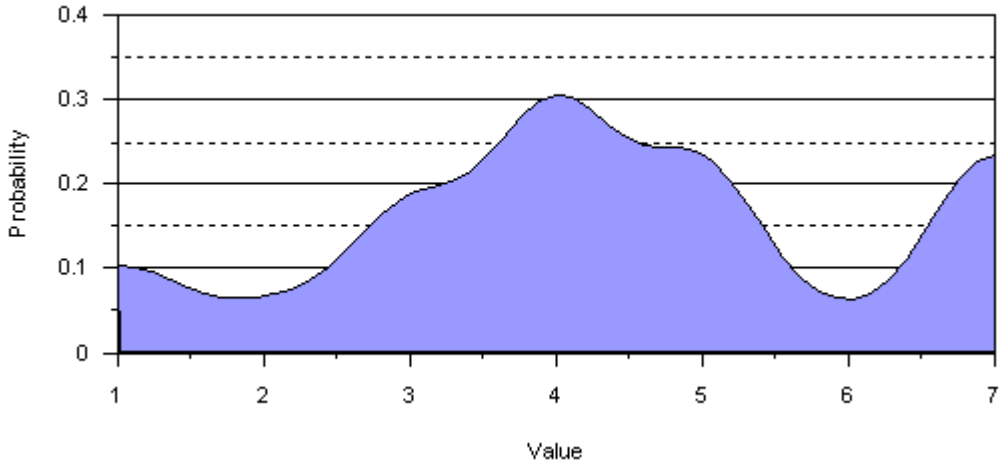


Average:	4.55
Standard Deviation:	1.89
Minimum:	1.00
Maximum:	7.00

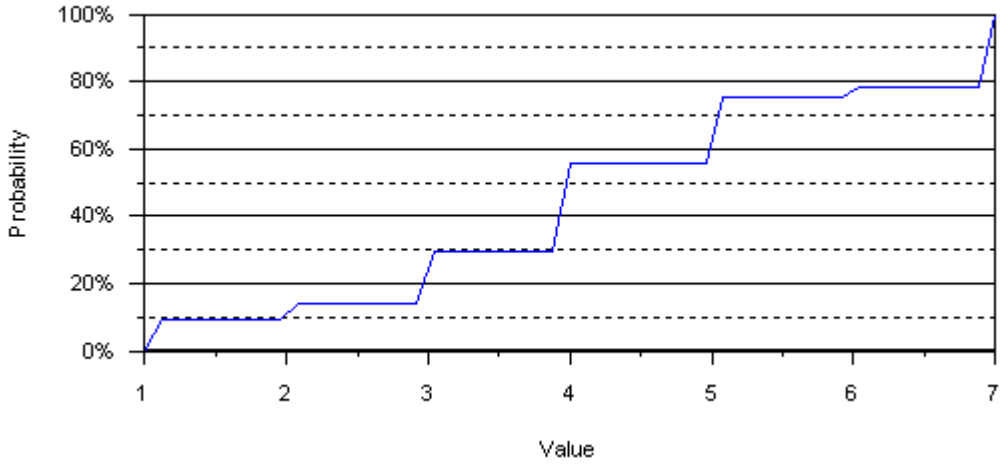
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56f) Advanced mathematics

Probability Density Function



Cumulative Distribution

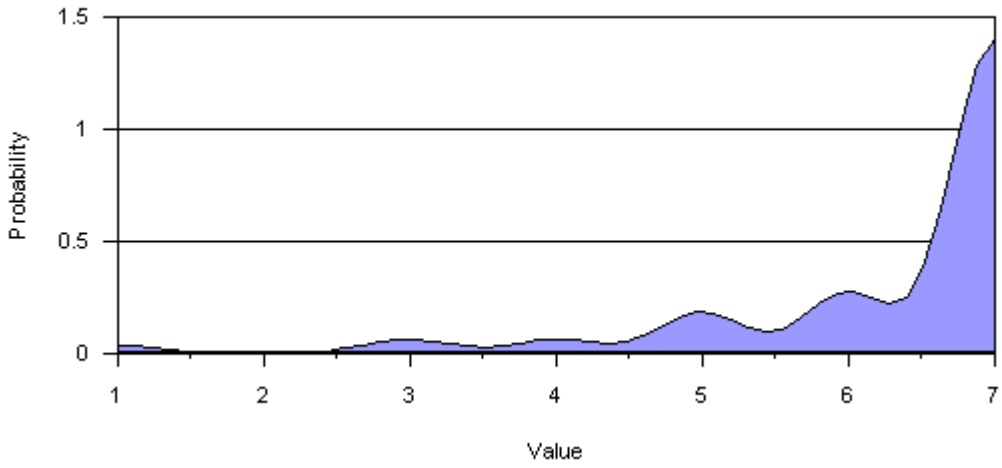


Average:	4.38
Standard Deviation:	1.83
Minimum:	1.00
Maximum:	7.00

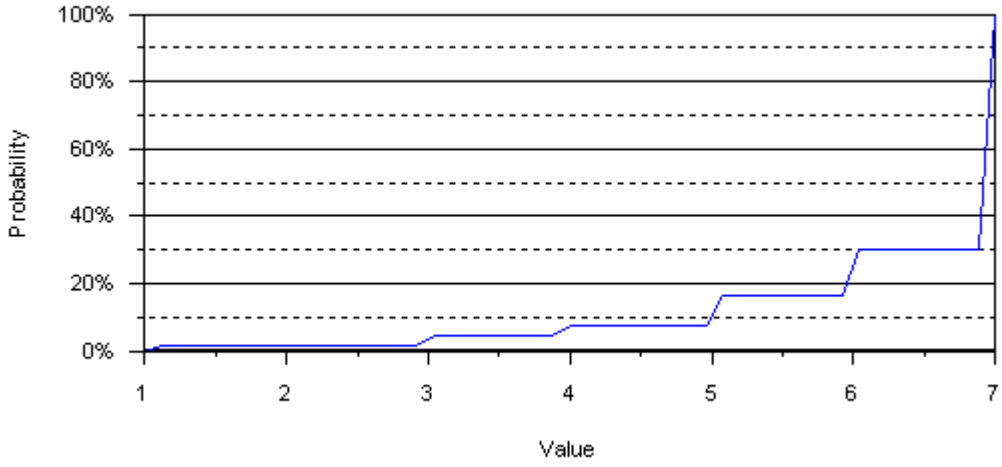
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56g) Intro. to explosives

Probability Density Function



Cumulative Distribution

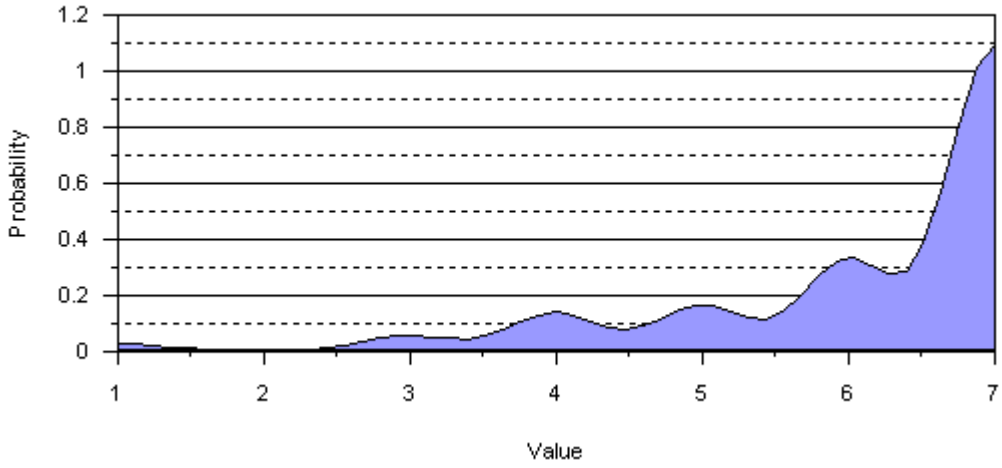


Average:	6.38
Standard Deviation:	1.20
Minimum:	1.00
Maximum:	7.00

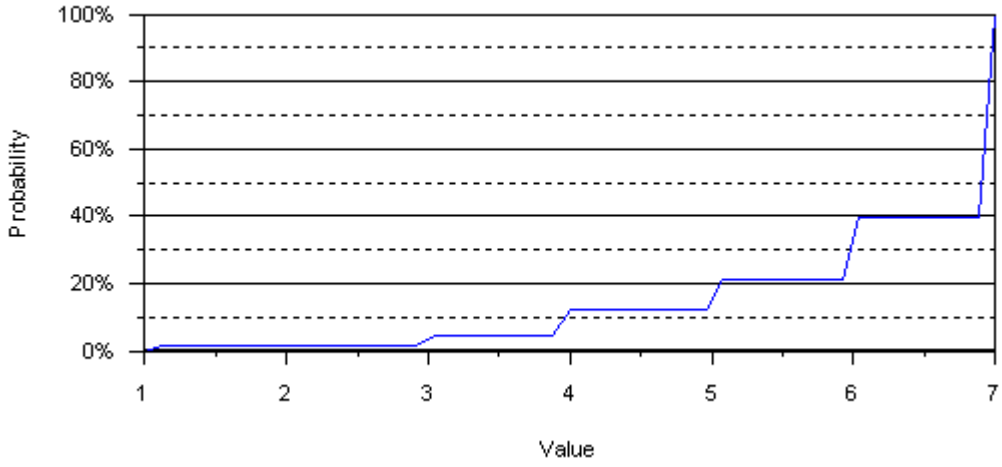
An answer to this question is not required and 341 of 407 respondents chose not to answer.

56h) Combustion explosions

Probability Density Function



Cumulative Distribution

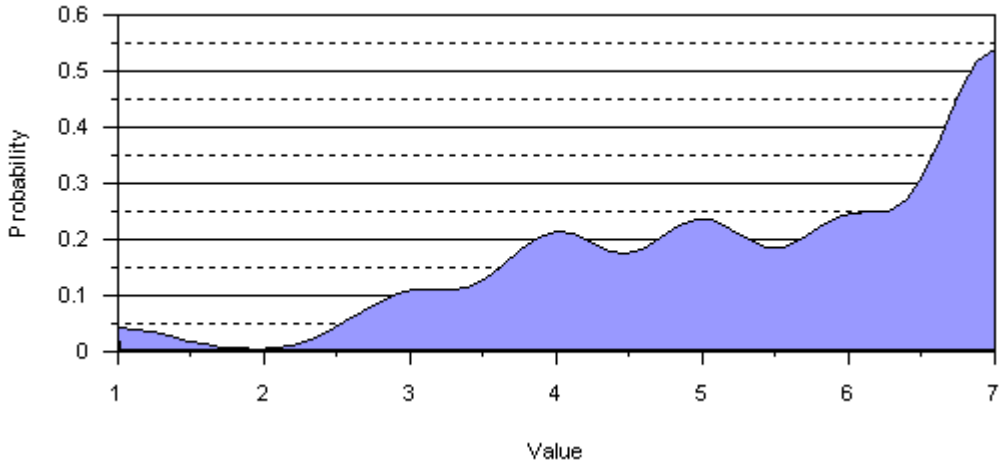


Average:	6.20
Standard Deviation:	1.28
Minimum:	1.00
Maximum:	7.00

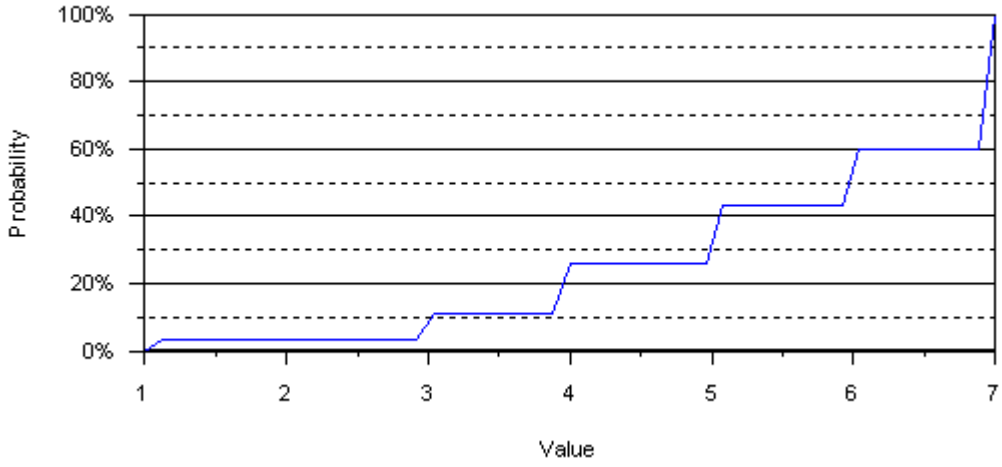
An answer to this question is not required and 341 of 407 respondents chose not to answer.

56i) Organic chemistry

Probability Density Function



Cumulative Distribution

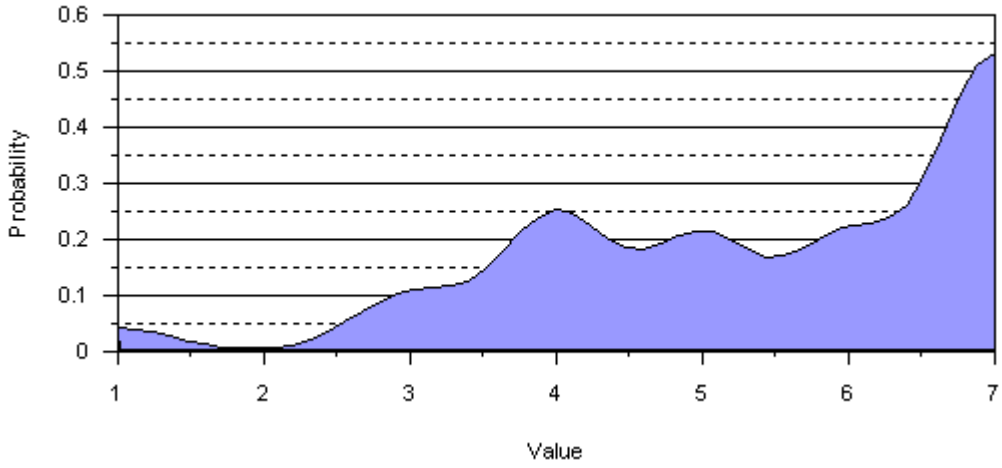


Average:	5.54
Standard Deviation:	1.57
Minimum:	1.00
Maximum:	7.00

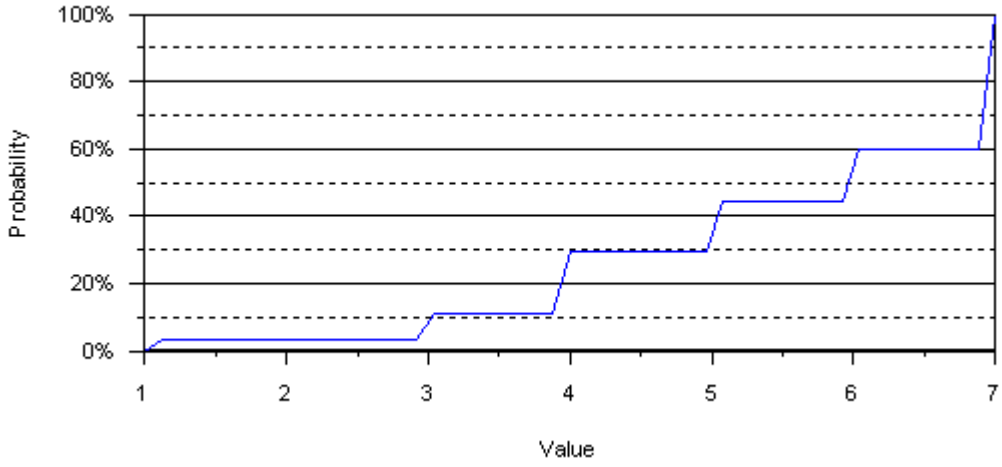
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56j) Analytical chemistry

Probability Density Function



Cumulative Distribution

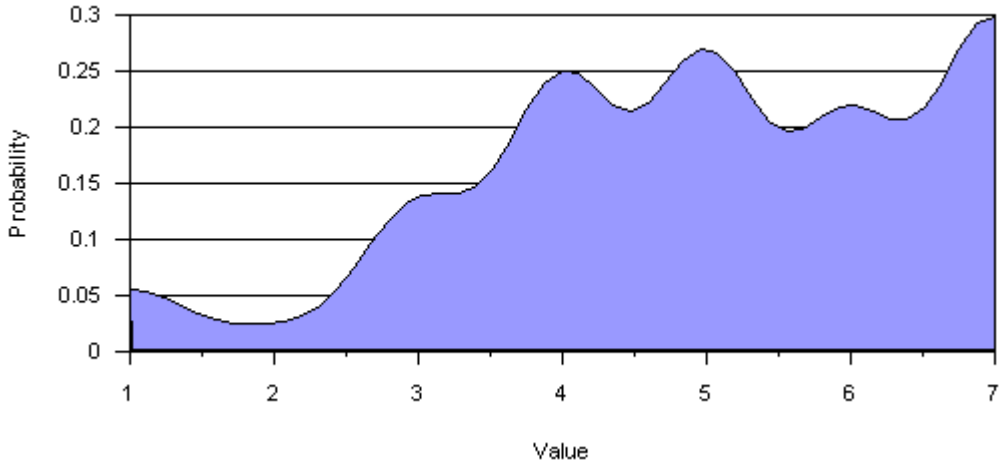


Average:	5.49
Standard Deviation:	1.59
Minimum:	1.00
Maximum:	7.00

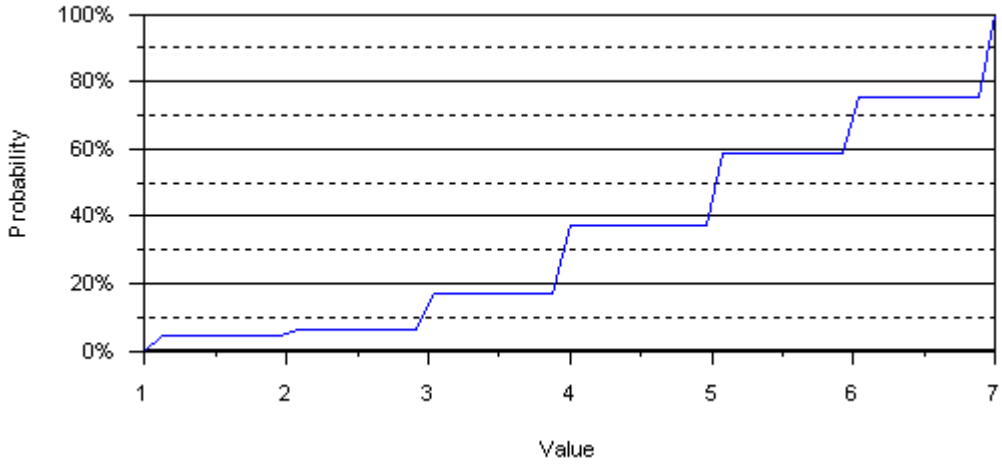
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56k) Physical chemistry

Probability Density Function



Cumulative Distribution

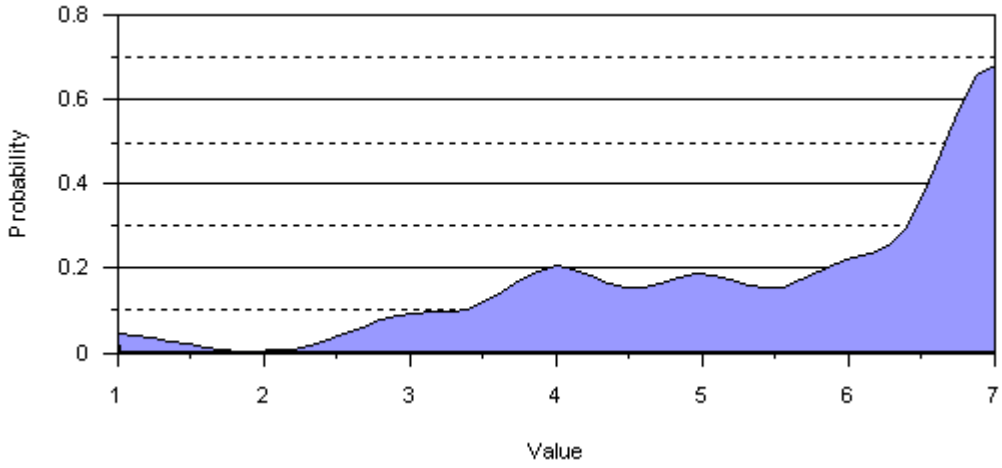


Average:	5.02
Standard Deviation:	1.64
Minimum:	1.00
Maximum:	7.00

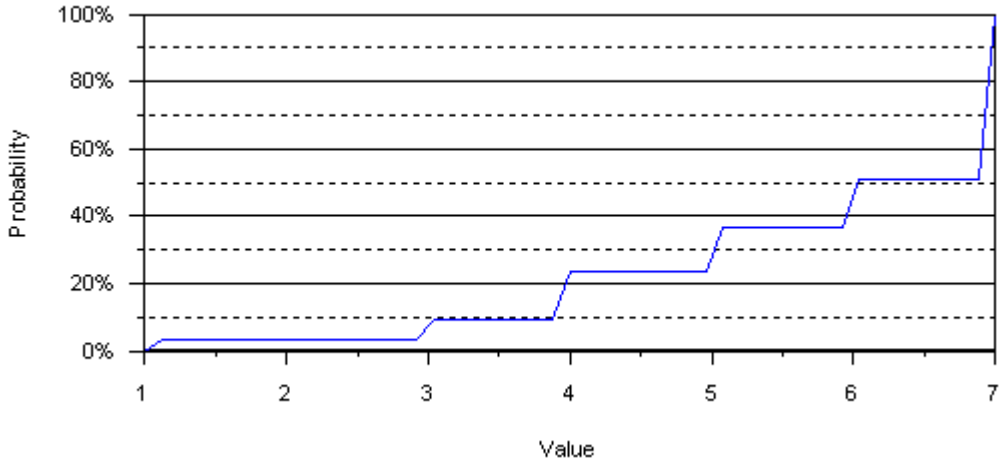
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56l) Instrumental analysis

Probability Density Function



Cumulative Distribution

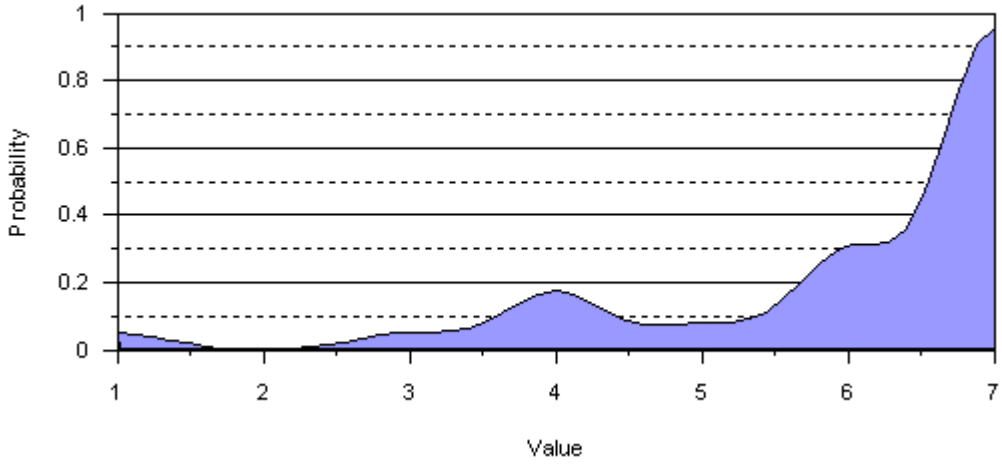


Average:	5.73
Standard Deviation:	1.59
Minimum:	1.00
Maximum:	7.00

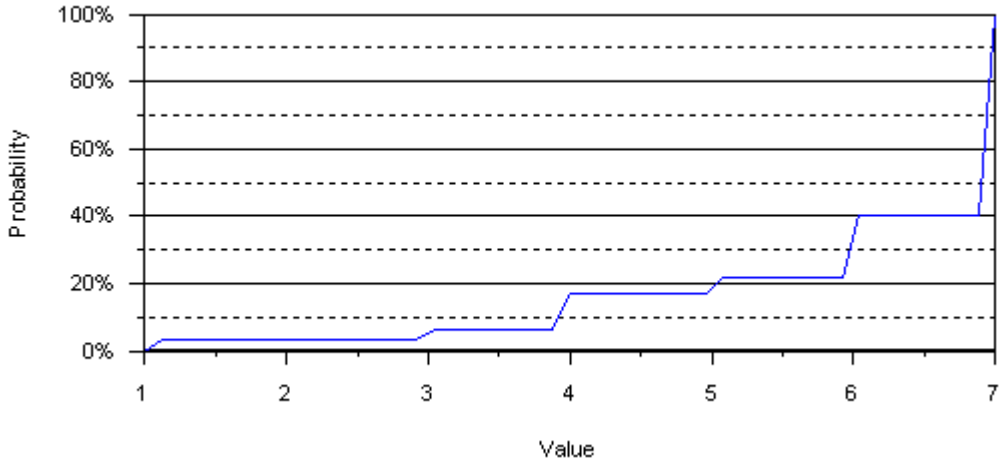
An answer to this question is not required and 344 of 407 respondents chose not to answer.

56m) Chemical analysis of explosives

Probability Density Function



Cumulative Distribution

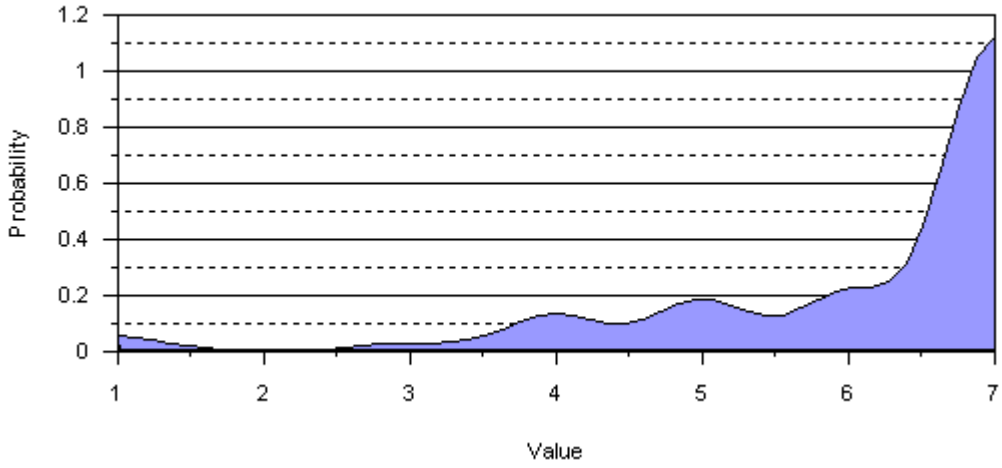


Average:	6.09
Standard Deviation:	1.47
Minimum:	1.00
Maximum:	7.00

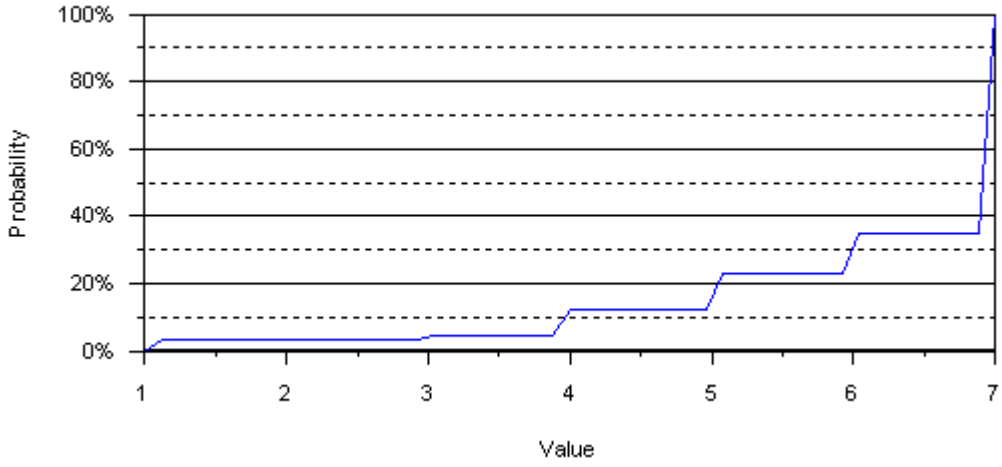
An answer to this question is not required and 342 of 407 respondents chose not to answer.

56n) The chemistry of pyrotechnics

Probability Density Function



Cumulative Distribution

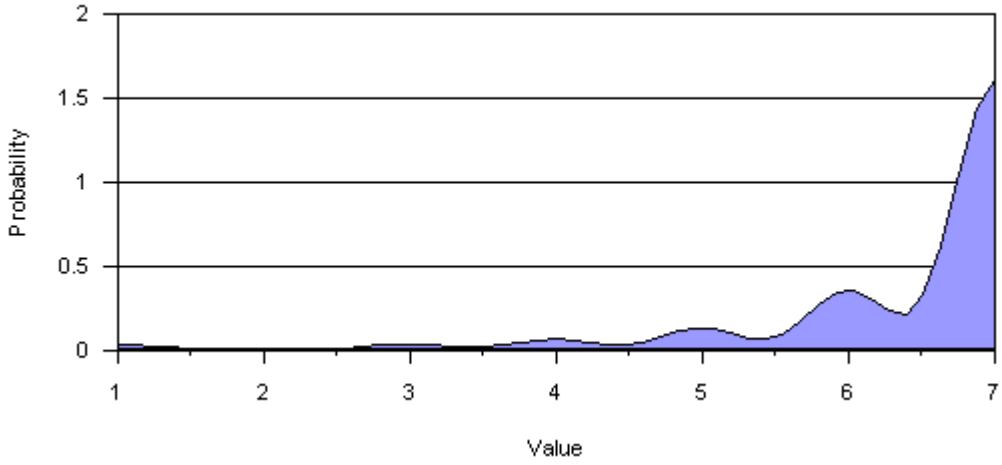


Average:	6.20
Standard Deviation:	1.39
Minimum:	1.00
Maximum:	7.00

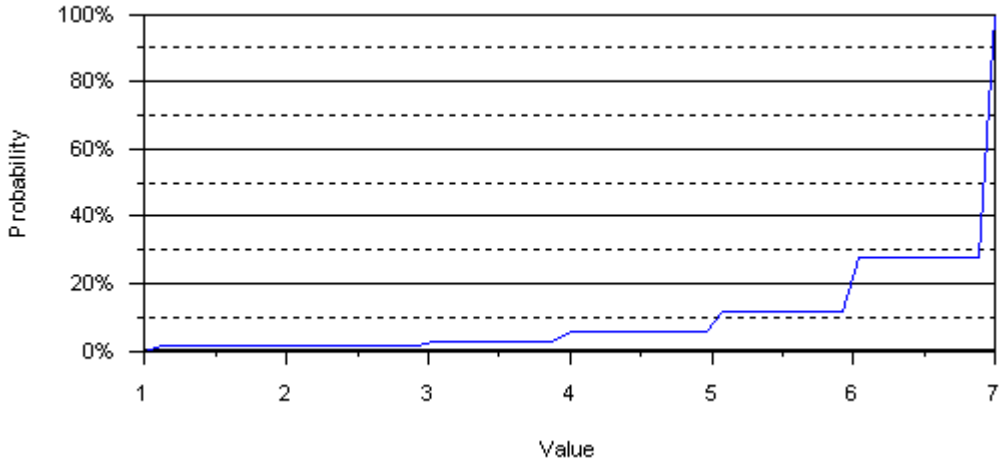
An answer to this question is not required and 341 of 407 respondents chose not to answer.

56o) Explosives analysis

Probability Density Function



Cumulative Distribution

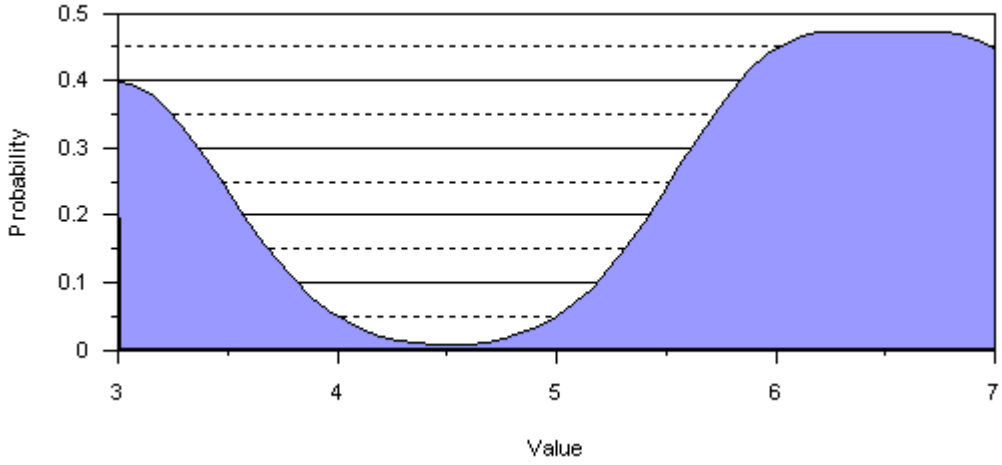


Average:	6.49
Standard Deviation:	1.09
Minimum:	1.00
Maximum:	7.00

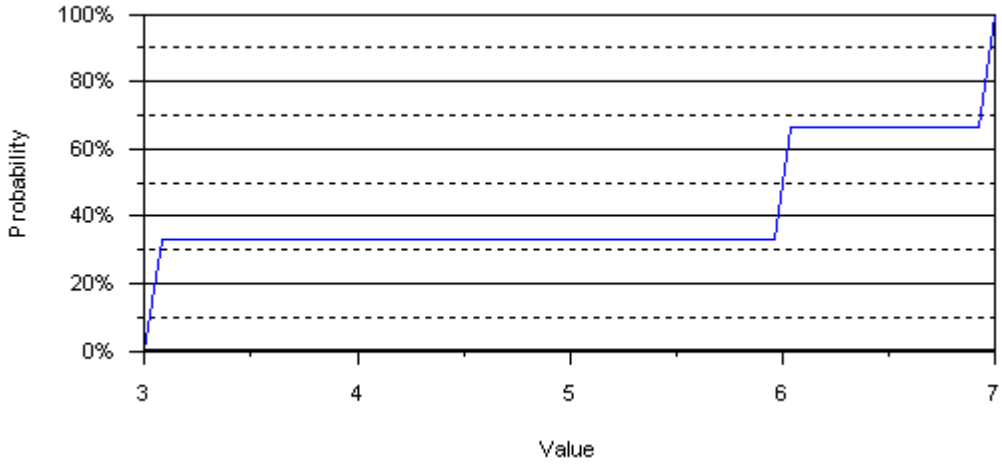
An answer to this question is not required and 339 of 407 respondents chose not to answer.

56p) Other:

Probability Density Function



Cumulative Distribution



Average:	5.33
Standard Deviation:	2.08
Minimum:	3.00
Maximum:	7.00

An answer to this question is not required and 404 of 407 respondents chose not to answer.

56q) (please indicate):

- Blast effects calculations
- Digital imaging training
- N/A
- 3

- Safety, Post and Pre-Blast

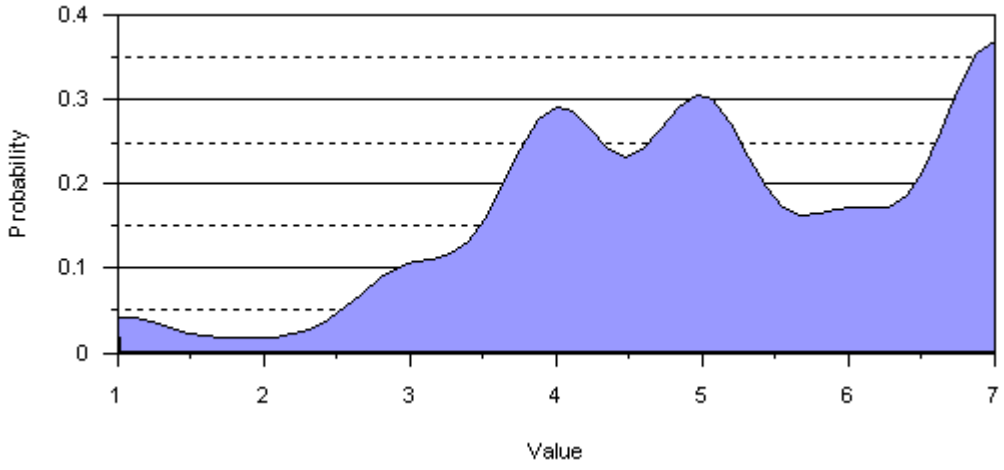
An answer to this question is not required and 402 of 407 respondents chose not to answer.

---

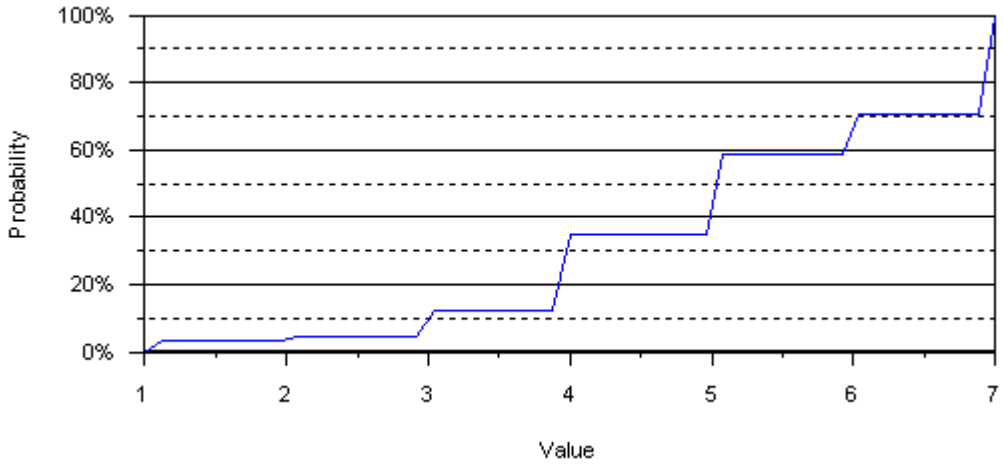
57) Rate training or course work in the following areas for explosives analysts? (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

57a) History of Explosives

Probability Density Function



Cumulative Distribution



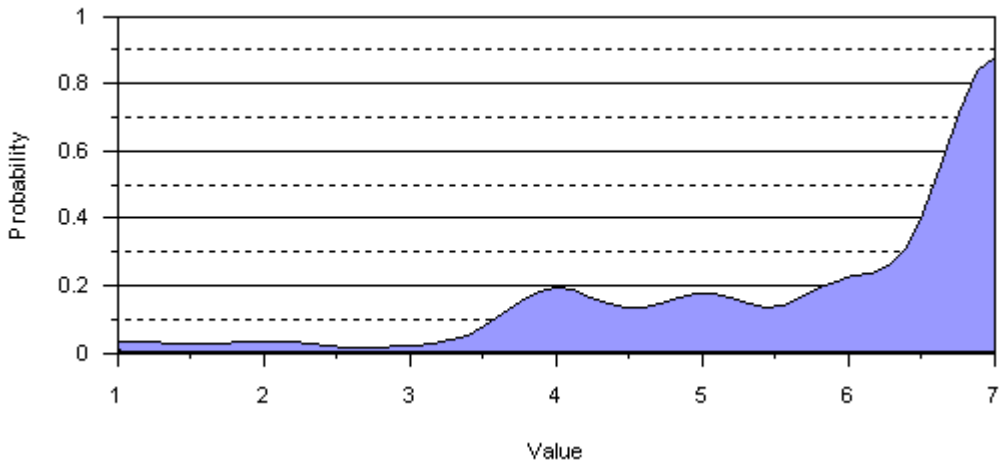
Average: 5.16

Standard Deviation:	1.57
Minimum:	1.00
Maximum:	7.00

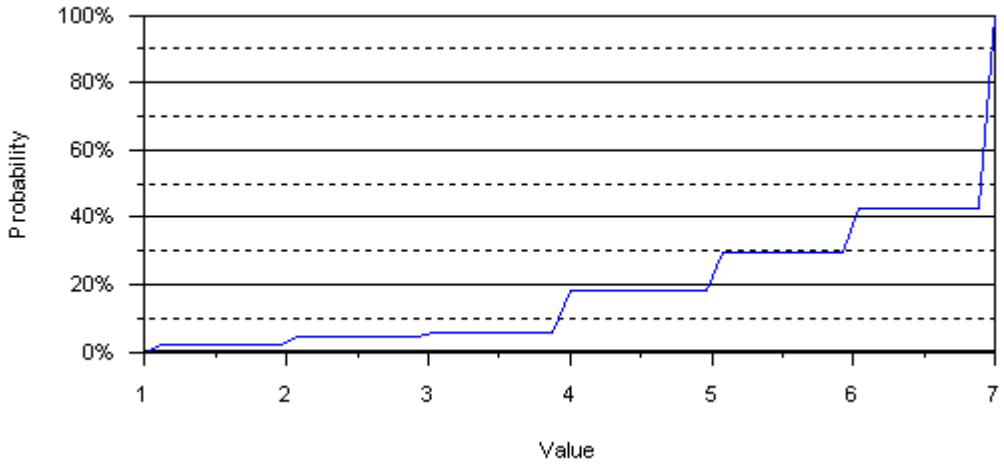
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57b) Terminology and vocabulary of explosives

Probability Density Function



Cumulative Distribution

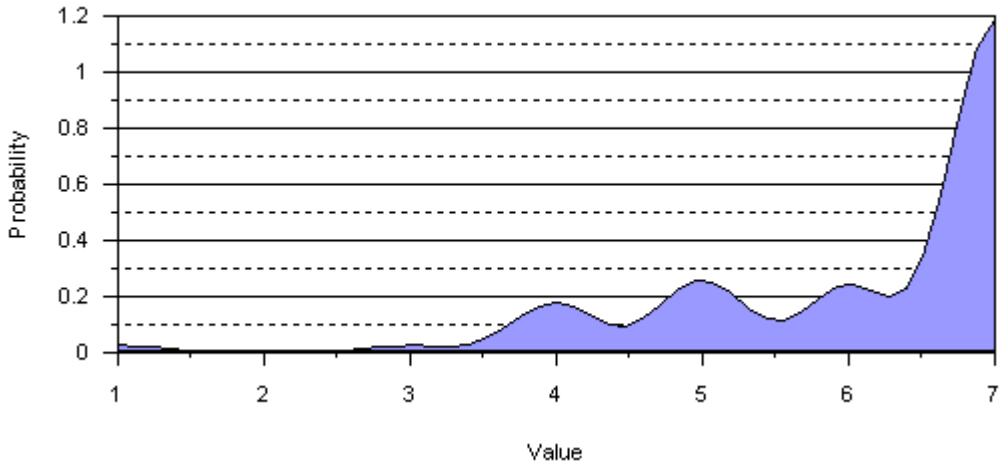


Average:	5.98
Standard Deviation:	1.49
Minimum:	1.00
Maximum:	7.00

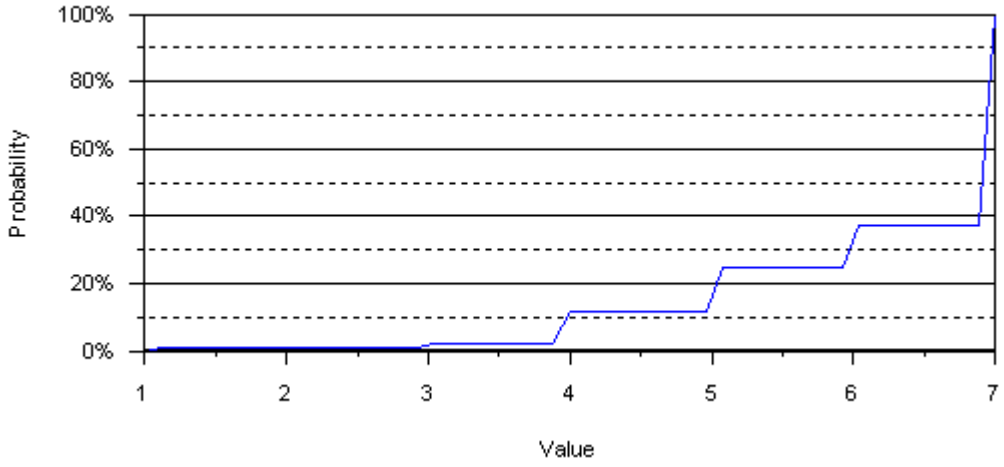
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57c) Composition of low explosive materials

Probability Density Function



Cumulative Distribution

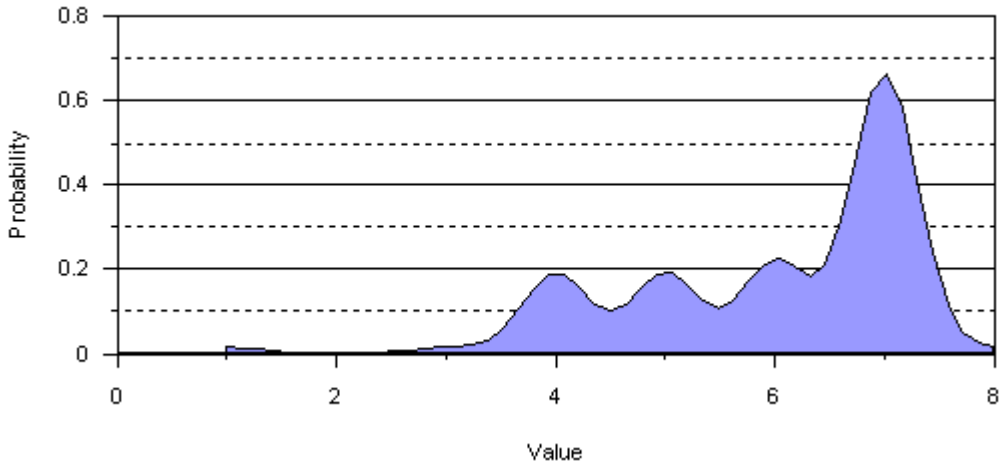


Average:	6.22
Standard Deviation:	1.22
Minimum:	1.00
Maximum:	7.00

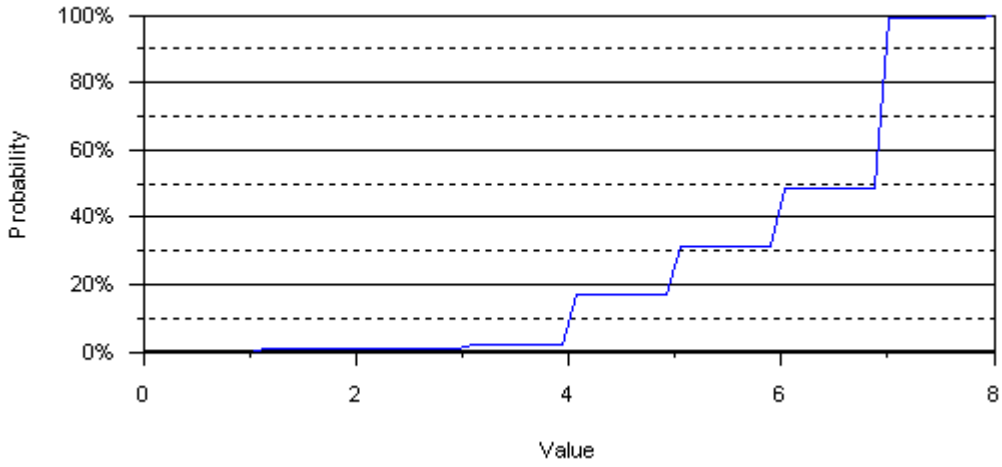
An answer to this question is not required and 319 of 407 respondents chose not to answer.

57d) Construction of commercial pyrotechnic devices

Probability Density Function



Cumulative Distribution

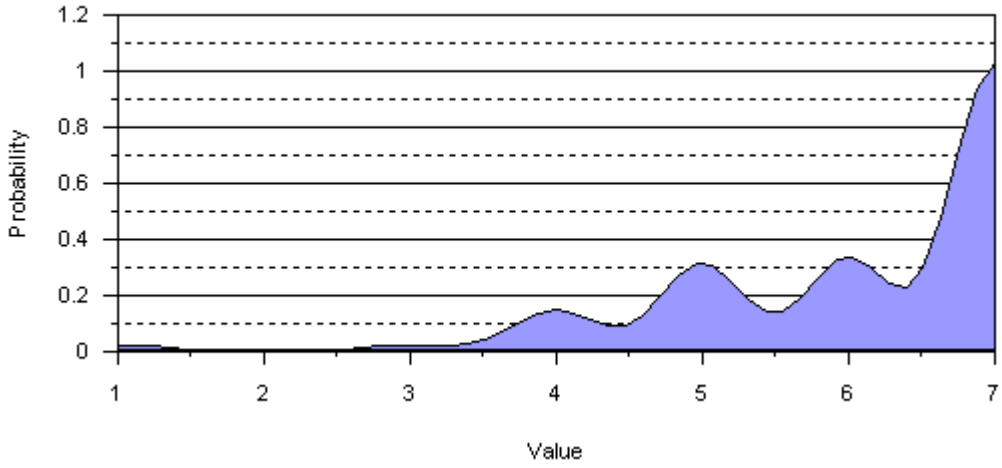


Average:	6.00
Standard Deviation:	1.30
Minimum:	1.00
Maximum:	8.00

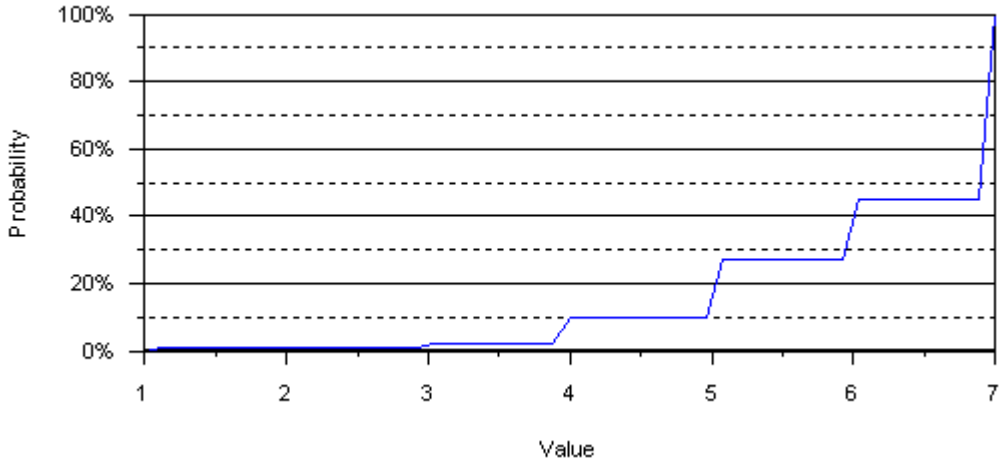
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57e) Construction of military devices (e.g. simulators, rockets, hand grenades)

Probability Density Function



Cumulative Distribution

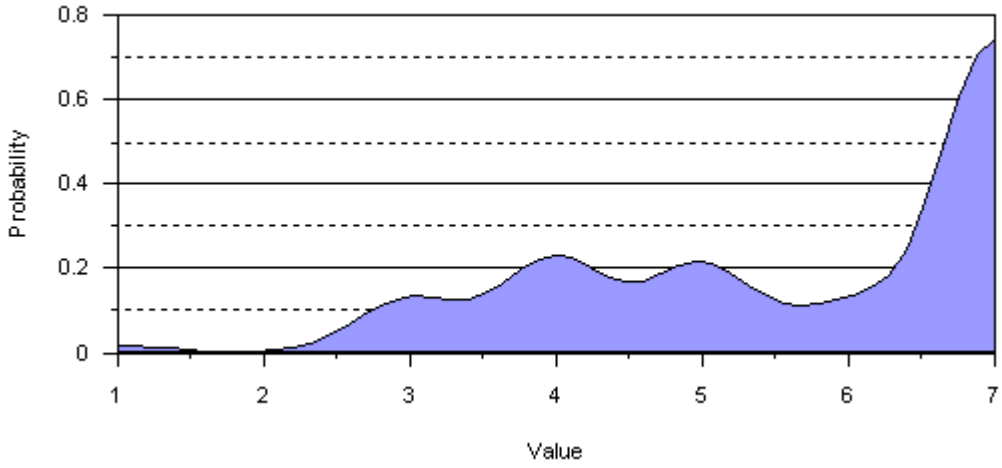


Average:	6.13
Standard Deviation:	1.19
Minimum:	1.00
Maximum:	7.00

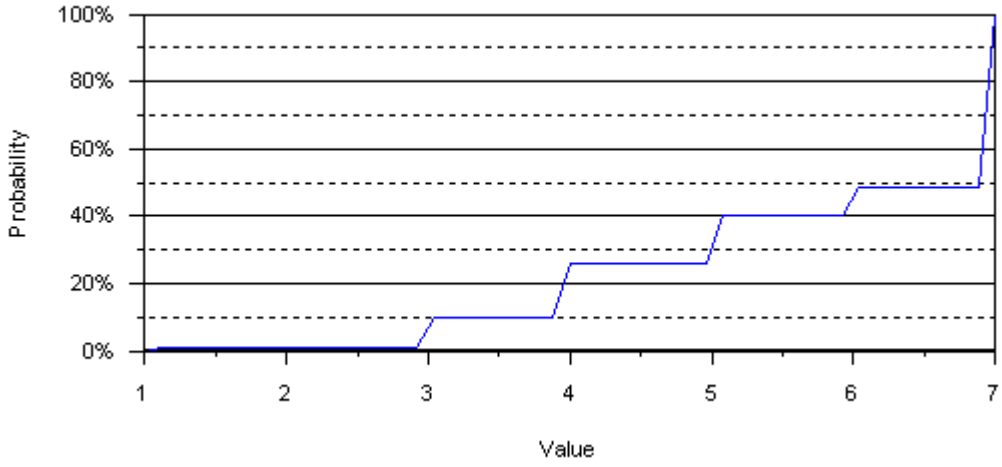
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57f) Range procedures

Probability Density Function



Cumulative Distribution

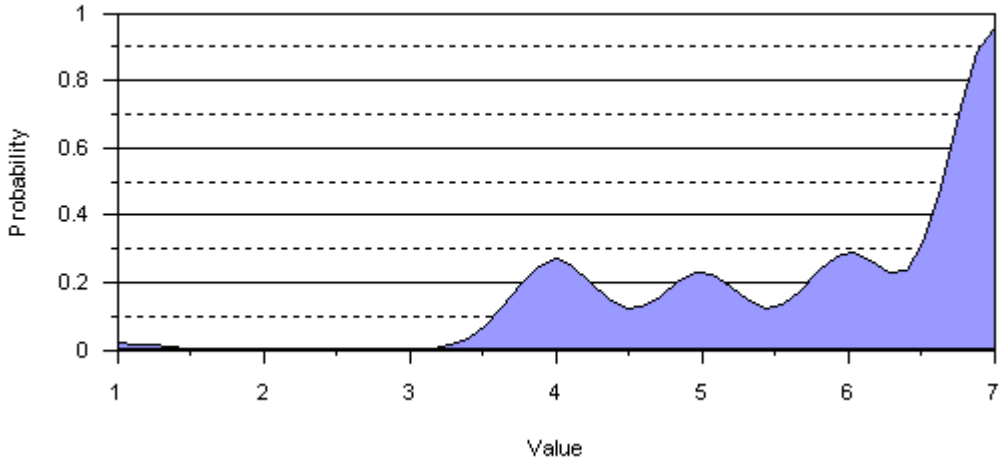


Average:	5.73
Standard Deviation:	1.53
Minimum:	1.00
Maximum:	7.00

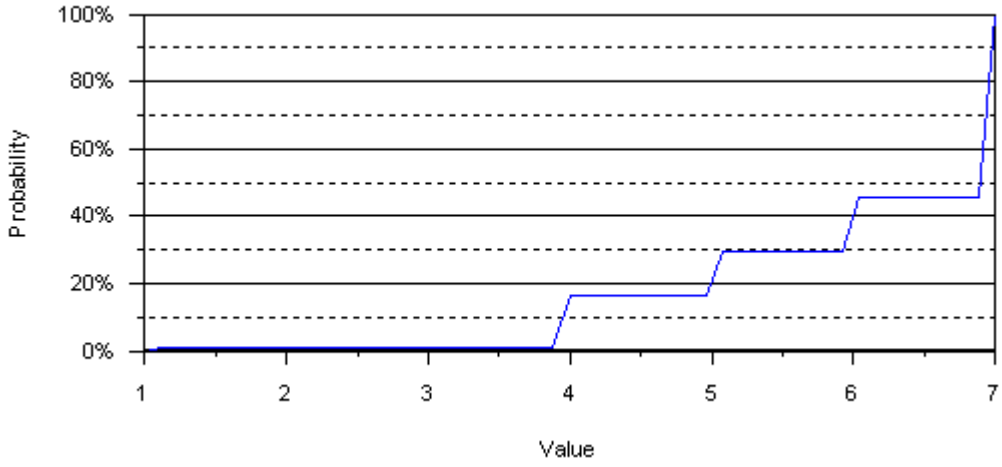
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57g) Peroxide Based Explosives

Probability Density Function



Cumulative Distribution

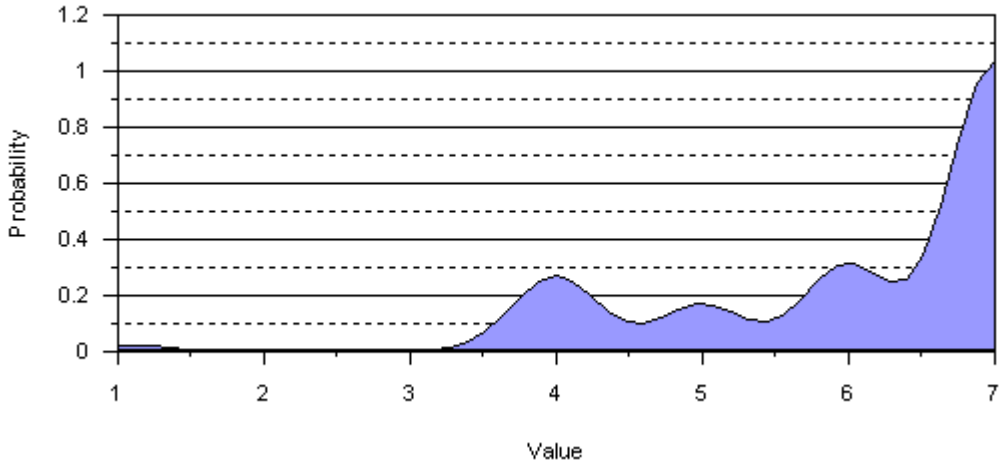


Average:	6.05
Standard Deviation:	1.25
Minimum:	1.00
Maximum:	7.00

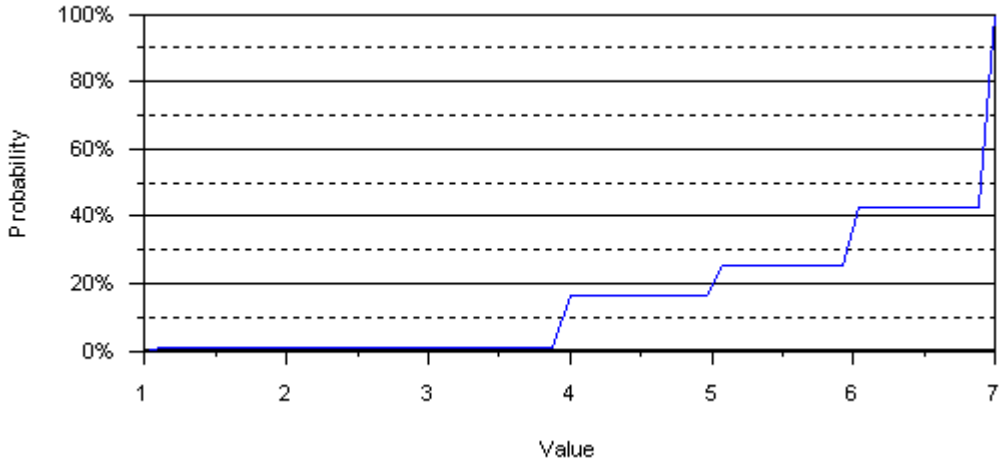
An answer to this question is not required and 315 of 407 respondents chose not to answer.

57h) Manufacturing of explosives

Probability Density Function



Cumulative Distribution

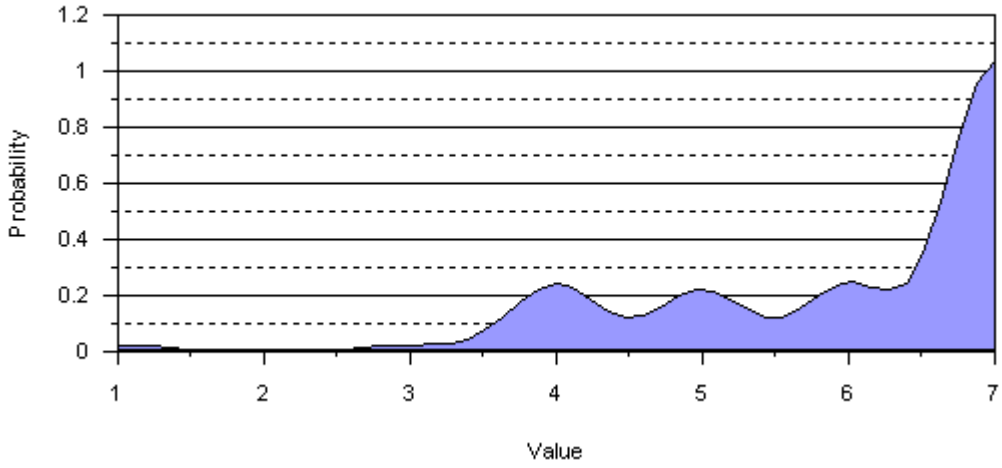


Average:	6.13
Standard Deviation:	1.25
Minimum:	1.00
Maximum:	7.00

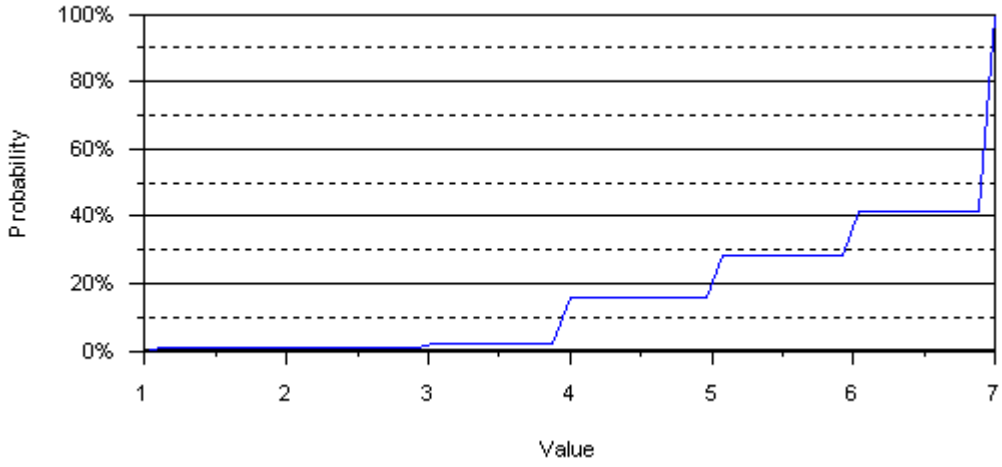
An answer to this question is not required and 320 of 407 respondents chose not to answer.

57i) Composition of high explosive materials

Probability Density Function



Cumulative Distribution

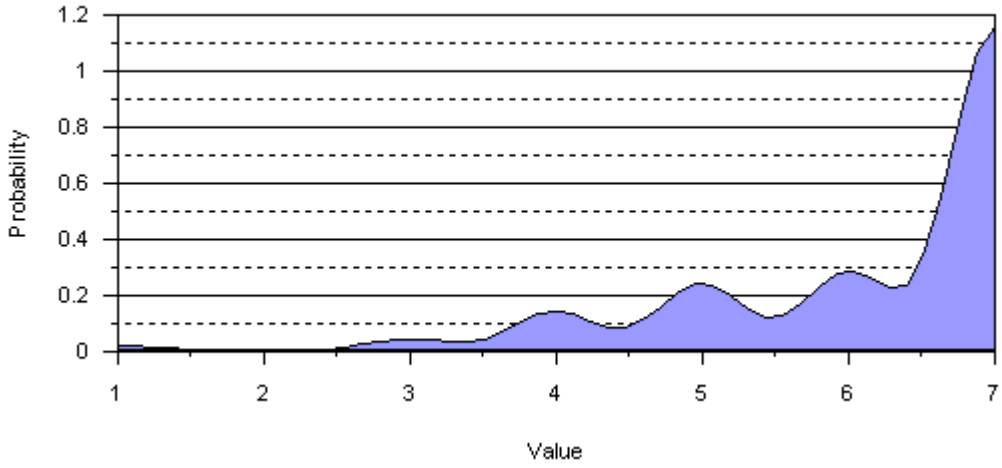


Average:	6.10
Standard Deviation:	1.28
Minimum:	1.00
Maximum:	7.00

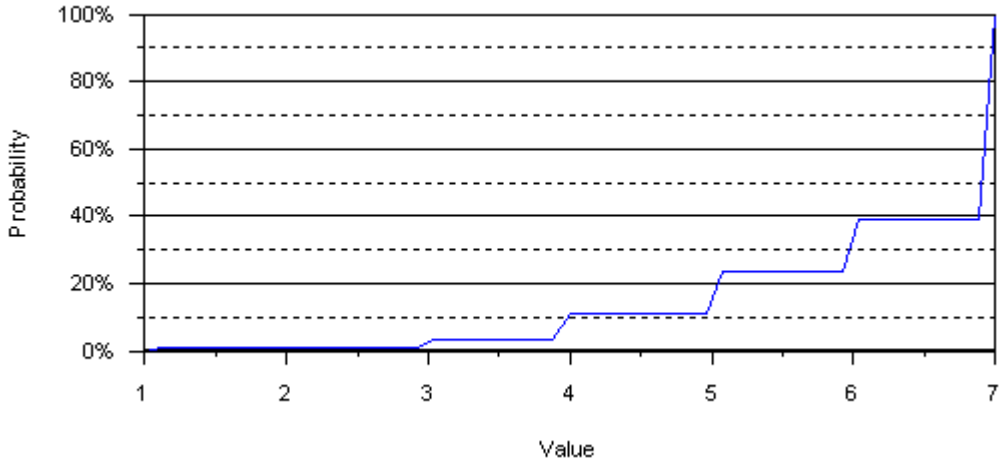
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57j) Construction of improvised devices

Probability Density Function



Cumulative Distribution

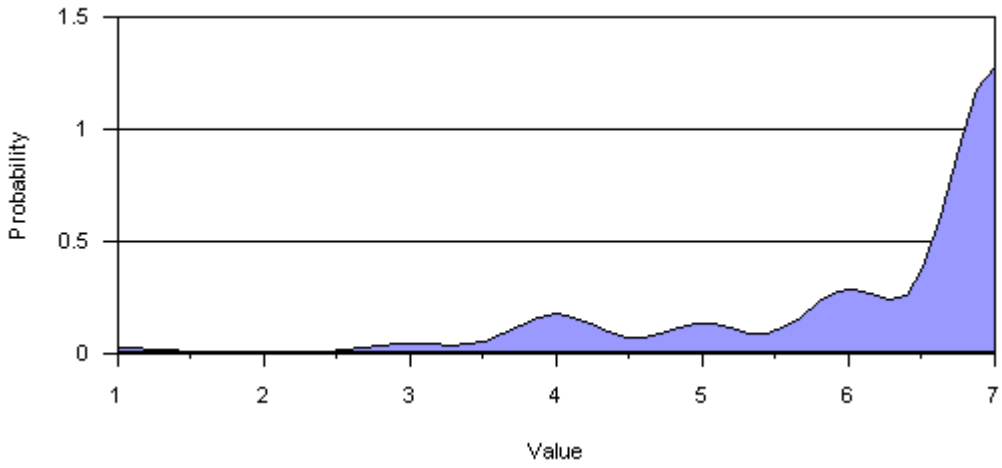


Average:	6.22
Standard Deviation:	1.21
Minimum:	1.00
Maximum:	7.00

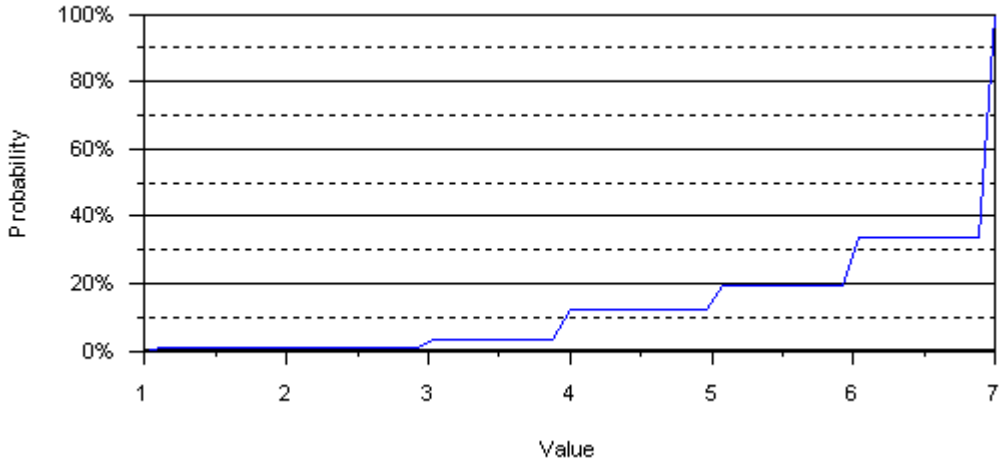
An answer to this question is not required and 314 of 407 respondents chose not to answer.

57k) Analytical examination of high and low explosive materials and residues

Probability Density Function



Cumulative Distribution

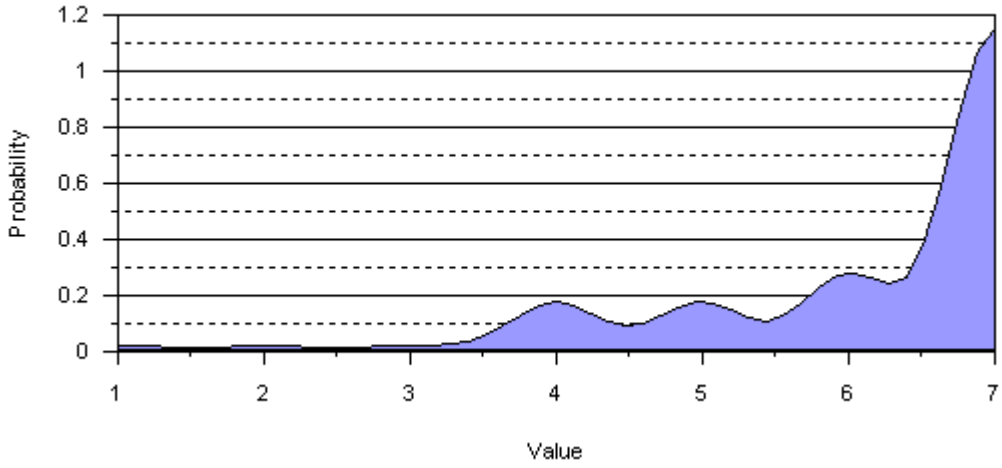


Average:	6.29
Standard Deviation:	1.23
Minimum:	1.00
Maximum:	7.00

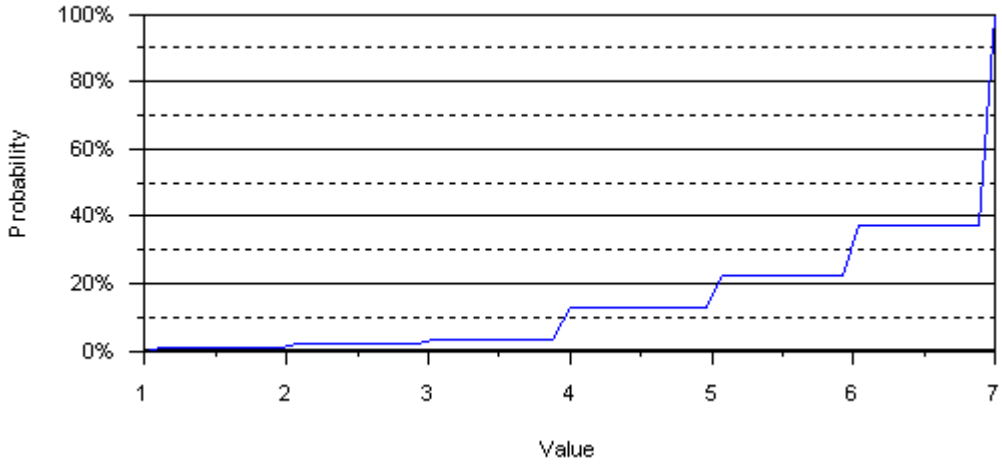
An answer to this question is not required and 318 of 407 respondents chose not to answer.

57l) Recognition of improvised device components

Probability Density Function



Cumulative Distribution

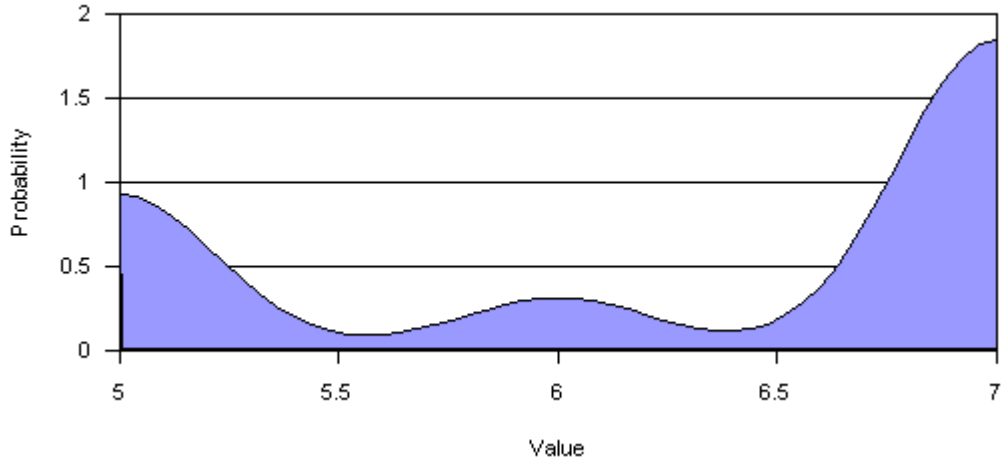


Average:	6.21
Standard Deviation:	1.27
Minimum:	1.00
Maximum:	7.00

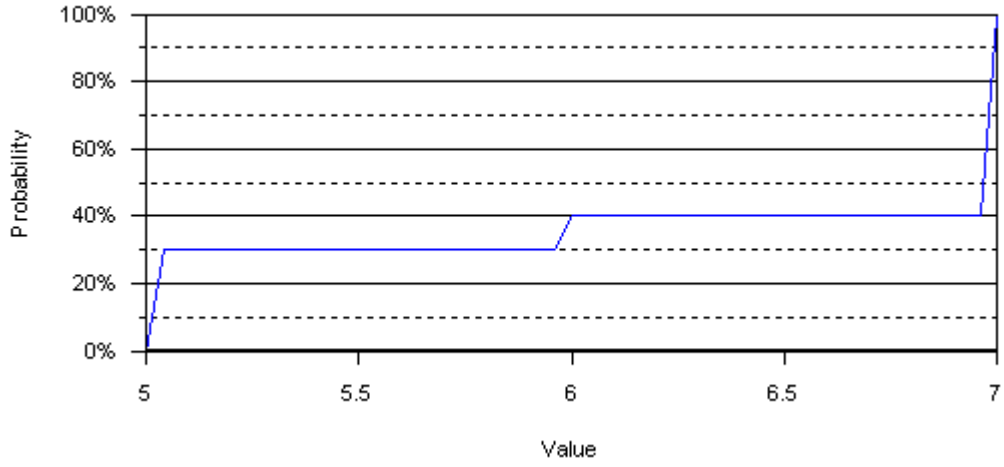
An answer to this question is not required and 313 of 407 respondents chose not to answer.

57m) Other:

Probability Density Function



Cumulative Distribution



Average:	6.30
Standard Deviation:	0.95
Minimum:	5.00
Maximum:	7.00

An answer to this question is not required and 397 of 407 respondents chose not to answer.

57n) (please indicate):

- All sections involving practical
- Oxidizers
- Digital imaging training
- any explosive advanced training

- Post Blast Investigation procedures

An answer to this question is not required and 402 of 407 respondents chose not to answer.

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x) **Part I Fire Scene Specialists (Check an answer only on those questions which apply to you)**

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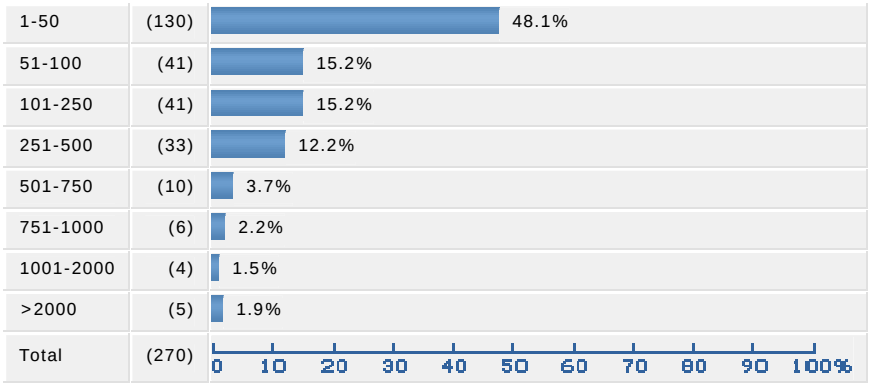
58) Indicate the number of fire scenes processed in 2006 by all of the investigators at your physical location (check one):



An answer to this question is not required and 137 of 407 respondents chose not to answer.

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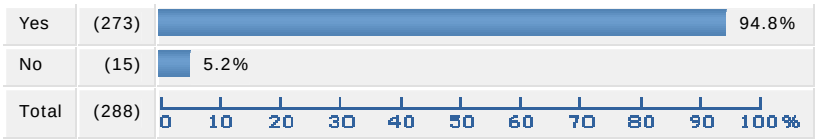
59) Have you had formal training in the investigation of fire scenes?



An answer to this question is not required and 119 of 407 respondents chose not to answer.

59a) Rate the importance of formal training in the investigation of fire scenes: (1-7 with 1 = Not at all, and 7 = Very)

1	(3)	1.1%
2	(2)	0.7%
3	(2)	0.7%
4	(2)	0.7%
5	(6)	2.2%
6	(26)	9.4%
7	(235)	85.1%
Total	(276)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 131 of 407 respondents chose not to answer.

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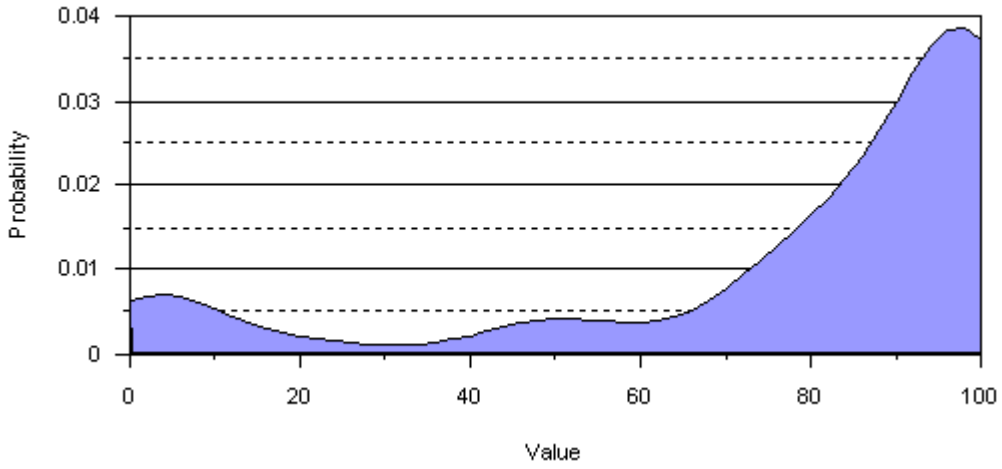
60) What type of containers do you use in submitting fire debris to a laboratory for ignitable liquid determination?

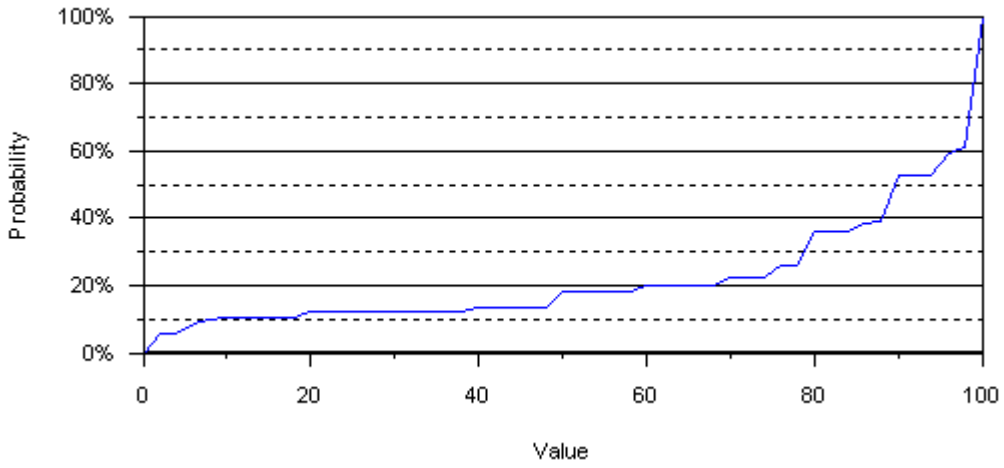
Container / Percent of Time

60a) Clean Unused Paint Cans

Probability Density Function



Cumulative Distribution

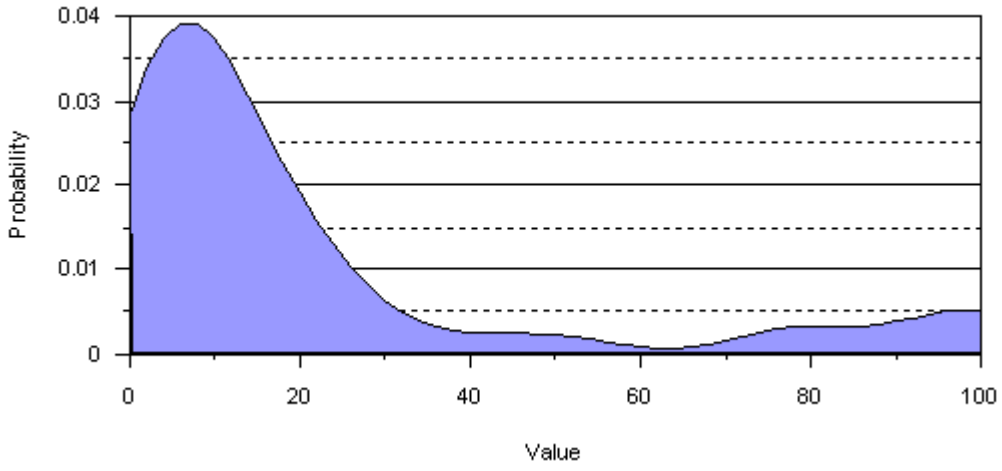


Average:	78.82
Standard Deviation:	30.81
Minimum:	0.00
Maximum:	100.00

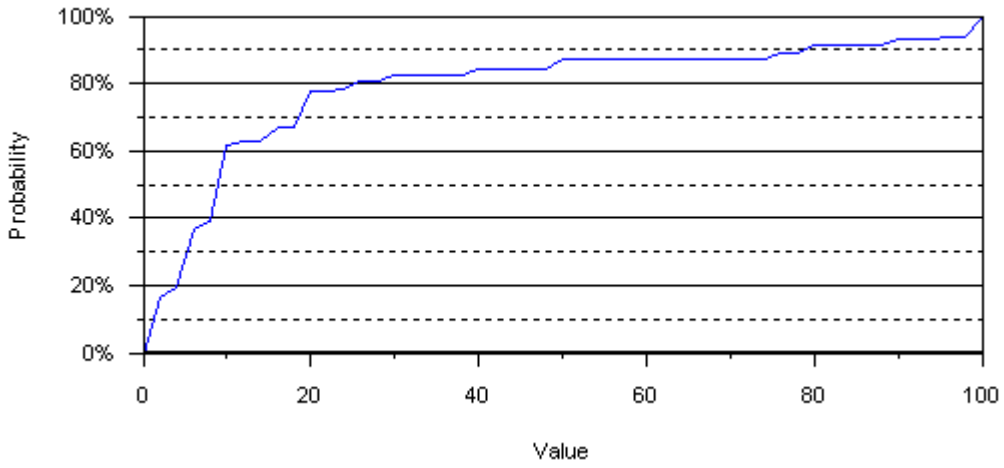
An answer to this question is not required and 199 of 407 respondents chose not to answer.

60b) Glass Jars/Vials

Probability Density Function



Cumulative Distribution

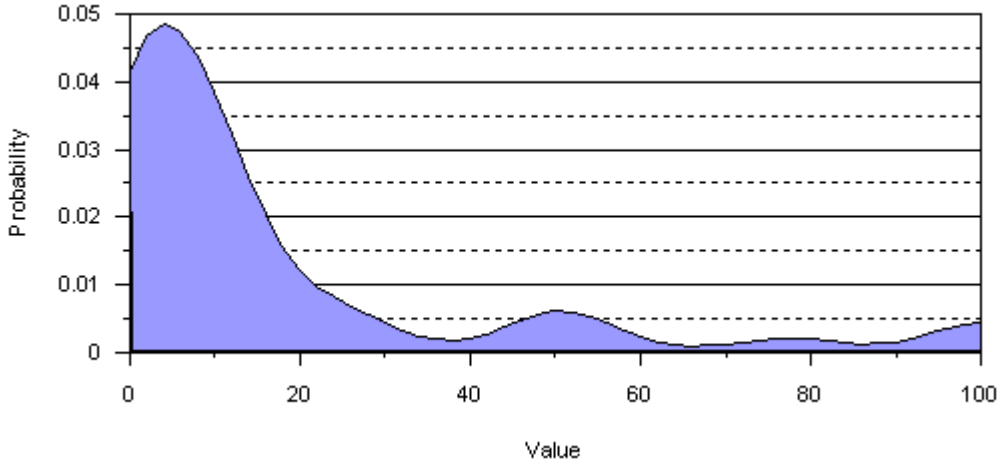


Average:	21.58
Standard Deviation:	29.08
Minimum:	0.00
Maximum:	100.00

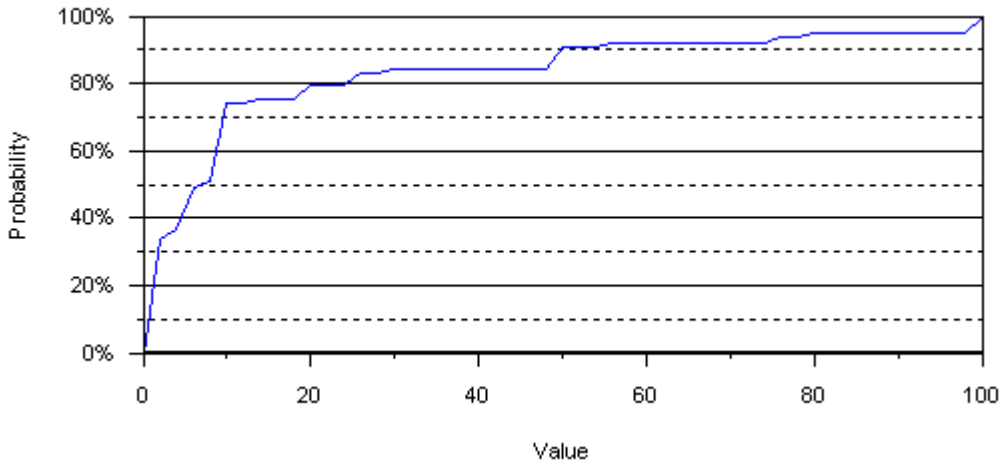
An answer to this question is not required and 292 of 407 respondents chose not to answer.

60c) Nylon Bags

Probability Density Function



Cumulative Distribution

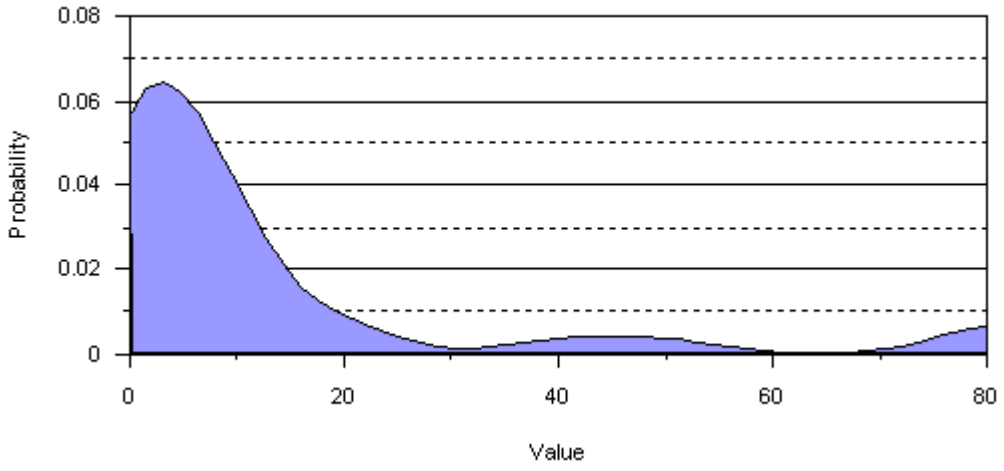


Average:	16.80
Standard Deviation:	26.18
Minimum:	0.00
Maximum:	100.00

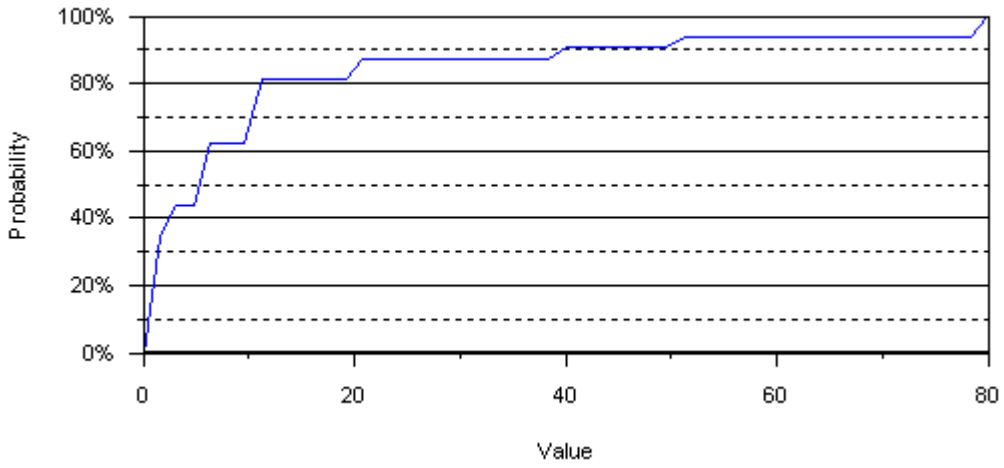
An answer to this question is not required and 330 of 407 respondents chose not to answer.

60d) Other:

Probability Density Function



Cumulative Distribution



Average:	12.24
Standard Deviation:	21.02
Minimum:	0.00
Maximum:	80.00

An answer to this question is not required and 375 of 407 respondents chose not to answer.

60e) If you checked *"Other"* above, (please specify what you would use here):

- Absorbent Pads
- Kapak
- paper bags
- kapak
- PAPER BAGS
- paper bags
- Paper & plastic bags
- Special Sample Containers
- plastic bags
- K pac bags
- bags
- plastic bags
- Clear arson bags
- evidence cans
- choice of CFI and Lab
- paper bags
- sterile cans/jars
- Paper Bags
- paperbags (large items)
- paper bag

- Other Bags, Envelopes
- Plastic bags with sealed bottom exemplar space
- Plastic/paper depending on size of object and what it is being analized for.
- paper sacks
- KPAK
- Kapak Bags
- paper evidence bags
- brown paper bags
- Paper bags

An answer to this question is not required and 378 of 407 respondents chose not to answer.

61) What type of equipment is essential to help you process fire scenes?

- An Accelerant K-9 is one of the most useful tools available outside of a shovel and pointing trowl.
- Proper carpentry tools, cans, gloves, protective gear.
- Shovels, cameras, sieves, scoops, knife, gloves, containers , measuring tools
- rakes, shovels, sreens, magnets, fingerprint processing equipment, hand tools, magnifying glass, sometimes large equipment for debris removal
- knowledgable investigators, accelerant detection canine team, misc. hand tools cans, glass jars/vials, personal protective equipment
- PROTECTIVE GEAR, SEARCHING TOOLS, EVIDENCE CONTAINERS
- Hand Tools
  Power Tools
  Heavy Equipment
  Manpower
  Canine
- magnet, directional flags, tweezers, camera, patience. so many more.
- Camera, Hand tools
- Hand Tools
  Heavy Equipment
  Minimum, Level C protection
  Standard Safety Equipment
  Vehicle
  Digital cameras
  Digital Video
- Hydrocarbon detector
  UV source
- lighting
  evidence collection equiptment cordless saws and drills
- Photographic, VOC monitors, Laptops, Digging equipment, lighting, measuring equopment, evidence collecting
- Good lighting, respiratory protection, basic tools to dig, excellent camera, proper evidence packaging materials, sharp utility knife
- SHOVELS, STRAINER / SIFTERS, SMALL TOOLS & BOLT & NUT DRIVERS, HAND TROWEL, PORTABLE LIGHTING.
- Proper evidence collection and storage facilities on vehicles
- Measuring devices, shovels, evidence containers, hand tools, safety gear

- We use a mobile laboratory containing microscopes and much equipment
- Shovel, drywall puller, flashlight digital camera, safety equipment
- Camera, Shovel, Rake, broom, Screw drivers, Gloves, Evidence collection containers, power tools, hand held tools, boots, cover-alls, 921
- NFPA 921
- Shovel
  rake
  hand shovel
  hand rake
  camera
  tape measure
  lighting
- all listed in NFPA 921
- evidence collection tools and containers
- Gas detectors
  assortment of tools
  camera
  detection canine
- Shovels, rakes and other hand tools
- lot of lights
- Digital imaging equipment
- Shovel, rake, trowel, brush/broom, camera, tape measure
- Camera, disposable gloves, Protective clothing, safety gear, shovels, brooms, eviedence containers, labels, scrappers, Flash light, saw, small tools i.e. screw drivers, wood chisels, razor blades,
- manpower,
- many types starting with shovel and small to big rakes and hoes, electric saws, etc
- liquid and solid material apparatus, shovels, tweezers
- hand tools, gloves, evidence cans, digital cameras, lights, generator
- Temp lighting, camera, tape recorders paper pads ect...
- evidence containers, cut off hoe, screen, TIF8800A accelerant detector, shovels, camera
- Personal Protective Equipment
- too braod of a question
- Paper/Pen; Flashlight; Camera; shovel, rake, broom, etc.; PPE-Gloves,Helmet,Boots, etc.; Decon Equipment; Misc. Hand Tools;
- camera and evidence collection materials as well as resource books
- Basic Hand tools
- Hand tools, safety equipment, lighting
- Paint cans, hand tools, lights, digging tools
- Al various types of construction equipment. Every thing from shovels to sifters.
- Basic tools/Shovel/Protective gloves/Bunker gear/Evidence collection kit/Crime scene tape/Evidence marking cones/Measuring divices/Haz-Mat suits when needed/Lighting/Camera/Canine
- Hydrocarbon Detector, Laser Measuring Device, Shovels, Water Cans, Graph paper, Digital Recorders, Digital Cameras, Respiratory Protection, PPE
- Basic Disposable Hand Tools & Metal Containers
- lights, hand tools, camera, tape recorder, video, portable power, phones/ radios, power saw, ladders, sifters.
- shovels, scoops, brooms, water standard hand tools
- Pickup
  Water
- Hand tools large and small

- Small, clean hand tools; camera; pen and paper; measure device; good lights; latent print kit; circuit tester
- shovesl rakes, cameras
- Camera, shovels, rakes hand tools K-9, ignitable vapor detectors, volt-ohm meters, etc.
- lighting, hand tools, camera, video recorder, tape recorder, sketch pad, tape measure, water, generator, evidence cans and bags
- Tools and sterile evidence cans/jars
- screens, flammable/combustible vapor detector, shovels, volt/ohm meter, various hand tools, personal protective equipment.
- Camera, flash, shovels, trowels, measuring tools, portable ladder, evidence containers; cans, plastic bags, paper bags, clean uncontaminated razor knifes or other cutting tools, Safety equipment; hard hat, nomex clothing, steel toe water proof boots, knee pads
- An open mind. a good forensic team.
- Personal Protective equipment
- Adequate tools and evidence collection equipment
- Shovel, rake, broom, flashlight, camera, clipboard, hammer, drill, screwdriver, crowbar, bags, cans, tape, jack
- Combustible gas detector, shovel, rake, broom, flashlights, leather gloves, evidence collection gloves, cans, tape measure, graph paper, safety boots, hard hat, camera, computer, recorder
- Camera's, Assorted hand tools as well as small gardening tools, brooms, shovels, large tubs, tape measure, flashlight, PPE,
- gloves, respirator, eye protection, head gear, shovel, troughs, evidence containers, labels, camera, absorption material, water, decon soap, brushes
- shovel, masons trowel, garden trowel, screw drivers, hammer, pry bar, various types of wrenches, evidence containers, evidence tags, tape measure, various types of gloves, hard hat, boots, tyvek suits, safty glasses, ladder, camera, notebook, pens, pencils
- Shovel, latex gloves, flashlight, basic tool kit, camera, sketch pad, hose, boots, work gloves, evidence collection tools, note pad
- sifting screens, measuring devices, video & digital photograph, USB microscope
- Brain, proper attitude, eyes, shovel, boots, respirator, camera, graph paper,
- shovels, rakes, brooms, water, ladders, evidence cans, protective equipment
- Hand tools
- Shovels, rakes, small hand tools, Camera, evidence collection supplys
- Lights, Camera, shovel, broom, tape measure
- PPE, Instrument list is endless
- digital camera
- digtial camera, aux lighting
- Photo/Video Equipment. Measuring equipment. Shovel. Evidence collection equipment. Safety equipment. More.
- Photography equipment, hand tools, measuring equipment, safety equipment
- Hand Tools, PPE, Lighting Equipment
- accelerant detection, lighting, tools
- Cameras, measuring devices, K-9
- Hand held shovels
  Fire/debris proof boots
  Hard Hat
  Collection kits
- Shovel, rake, lights, hand tools, evidence collection containers, safety equipment
- accelerant detection equipt.
- LIGHTING
  HAND TOOLS
- Camera, diagram, shovel, rake, broom,

- camera, shovel, flashlight, eyeballs, common sense
- Shovle, hand tools, cleaning agent, water, collection bags, camera, tape, paper, writting tool.
- protective clothing, shovels, rakes, and camera
- camera, type recorder, sketching software, lights. tools
- manpower
- camera
- Hand Tools, Cameras, electronic tape measurement equipment.
- rubber gloves,photo equipment,shovel,
- sniffers
- photographic equipment, evidence containers, gloves, pen, paper, measuring tape, hand tools
- Tools such as shovels, rakes, saws, cameras
- shovel, rake, hoe, tape measure, LIGHTS, camera, ladder, electric drill & saw, prybars, hand tools
- shovel, gardening tools, camera
- Ignitable liquid detector
- Shovels, rakes, Camera, Protective clothing, disposable tyvek suits, forceps, bucket water w.brush to wash foot wear to avoid cross contamination
- MINI RE 2000
- Breather mask, evidence bags, camera, shovel, paint brush
- hand tools and time
- Camera, hand tools, and reports.
- Proper Safety Equipment
  Shovel
  Other items as necessary
- area to clean tools that is easy to assemble and transport
- tools,cameras, lighting, personal protection devices
- shovels,brooms,rakes, small hand tools,cameras, lighting, evidence containers and bags, fire scene paperwork.
- See NFPA 921
- Hand tools, generators, sniffer
- shovels, saws,trowels, hand shovels, brooms, water,co2 monitor, hydrocarbon detector, canine accelerant detection
- basic
- laptop computer
  digital camera
- camera, hand tools, video camera
- Hand Tools, Lighting, Photographic, Videographic, Written Documentation, Dictation
- TIF meters, various HAZMAT meters and air processors
  lighting, cameras
- 35mm camera (we don't do digital!), shovel.
- Shovels, rakes, photographic, lighting, magnification, evidence collection evidence packaging
- Clean evidence collection containers and collection equipment including both disposable and cleanable tools. Measuring devices (electronic and scalar), photographic equipment, and field data collection forms.
- shovels, rakes, hand tools, evidence containers,
- Camera, evidence containers, brushes, digging tools,
- Light, protective equiptment, fans, personnel, cameras
- shovels, lights, proper training for knowing what to look for and how to process it. containers
- NFPA 921,camera,tools,lap top,lights,
- Disposable gloves, unlined cans,shovel.razor knife, hatchet, small tools, camera

- buckets, shifters, rakes, camera, lights
- Laser measuring
  Hydrocarbon detector
  shovel
- everthing
- personal protective equipment, camera, paper & pen, tape rule, debris removal tools (shovel, trowel, garden cultivator), sample containers, evidence bags/boxes, ladder
- A GOOD SHOVEL, GOOD LIGHTING AND A STRONG BACK.
  ALSO EXPERIENCE
- Air masks, haligan, pry bar, camera, evidence collection containers, lights, screw drivers, knife,
- Digging tools, lighting, photography equipment(35mm and digital), cad software
- Shovel - 3 Tine Hoe
- good photography and video equipment, good hand tools
- lighting, photography, various large ansd small hand tools,
- Camera, forms, lights, digging tools, evidence collection equipment.
- supply of gloves;handtools
- shovels, scoops, cameras, lighting
- Hand tools, cameras
- evidence containers, lighting, hand tools, cameras and related accessories, digitial voice recorders, personal protective equipment
- documentation supplies: sharpies (various colors), notepad, dial calipers, wire/conductor size tool, pens, pencils, acetate sheets,
  tools: hammer, screw drivers, saw saw, gardening tools (i.e. small spade, claw), wire cutters, side cuts, needle nose pliers, crescent wrenches, mini saw, sifting screens, multi-meter,
  Camera supplies...too much to list
- Lighting, Sniffers, Screens, Hand tools, Heavy Equipment when needed, Cameras, Evidence containers,
- clean hand tools
- Protective gear, leather gloves, helmet, breathing appr., misc. hand tools
- gloves, cutting tools, extraction tools, camera, measurement devices, evidence containers.
- various tools used for digging in debris and collecting samples; proper footwear;
- digging tools, photo equipment, collection materials, lights
- shovel, hand tools, flash light, ppe
- lighting, adequate clean PPE, large evidence collection containers
- Gas Detectors
  Electric Meters
- Proper lighting, camera, work gloves, rubber gloves, coveralls, hard hat, pen and paper, scoop shovel, respirator (full and half-face), evidence collection equipment,
- Camera, trowel, shovel, recorder, multi-meter, brooms
- Various Hand Tools, Computer Equipment, Digital/Video/ SLR Cameras, Electronic Measuring Devices, Drawing Programs etc...
- hydrocarbon detectors, camera, general overhaul tools
- Camera, shovel, trowel, magnifying glass, tape measure, coveralls, evidence cans, vapor detector, gloves, evidence sealing, forms, core borer, knife, scraper, etc., etc.
- Time...
- For wildland fire: Kestrel or other weather reading device;
  GPS unit; digital cameras; 35mm camera; binoculars; magnets; magnifying glass;powerful flashlights; material for casting footprints and tire tracks; measuring tapes, wheels, and rulers; evidence collection material; audio and video recorders; high temperature thermometer with probe; metal detector; and cause determination handbook, fire regulations guides, and fire prevention field guides

- hand tools, lighting, resource materials, heavy equipment at times
- Camera, shovels, etc.
- camera , hand tools , some time heavy equipment
- Clean, hand operated equipment
- Multiple tools
- Lights, flashlight, mirrors, camera, shovel, broom,pry bar, hand tools
- documented, clean cans and collection equipment, reliable mechanical equipment for second opinion on possible accelerent
- Hand tools and sometimes heavy equipment
- hand tools, firefighter turn out gear, disposal nitrile gloves, cameras, evidence marking numbers and collection materials, Dawn dishwashing liquid for decontamination of tools, Battery operated power tools, portable electric generators and so on
- Digital cameras, hand tools for excavation, PPE- respiratory and clothing

An answer to this question is not required and 239 of 407 respondents chose not to answer.

---

62) What type of equipment is desirable to help you process fire scenes?

- Electronic sniffer, laser scanner, lighting systems
- portable xray machine, portable sniffing devices, dogs
- Multi-Gas Detector, Handheld identification instrument, (First Defender XL)
- SAME AS ABOVE
- containers, magnet(very large) sectioning rope or twine, camera, lots more.
- Evidence collection kit
- electonic detector for picking sample points
- Mobile internet access for data research in the field
- Portable Full Gas & Chemical ID Chromatagraph
- ignitable liquid detection lighting
- Hydrocarbon dectector, sifting screens, fingerprint and casting kits,
- DISPOSABLE GLOVES, CEMENT TYPE HAND TROWEL FOR SMALL DIGGING & SCRAPING.
- Lights, cans, Evidence bags
- air sampling equipment, fire debris analysis equipment,
- S/A Above # 61
- time, and the willingness to do a thorough analysis.
- sifter screens
- Hand tools
- detectors
  camera
  canine
- K-9, hydrocarbon detectors
- personnel
- Digital imaging equipment
- Volt meter, Tape recorder, Laptop computer, Large light, Ladder

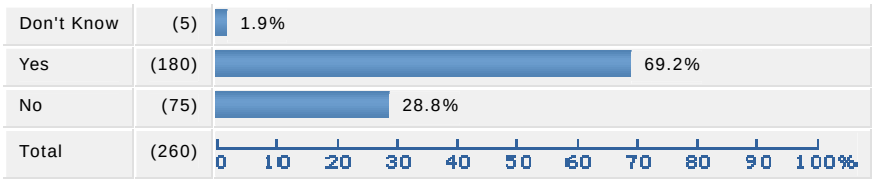
- same
- saa
- Respiratory Protective
- accelerant detectors
- all of it! bad question!
- Hydrocarbon detector; Accelerant Detection K-9,
- more resource books
- power tools
- As above
- all of the above in addition to trace evicence colleciton.
- Electronic air quality tester/hydrocarbon based fuel detectors
- Extra lighting, exhaust fan, handtools, computer with internet access,
- all of the above
- Portable x-ray
- Generator, electric tools instead of battery
- UV light device; combustible gas detector;
- need a good hydrocarbon detector
- same as above
- Hydrocarbon detector
- all of the above.
- Pry bars, hammer, saw, hand tools, volt ohm meter, microscope (small portable) magnifying glass, sheet rock saw, ph test strips, any one of variety of portable sniffers, CO meter, several magnets of different sizes,
- gloves, cans, camera, shovels, brooms, jars, tweezers, qtips, paper bags, nylon bags, many more
- Advanced scene documentation equipment
- portable x-ray unit,
- gas chromatograph, exray machine,
- It depends on how comples the scene is.
  Anything from buldozers to cranes.
- additional lighting, ventilation, electronic sniffer
- x-ray
- another investigator, electrical engineer, fire protection engineer, canine
- computer
- Technical goods
- cad diagraming program
- The list of equipment necessary and desireable is so vast and varies from fire scene to fire scene that it could never be completed here.
- Same as Above
- Respiratory protection, K-9,
- accelerant detection equipt.
- protective clothing, shovel, rakes, and camera
- gas scopes
- man power
- sniffers,
- alot
- video equipment, multi-meter, respiratory protection, x-ray, thermal imager, Gas meter
- The above listed tools as well as electronic measuring devices for hydrocarbons

- Same as above; video camera
- accelerant detection canine
- portable hydrocarbon detector
- Knowledge then equipment necessary to re-construct scene
- extra manpower
- accelerant sniffers
- Accelerant Detection Canine
- basic
- Hand tools. unsure what eveyone else is using
- Same as Above (61) Resource Laptop with full chemical libraries.
- Better gas meters than what we have.
- Heavy machinery. Backhoe,payloader etc.
- Computer modeling programs.
- Deep pockets $.
- sifters, good personal.
- Disposable gloves, unlined cans,shovel.razor knife, hatchet, small tools,camera, meter to identify ignitible liquids
- meters, computers,
- everthing
- graph paper & colored pencils, laser measuring device, small brushes, sifting screen, generator and lighting, reciprocating saw
- hydrocarbon detection equipment
- Mobile investigation vehicle
- Large Tarp
- measuring devices
- sniffer, multi-gas air monitoring device for safety
- K-9, atmospheric monitor
- infrared thermometers, fire scene resource guides available on laptop computer
- see above
- Flamable liquid detector
- same
- portable gas chromatograph, canine or electronic means
- crime scene kits, digital cameras, florescent lighting
- same as above
- Sniffers
- Two investigators to conduct all fire scene investigations; mandatory two person staffing
- video camera, electronic "sniffer", trailer for all of the invesitgation equipment
- GPS Equipment
- same as above
- analytical-field instruments
- All of the above
- front end loader, backhoe, crane, bobcats, shovels, rakes, wheelbarrels
- Electric power tools
- Accurate GPS that can diagram eveidence collection points.
- documentable onscene detection equipment, documentable collection components,
- Hand tools and sometimes heavy equipment

- man power
- hydrocarbon detection and accelerant detection

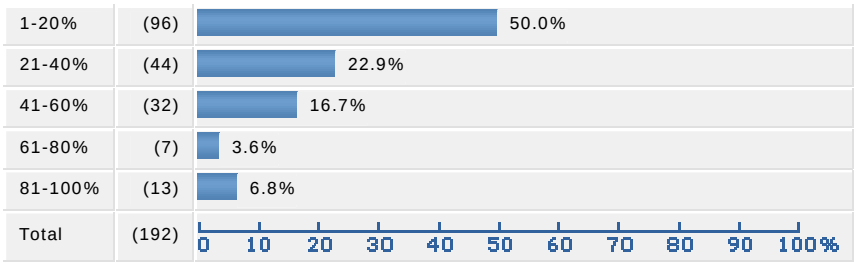
An answer to this question is not required and 295 of 407 respondents chose not to answer.

62a) Does your agency have, or have access to, an accelerant (hydrocarbon) detection canine team to assist in investigations?



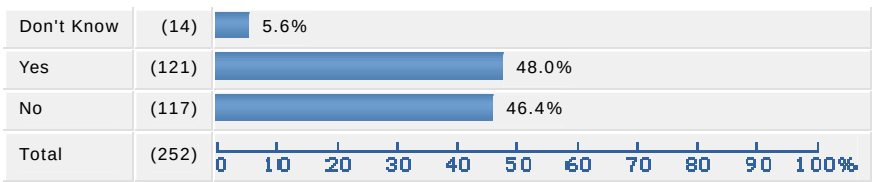
An answer to this question is not required and 147 of 407 respondents chose not to answer.

62b) If yes, what percentage of the investigations would utilize such a team?



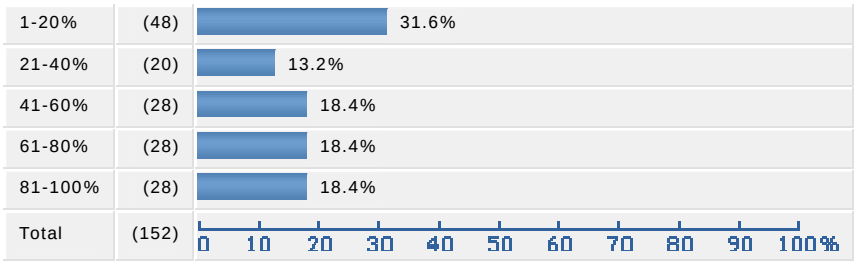
An answer to this question is not required and 215 of 407 respondents chose not to answer.

62c) Does your agency have, or have access to, a portable electronic "sniffing" device to assist investigations?



An answer to this question is not required and 155 of 407 respondents chose not to answer.

62d) If yes, what percentage of the investigations would utilize such a device?



An answer to this question is not required and 255 of 407 respondents chose not to answer.

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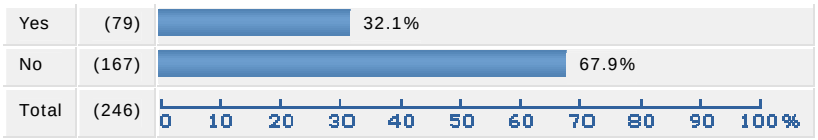
63) Does your agency have a specific criteria used calling out the services of an accelerant (hydrocarbon) detection canine team?



An answer to this question is not required and 161 of 407 respondents chose not to answer.

63a) If "Yes", (please briefly describe the criteria used here):

- If the investigator susects the use of an ignitable liquid for any reason the K-9 should be called. In the event of large scale fires or multiple fires this is required.
- Whenever necessary
- Notify State Fire Marshal
- Anytime a fire task force call out is requested, an accelerant detection canine team is automatically called out to the scene to assist. If as a single investigator am called to a scene and determine by interviews and a preliminary scene investigation, I will call a canine team out if deemed necessary.
- requested by the local authorities or the state police Lt in charge of the fire investigation unit
- FOLLOW THE POLICY OF THE DEPARTMENT WHO AS THE CANINE
- Evidence of the presence or use of an accelerant at a fire scene and investigator unable to locate or identify sample for analysis.
- INCENDIARY FIRES WITH SIGNS OF IGNITABLE LIQUID
  FATALITY SCENES AND LARGE INCIDENTS.

- When I/C or its INv call
- If the client says ok.
- If the fire is considered suspecious
- When the fire is obviously incendiary and there are indications of an ignitable liquid, but no ignitable liquid odor is able to be detected by the investigator on the scene.
- Incendiary fire with difficulty determining points of origin
- State dog thru Fire Dept.
- We have access to ATF and CBI and local FD
- fatalities
  high $ loss
  suspicious / arson known
- we have applied for a grant for a canine
- Contact the State Fire Marshal's Office
- suspected incedianiary fires
- called on most fires
- any significant structure fire
- Investigator reasonably believes accelerants were used or wishes to rule out the use of accelerants (negative scene search)
- Evidence of ignitable liquid involvement, high suspicion
- The accelerant canine is part of local jurisdiction and we have to go through the local ATF agent for calling out. Would use the canine more if we had a canine handler with our agency.
- Investigator discretion
- Contact the State Department of Justice Fire investigation Unit Area Special Agent
- very high probability of positive find.
- Fatality
  High dollar loss
  Investigator request
- o won the dog and use him where there is no ignitable liquid inherently present such as garages, etc.
- Fatality, severe injury, dollar loss exceeding $500000.00
- Request is made through the dispatch center.
- suspicion of illegal fire.
- We have one in the detail
- when the sniffer shows negative
- Looks like arson
- Approval by investigation officer incharge to page canine team
- Agent must respond and evaluate the need
- Any time the investigator feel that canine is required.
- when deemed a large loss and potential accelerant used
- as needed basis OT dependant and monitored closely
- CALLED ON AN AS NEEDED BASIS
- notify through County radio
- Contact OFPC NY State
- 24 hour 7 day a week call out center
- If I determine it is needed a request is made to the 911 communications center
- We have 3 teams in our agency
- Based on the need by the on scene investigator.
- Rely on public sector input

- notify the state fire marshals office
- All undetermined fires and all death/injury fires,
  others if investigator is unsure
- generally fatal fires
- Contact NC SBI via FMO
- Only if fire scene has suspected clues of arson
- In cases where there are large pour patterns or multiple large patterns, we will use a K9 to get quick parameters
- Major Case, Fire death.
- If accelerent use is suspected
- The on scene investigator has the descretion to call a canine unit as part of our Task Force
- Any time the investigator needs the assistance.
- It is up to the lead investigator.
- If arson is suspected the local authority having jurisdiction is notified
- Dollar loss over $30,000. Fire fighter injury or death. Fire fatality. Apparent multiple points of origin.
- The on scene Investigator request the AK-9 through FD communications.
- In house
- STATE FIRE MARSHAL
- When we determine the cause to be incendiary, along with the circumstances.
- if the investigator feels a canine would be helpful, ATF is contacted who has the caninine in this area.
- Rediculous
- state division of fire safety
- Required on all Incendiary Fires
- Incidents where the use of ignitable liquid is suspected, fires where death or serious injury occured, multiple arlarm fire scenes, fire bombings.
- Fatal fires and suspect scenes when the investigator deems it necessary.
- The investigator notifies the EMS dispatcher, who then notifies the neighboring jurisdiction. That jurisdiction then pages the canine accelerant detection team.
- gas detectors
- The Division saw it on TV
- Whenever an ignitable liquid accelerant is suspected
- handler and detection K-9 retired due to medical problems. We used to use the team quite often when the onscene investigator would determine the need.
- High value loss or fatality/serious injury involved

An answer to this question is not required and 330 of 407 respondents chose not to answer.

---

64) Does your agency officially track the usage of accelerant (hydrocarbon) detection canine team in each investigation?

Yes	(80)	33.3%
No	(160)	66.7%
Total	(240)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 167 of 407 respondents chose not to answer.

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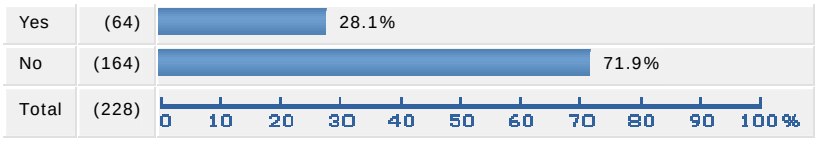
65) Does your agency officially track the track positive/negative hit rate of accelerant (hydrocarbon) detection canine team in each investigation in which a team is used?



An answer to this question is not required and 179 of 407 respondents chose not to answer.

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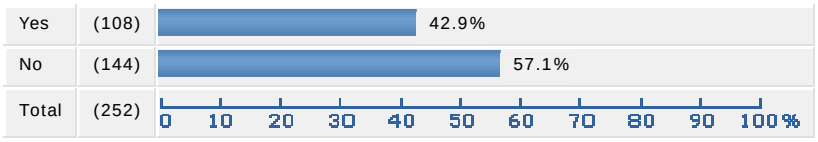
66) Do your fire/explosion scene investigators have access to laboratory tests other than fire debris/ignitable liquid analysis (e.g. flame spread testing, identification of unknown materials in debris, fire modeling, etc.)?



An answer to this question is not required and 155 of 407 respondents chose not to answer.

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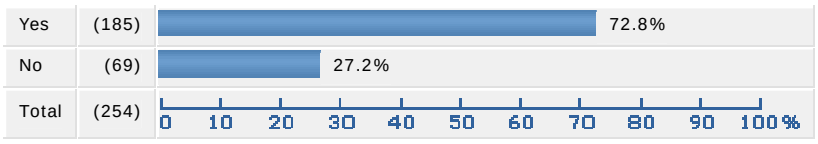
67) Do you think that you would benefit from having access to a national and/or international data base of certified accelerant (hydrocarbon) detection canine teams?



An answer to this question is not required and 153 of 407 respondents chose not to answer.

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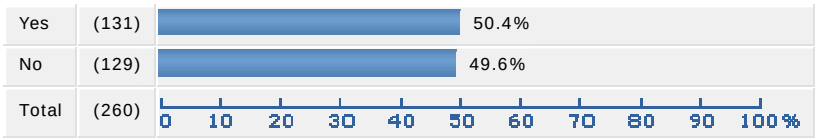
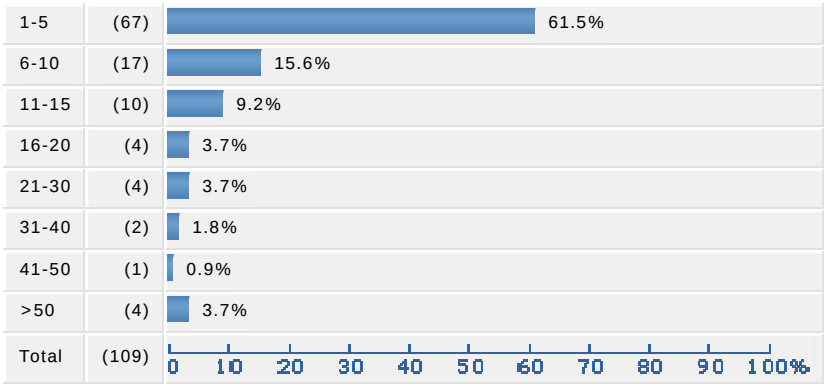
68) Does your agency have ready access to a fire debris analyst/scientist for consultation either with you at the fire scene or by

telephone or Internet?



An answer to this question is not required and 147 of 407 respondents chose not to answer.

68a) If Yes, how often was their expertise called upon while you were processing fire scene in 2006?



An answer to this question is not required and 298 of 407 respondents chose not to answer.

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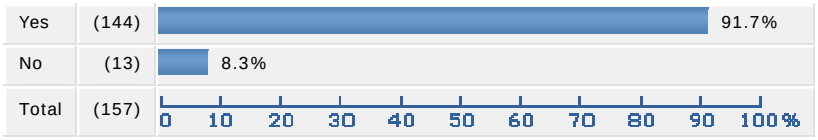
69) If No, would you want to have access to this type of expertise to assist you with your investigation?



An answer to this question is not required and 250 of 407 respondents chose not to answer.

69a) Rate the importance of having a fire debris analyst/scientist available for consultation while you are processing a scene. (1-7 where: 1 = Not at all, 7 = Very)

1	(3)	2.1%
2	(5)	3.4%
3	(7)	4.8%
4	(18)	12.4%
5	(38)	26.2%
6	(32)	22.1%
7	(42)	29.0%
Total	(145)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 262 of 407 respondents chose not to answer.

---

xi) **Part J. Explosive Scene Specialists (Check an answer only on those questions which apply to you)**

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70) Indicate the number of explosive scenes analyzed/processed by all of the investigators at your physical location (check one):

1-50	(137)	87.3%
51-100	(13)	8.3%
101-250	(4)	2.5%
251-500	(1)	0.6%
501-750	(0)	0.0%
751-1000	(0)	0.0%
1001-2000	(0)	0.0%
>2000	(2)	1.3%
Total	(157)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 250 of 407 respondents chose not to answer.

---

71) Have you had formal training in the investigation of bombing crime scenes?

Yes	(152)	76.8%

No	(46)	23.2%
Total	(198)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 209 of 407 respondents chose not to answer.

---

72) How important is formal training in the investigation of bombing crime scenes?
(1-7 where: 1 = Not at all, 7 = Very)

1	(2)	1.0%
2	(3)	1.6%
3	(2)	1.0%
4	(2)	1.0%
5	(9)	4.7%
6	(14)	7.3%
7	(159)	83.2%
Total	(191)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 216 of 407 respondents chose not to answer.

---

73) What types of containers do you use in submitting explosion debris to a laboratory for examination?

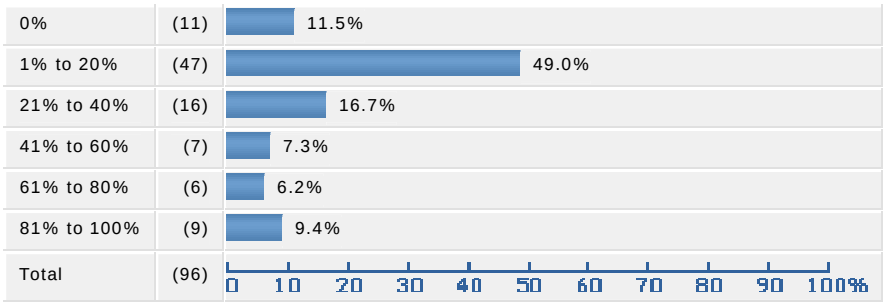
Container / Percent of Time

73a) Clean Unused Paint Can

0%	(3)	2.0%
1% to 20%	(23)	15.5%
21% to 40%	(13)	8.8%
41% to 60%	(17)	11.5%
61% to 80%	(36)	24.3%
81% to 100%	(56)	37.8%
Total	(148)	0 10 20 30 40 50 60 70 80 90 100%

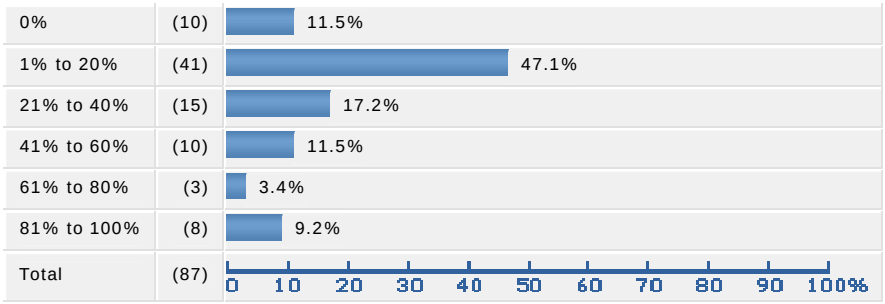
An answer to this question is not required and 259 of 407 respondents chose not to answer.

73b) Glass Jars / Vials



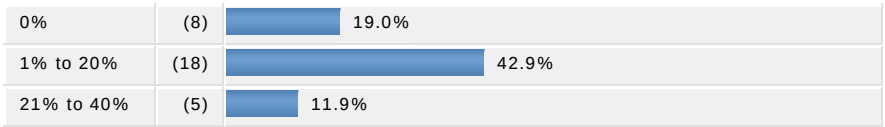
An answer to this question is not required and 311 of 407 respondents chose not to answer.

73c) Nylon Bags



An answer to this question is not required and 320 of 407 respondents chose not to answer.

73d) Other



41% to 60%	(4)	9.5%
61% to 80%	(2)	4.8%
81% to 100%	(5)	11.9%
Total	(42)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 365 of 407 respondents chose not to answer.

73e) If you checked *"Other"* above, (please specify what container you used here):

- paper bags/envelopes
- paper bags
- paper bags
- anti static
- PAPER BAG/BOX
- paper bags
- paper bag
- Kpac
- bags
- paper bags/boxes
- paper bags
- choice of Lab
- Paper containers, plastic zip lock bags (10-40 gal size)
- clear plastic bag
- brown paper bags
- paper bags
- PAPER BAG
- Paper bags
- paper
- Sealable Plastic bags
- paper bags
- paper/cardboard
- commercial plastic containers
- cardboard box for larger items;
- Kapak
- paper bags or cardboard boxes

An answer to this question is not required and 381 of 407 respondents chose not to answer.

---

74) What type of equipment is essential to help you process bombing scenes:

- Tape measures
  Survey and/or GPS equipment
  Flags
- Camera, Video, Gloves, Paper Bags, Secured Explosive Boxes (For low ordered explosives)
- Lots of people, rope, stakes, magnets, magnifying glass,
- digital camera
- gc-ms
  sem-eds
- ROBOTS, PROTECTIVE GEAR
- Hand Tools
  Power Tools
  Heavy Equipment
  Canine
- sifting screens, shovels, rakes, brooms, wheel barrows, marker flags, tape measure, laser transit, gloves, tweezers, cameras (digital still and video) lights, tents
- Same as Above
- UV source
- Same as fire scenes
- MANPOWER SHOVELS BROOMS POWER TOOLS AND HAND TOOLS
- ANy thing available Usually call ATF
- S/A as #60 and 61
- NFPA standard
- Small hand tools
- Digital imaging equipment
- Shovel, rake, trowel, brush/broom, camera, tape measure
- hand tools, lighting, digital photo, equipment
- lighting, camera equipment for documenting scene
- Certified Bomb Tech for screening for secondary devices
- Hand tools, safety equipment, lighting
- Same as arson
- All items listed for fire scenes with the addition of EOD suits and robots/X-ray machine
- same as above
- Metal Detector, Explosive swabs
- marking flags, barrier tape, camera, video recorder, tape recorder, hand tools, generator, lighting, evidence containers
- Magnets, shovels, brooms, dust pans, bags, cans, bottles, camera, flash, flagging tape, evidence markers, mirrors, safety equip;
- same as fire scenes
- Adequate tools and evidence collection equipment
- swab kits, photographic equipment, screens for sifting
- areial photography
- Proper Safety Gear
- Scene documentation equipment. Safety equipment. Evidence Collection supplies/equipment.
- CGI, robotics, xray, photographic, protective clothing, equipment and training consistent with FEMA type 1 Bomb

Squad classification

- PPE, Hand Tools Lighting Equipment
- sniffer and outside team resources
- Shovel, rake, hand tools, lights, personnel
- portable x-ray equipment, bomb suit, shovels, rakes, disrupter, energetic tools, metal detecter, assorted hand tools and power tools.
- Shovel, camera, tape measure, knife, large magnet, unused paint cans, gloves,
- small flgs, hand tools, mapping equipment, photography equipment, laser range finders & thermal imaging camers
- screen sifters, metal detectors,
- Normal fire scene equipment is used.
- rakes, sifting screens, portable tables, shovels, disposable forceps and tyvek suits, camera decomtamintion station
- MY EYES.
- Same as I would use at any fire scene
- Gloves, packing equipment
- sifting screens, quality hand tools, sterile evidence containers.
- qualified man power
- A method of securing and marking the scene
- knowledge
- basic evidence collection materials
- See NFPA 921
- shovels, clean shoes and cloths, de-con equipment. sifting screens, gloves.
- same as fire scene
- Standard Tools, Markers, Magnets, Metal Detectors, Small Hand Tools, Brushes, Photographic - Videographic - Written and Artistic Documentation.
- Evidence collection equipment, photography. debris sifting equipment, explosive detection dogs
- more training, more money
- gloves , containers, boots, misc itmes
- Disposable gloves, unlined cans,shovel.razor knife, hatchet, small tools, camera
- Lighting, wire screen sifters, personnel trained in post blast investigations.
- buckets, shifters, rakes, lights, camera
- Eyes, shovel
- qualified personnel
- photography equipment, measuring devices, video equipment
- the same as fire's
- camera
  evidence containers
  tools (uncontaminated)
- handtools, camera
- In addition to equipment listed in question #61, sifting screens
- Too numerous to provide
- Standard evidence collection equipment
- Cans, plastic evidence bags, flags, string, nitrile gloves, safety glasses, digital cameras, Total Station GPS
- K-9, misc. handtools, protective equipment to include gloves, eye protection, boots, and scuba equipment for underwater investigation.
- any
- digital camera and various tools used in general evidence collection;
- laser range finders, instruments for collection, disposable brooms-dust pans, sifting screens

- same as above
- same as fire debris with more evidence collection and a measuring wheel.
- New (uncontaminated) supplies
- Lights, flashlight, camera, shovel, broom, pry bar, hand tools,
- no idea
- Hand tools and sometimes heavy equipment
- gps,
- PPE - Uncontaminated clothing,

An answer to this question is not required and 323 of 407 respondents chose not to answer.

---

75) What type of equipment is desirable to help you process bombing scenes:

- Better evidence preservation system
- Explosive Detection Instruments
- portable xray machine
- SAME AS ABOVE
- Portable Chemical ID
- same as fire scenes
- MANPOWER - SHOVELS BROOMS & HANDTOOLS
- Digital imaging equipment
- Power tools
- SAA
- Mobile command center
- same as above
- Same as above
- same as above
- Hand tools, screens, wheel barrows, pry bars, hammer, ladders, magnifying glass, microscope, explosive residue test kit,
- Another list that is too long for this venue.
- Same as Above
- Air sampling device, more personnel, K-9
- portable x-ray equipment, bomb suit, shovels, rakes, disrupter, energetic tools, metal detecter, assorted hand tools and power tools
- Same
- Unknown
- Same as above
- Chemical identifiers
- elevation equipment
- Bomb Componet Blanket
- basic evidence collection materials
- State of the Art - Handheld Explosives Residue Detection Equipment

- Heavy construction machinery
- odor detection equipment
- Disposable gloves, unlined cans,shovel.razor knife, hatchet, small tools, camera
- meters, computers
- good hand tools, total station
- UV illumination
  field test instrument
- handrools camera
- residue detection
- Total Station GPS System, Laser Range Finders, Blast Modeling Software
- any
- total station or like equipment.
- same as above
- sams as fire debris
- no idea
- Hand tools and sometimes heavy equipment
- accident reconstruction equipment for mapping debris position in reference to the seat of the blast
- Blast modeling software, metal detectors

An answer to this question is not required and 363 of 407 respondents chose not to answer.

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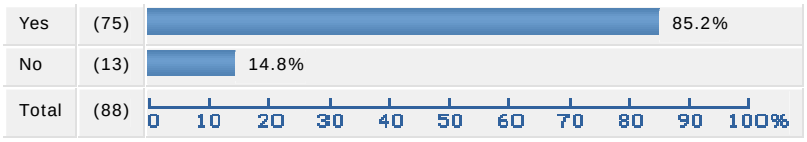
76) Do you currently utilize the equipment you listed?



An answer to this question is not required and 319 of 407 respondents chose not to answer.

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77) Are there other types of training/classes that you feel would be helpful to you in order to do your job?

- Better access to continuing education.
- Advanced Post Blast; Crime Scene Technician
- Chemistry
- Hands-on processing of explosion scenes to "get the feel" of looking for clues
- POST BOMB INVESTIGATION
- EOD training

- Required annual update training on current events and cituations that private invesytigators may be confronted with on a day-to-day basis.
- Post Blast School
- Digital imaging equipment
- hands on evidence collection, scene excavation
- Any as we have none at this time.
- Pattern (high/low order) Recognition, evidence preservation
- Advanced scene documentation equipment
- Any and all Training
- always. You can never have enought of it.
- Explosives/post blast
- yes
- any and all
- continuation of post blast re-construction
- Formal post blast schools, blast analysis, a list of essential equipment to process the scenes.
- BOMB TRAINING.
- Advanced training in scene investigations
- More Post Blast Investigation Classes and follow-up courses to keep people proficient
- Any and all training and information is allways helpfull
- High profile fire scene examinations, scene control, WMD scene examinations
- Explosive detection courses
- on the job training with federal agencies
- EOD training made available to fire service personel
- land survey classes using total stations to map and analize debris patterns
- higher level/more advanced levels of training, there is a lot of basic training but little advanced
- More post blast courses
  Post blast instructors course
- A class that focused on case studies of complex fire scenes would be helpful
- Advance field evidence collection
- any post blast.
- 40 hour post-blast investigation course taught at local level;
- more intensive on-scene training
- Anti-terrorisim training
- this is not my area of responsibility

An answer to this question is not required and 369 of 407 respondents chose not to answer.

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78) Does your agency have, or have access to an explosives detection canine team to assist in investigations?

Don't know	(20)	11.3%
No	(43)	24.3%
Yes	(114)	64.4%

Total	(177)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 230 of 407 respondents chose not to answer.

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79) If yes, what percentage of the investigations would utilize such a team?

1-20%	(66)	53.7%
21-40%	(16)	13.0%
41-60%	(10)	8.1%
61-80%	(11)	8.9%
81-100%	(20)	16.3%
Total	(123)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 284 of 407 respondents chose not to answer.

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80) Does your agency have a specific criteria used calling out the services of an explosive detection canine team?

Yes	(61)	37.2%
No	(103)	62.8%
Total	(164)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 243 of 407 respondents chose not to answer.

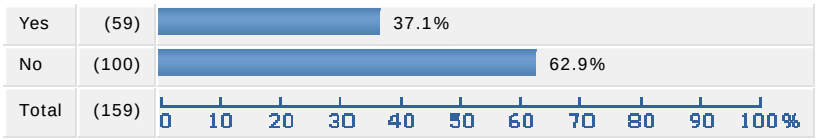
80a) If "Yes", (please briefly describe the criteria used here):

- Dependent on size of crime scene or area to be searched.
- Our agency K-9 division refuses to comply with the ATF/FBI K-9 Explosive Detection Canine Certificiation program and only uses NAPWDA. Therefore, we use another agency.
- Call State Fire Marshal
- state police dispatcher off hours and Lt incharge of the state police bomb squad
- FOLLOWING THE DEPARTMENTS GUIDELINES THAT HAVE THE CANINE
- EDU supervisor or duty officer request EDU K9
- AT OUR REQUEST

- IC OR Inv Call along with PD dective
- Any scene that seems suspecious
- Contact local Bomb Squad and CBI & ATF
- Investigator discretion
- very high probability of positve results.
- Same as above
- Suspicious packages, deaths/serious injuries where possibility exists of a secondary device.
- Request is made through the dispatch center.
- suspicion of an accelerant present at scene.
- when unidentified material cannot be found
- Notify State Police
- Must be approved by USAF Base Commander @ Cannon AFB after request is submitted through local channels of command, Chief - City Manager - Mayor - then to AFB
- At the discretion of the Bomb Squad Commander
- Through County radio
- 24 hour 7 day a week call out center
- Suscipous Packages without threat
- Bombing incident where the threat of a secondary device exists.
- Go through the Bomb Squad Sergeant.
- To conduct protective and dignitary sweeps, on bomb threats or when requested by bomb technicians.
- When necessary - call ATF for K-9
- Supervisor calls Bomb Squad commandar and he calls k-9.
- If explosives are suspected
- when ever the lead investigator or Bomb Commander calls them out
- determined by Police Department
- Request with proper guidelines
- If arson is suspected the local authority having jurisdiction is notified
- Used for sweep before significant events. Threats at certain location.
- The request is made through FD communications
- request of on scene commander
- fer secondary checks, never wothout a tech
- Called by the bomb squad
- Bomb Squad Commander activates team when needed.
- large event's
- when requested by bomb tech
- supervisor approval
- Discretion of bomb squad commander
- phone call
- vip visits and when a technician requests it
- protocol set by the fbi, atf, nabscab and the ipwda
- Bomb threats, dignitary protection and special event details. Upon the request of bomb technicians

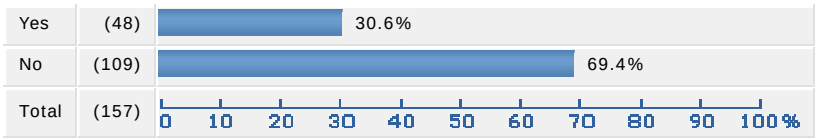
An answer to this question is not required and 360 of 407 respondents chose not to answer.

81) Does your agency officially track the usage of explosive detection canine team in each investigation?



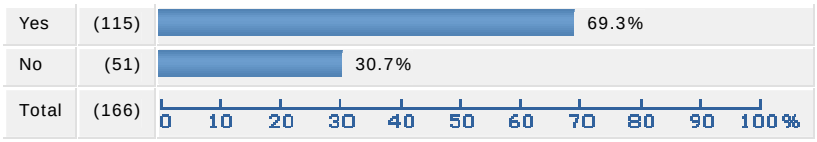
An answer to this question is not required and 248 of 407 respondents chose not to answer.

82) Does your agency officially track the track positive/negative hit rate of explosive detection canine team in each investigation in which a team is used?



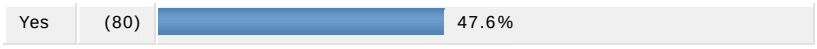
An answer to this question is not required and 250 of 407 respondents chose not to answer.

83) Do you think that you would benefit from having access to a national and/or international data base of certified explosive detection canine teams?



An answer to this question is not required and 241 of 407 respondents chose not to answer.

84) Does your agency have ready access to an explosives analyst/scientist for consultation either with you at the bombing scene or by telephone or Internet?



No	(88)	52.4%
Total	(168)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 239 of 407 respondents chose not to answer.

---

85) If Yes, how often was their expertise called upon while you were processing bombing scenes in 2006?

1-5	(52)	76.5%
6-10	(9)	13.2%
11-15	(1)	1.5%
16-20	(2)	2.9%
21-30	(3)	4.4%
31-40	(0)	0.0%
41-50	(0)	0.0%
>50	(1)	1.5%
Total	(68)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 339 of 407 respondents chose not to answer.

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86) If No, would you want to have access to this type of expertise to assist you with your investigation?

Yes	(98)	96.1%
No	(4)	3.9%
Total	(102)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 305 of 407 respondents chose not to answer.

---

87) Rate the importance of having an explosives analyst/scientist available for consultation while you are processing a scene: (1-7 where: 1 = Not at all, 7 = Very)

1	(4)	2.4%
2	(4)	2.4%
3	(7)	4.2%
4	(16)	9.6%
5	(24)	14.5%
6	(34)	20.5%
7	(77)	46.4%
Total	(166)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 241 of 407 respondents chose not to answer.

---

88) In 2006 how often did you respond to scenes which contained the following:

88a) Intact Explosives

0	(54)	40.0%
1 to 20	(68)	50.4%
21 to 50	(9)	6.7%
51 to 100	(2)	1.5%
101 to 150	(2)	1.5%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(135)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 272 of 407 respondents chose not to answer.

88b) Intact IED

0	(68)	51.9%
1 to 20	(53)	40.5%
21 to 50	(6)	4.6%
51 to 100	(2)	1.5%
101 to 150	(1)	0.8%

151 to 200	(1)	0.8%
>200	(0)	0.0%
Total	(131)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 276 of 407 respondents chose not to answer.

88c) Post Blast Explosives

0	(55)	39.3%
1 to 20	(79)	56.4%
21 to 50	(6)	4.3%
51 to 100	(0)	0.0%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(140)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 267 of 407 respondents chose not to answer.

88d) Post Blast IED

0	(68)	52.3%
1 to 20	(56)	43.1%
21 to 50	(4)	3.1%
51 to 100	(2)	1.5%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(130)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 277 of 407 respondents chose not to answer.

88e) Intact Incendiary Device

0	(49)	35.0%
1 to 20	(85)	60.7%
21 to 50	(4)	2.9%
51 to 100	(1)	0.7%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(1)	0.7%
Total	(140)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 267 of 407 respondents chose not to answer.

88f) Post Reaction Incendiary Device

0	(54)	39.4%
1 to 20	(73)	53.3%
21 to 50	(6)	4.4%
51 to 100	(1)	0.7%
101 to 150	(1)	0.7%
151 to 200	(0)	0.0%
>200	(2)	1.5%
Total	(137)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 270 of 407 respondents chose not to answer.

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89) In 2006, of the scenes in which it was necessary to "render safe" a device, please indicate the method and times employed:

89a) Hands on

0	(44)	54.3%
1 to 20	(35)	43.2%
21 to 50	(2)	2.5%

51 to 100	(0)	0.0%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(81)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 326 of 407 respondents chose not to answer.

89b) Remote Cutter

0	(54)	75.0%
1 to 20	(16)	22.2%
21 to 50	(1)	1.4%
51 to 100	(1)	1.4%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(72)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 335 of 407 respondents chose not to answer.

89c) Disrupter

0	(26)	28.3%
1 to 20	(43)	46.7%
21 to 50	(12)	13.0%
51 to 100	(8)	8.7%
101 to 150	(2)	2.2%
151 to 200	(0)	0.0%
>200	(1)	1.1%
Total	(92)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 315 of 407 respondents chose not to answer.

89d) Other

0	(26)	57.8%
1 to 20	(15)	33.3%
21 to 50	(2)	4.4%
51 to 100	(2)	4.4%
101 to 150	(0)	0.0%
151 to 200	(0)	0.0%
>200	(0)	0.0%
Total	(45)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 362 of 407 respondents chose not to answer.

89e) If you checked *"Other"* above, (please specify what container you used here):

- ROBOT
- Water cannon
- MWB, Hydrajet
- counter charge
- N/A
- robot
- Burning in place
- Mineral water bottle
- Rigging procedures
- MWB
- MWB, Hydra Jet
- disruptor
- robot manipulation
- counter charge
- counter charge
- robot
- water cannon
- robot

An answer to this question is not required and 389 of 407 respondents chose not to answer.

xii) **Part K. Laboratory Research Needs (Check an answer only on those questions which apply to you)**

90) What major breakthrough in the area of ignitable liquid or explosives analysis would have the most impact on the area of forensic science? (Think big the sky is the limit)

- A machine that is portable, cost effective and produces reliable ignitable fluid results from samples while at the scene. (you said the sky is the limit)
- Field usable (and hand-held size) GC/MSD
- Good matching software that could match unknowns to a library std like we do with drug standards.
  Also to be able to id an ignitable to a company like they do with oil spills etc.
- 100% accuracy in identifying significant residues and excluding all backgorund interferences
- easily detectable taggants in flammable products
- Library Searchable Database
- manufacter identification markers in products.
- The ability to identify the source of ignitable used in a fire scene.
- SOFTWARE TO HELP INTERPRET TICS
- Pyrolysis library
- ability to distinguish source of individual compounds (acetone from decomposition or ignitable liquid?; nitrate form black powder or fertilizer?).
- Acess to a database of published research papers (similar to the FBI library- but more conprehensive) without having to pay for a membership or a particular artical.
- isotopes
- for explosives, portable instrumentation that could positively identified post blast explosive residue.
- DETECTION OF WHITE GAS
- More training opportunities
- Tagging of gasoline samples
- I am not sure
- low cost IMS instruments bought by Feds and distributed to agencies
- Being able to make a statistical comparison to compare how well two samples "match".
  Applying supercritical fluid extraction
  Ion Cyclotron MS for explosives.
  A single comrehensive analytical technique for conclusive ID of either organic or inorganic explosives (affordable technology)
- Addressing some of the beliefs that you can track ignitable liquids through a scene from your footwear, or dog.

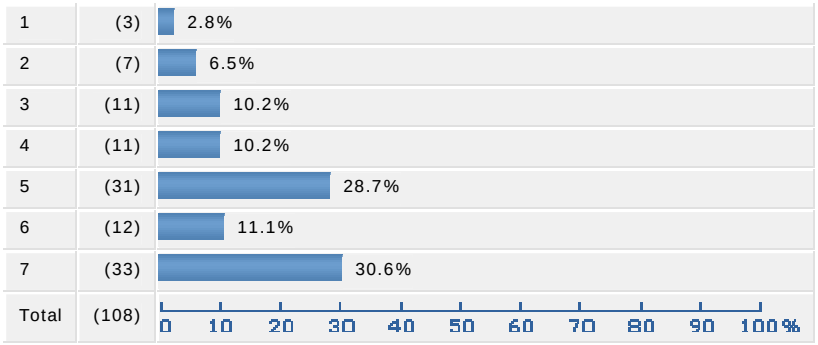
  Comparing fire debris samples and comparing to known gasoline sources to determine if it came from same container, supplier, vendor, service station etc.
- Portable analysis at the scene
- Portable (on-scene) GCMS
- Video documentation of the collection and analysis process to provide a jury with real-time information concerning the information and conditions that were available at the time of the collectyion and/or processing.
- A kit to conduct initial testing on scene.

- To identify if an starting fluid or similar flammable liquid was used to start a fire.
- Make the lab as capable as the dog.
- Matching a specific gasoline to a specific brand/gas station.
  Matching a specific sample at the scene to residue on clothing.
  Degree of decay of ignitable liquid - i.e., this residue was laid out x hours prior to collection.
- Perfected accelerant detectors with air proof seal evidence containers
- dna identification on containers, incendiary devices
- Inexpensive, indestructible, hand held analyzer, for the instantaneous fire scene identification of suspected ignitables and explosives, that was courtroom bullet-proof.
- If there was a way to better distinguish the specific types of agents present in the samples, to clear up confusion in court proceedings
- The field of fire debris analysis is settled! The techniques we have are sensitive enough and specific enough. If a lab can do E1412, E1386 and E1618, that is sufficient. Too much treasure is wasted on SPME, MSMS and other intereasting but forencsically useless techniques.
- Training in explosives, IED IID, and post blast evaluation
- A statisitcal probability in the identification of an ignitable liquid.
- on scene analysis
- Differentiation between natural turpentine residue in wood fire debris and turpentine as an accelerant/ignitable liquid.
- RSP of HME's or PBE's. Not spray misting but actual RSP methods.
- A reliable field unit that will give the investigator correct results quickly.
- I have no idea, the ISP lab never gets us what we need anyway.
- Portable equipment for on scene preliminary determinations
- ALS (Alternative Light Sources), Portable Carbon Counting Technologies that will indicate the approximate total burn time and temperature.
- hand-held mass spec or explosive analysis devices
- Portable/battery operated devices that are pre-calibrated and can be used at the scene.
- Process for positive identification of ignitable liquids that can be used in the field without laboratory analysis
- not enough knowledge to answer question
- Have a central labratory when submitting fire debris where an accelerant detection canine was utilized. As a handler I find it difficult when different agencies are utilizing different labratories. Even though there is a standard in place it is not always followed by different labratories.
- Field GC
- Use of alternate light sources to find where the residue is at the fire scene.
- low-cost and extremely reliable portable detection equipment able to identify/classify
- any
- GC-MS-MS
- safer solvents
- hand held instrument, court room acceptable, detection of results on scene, printable, documentable--- easy to zero out- documented- and free.
- more definative explinations of the liquids found within the samples, the ability to be able to track the ignitable liquid to it source such as seperate chemical markers added to each manufactures gasoline and hydrocarbon products

An answer to this question is not required and 352 of 407 respondents chose not to answer.

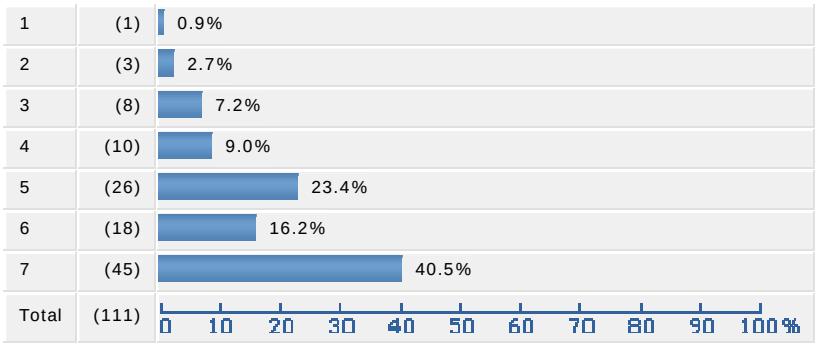
91) Rank the following research areas in terms of how likely you believe they will have a significant impact on ignitable liquid or explosive analysis? (1-7 where: 1 = not likely, 3 is possible, 5 is probable, and 7 is extremely likely)

91a) New Analytical Methods



An answer to this question is not required and 299 of 407 respondents chose not to answer.

91b) New and Improved Databases



An answer to this question is not required and 296 of 407 respondents chose not to answer.

91c) New Data Analysis Methodology

3	(17)	15.7%
4	(14)	13.0%
5	(30)	27.8%
6	(8)	7.4%
7	(35)	32.4%
Total	(108)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 299 of 407 respondents chose not to answer.

91d) New Standards

1	(4)	3.7%
2	(7)	6.5%
3	(19)	17.6%
4	(21)	19.4%
5	(26)	24.1%
6	(5)	4.6%
7	(26)	24.1%
Total	(108)	0 10 20 30 40 50 60 70 80 90 100%

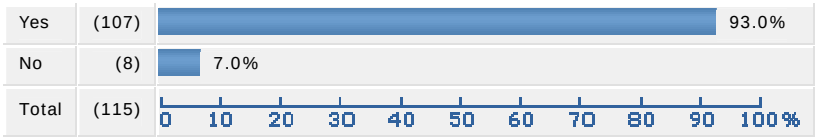
An answer to this question is not required and 299 of 407 respondents chose not to answer.

91e) Sample archiving practice/method

1	(5)	4.9%
2	(8)	7.8%
3	(17)	16.5%
4	(13)	12.6%
5	(20)	19.4%
6	(9)	8.7%
7	(31)	30.1%
Total	(103)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 304 of 407 respondents chose not to answer.

92) Is additional research required in the area of explosives disposal/disruption?



An answer to this question is not required and 292 of 407 respondents chose not to answer.

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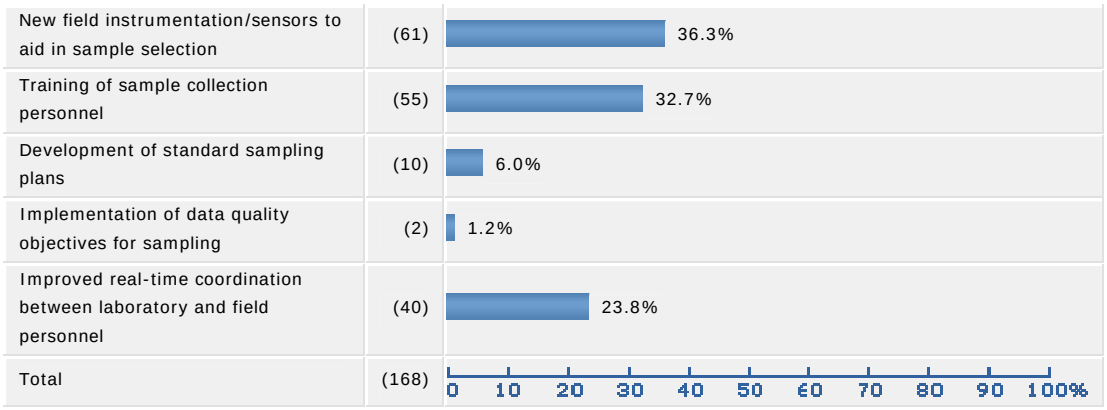
93) In your opinion, which of the following issues would provide the most significant improvement on the efficiency of useful sample collection at the fire and explosive scenes? (please select only one)



An answer to this question is not required and 239 of 407 respondents chose not to answer.

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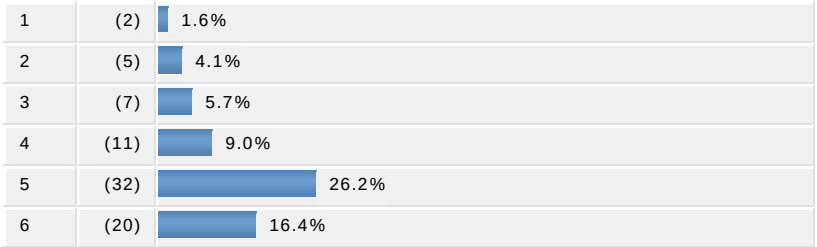
94) Please rank the importance of an analyst's knowledge of the fate and transport of explosives in the environment as related to forensic casework? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)



7	(45)	36.9%
Total	(122)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 285 of 407 respondents chose not to answer.

---

95) How important is it to push for lower detection limits in the laboratory analysis of explosives? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)

1	(2)	1.9%
2	(6)	5.6%
3	(10)	9.3%
4	(20)	18.7%
5	(28)	26.2%
6	(15)	14.0%
7	(26)	24.3%
Total	(107)	0 10 20 30 40 50 60 70 80 90 100%

An answer to this question is not required and 300 of 407 respondents chose not to answer.

---

96) In fifteen words or fewer, what is the biggest challenge that you face as a fire or explosion analyst?

- Turn-around time - useful data for the investigator to use in a timely manner
- Obtaining training and education at a professional level that is affordable for an agency with budget limitations.
- Detecting extremely low amounts of an ignitable liquid in a case and its likely-hood that it was intentionally used as an accelerant.
- Time
- lack of resources and training
- Cooperation and Communication between agencies
- Making sure appropriate comparison samples are collected at the scene
- not adequate training in analysis procedures
- Sample Identification
- Pyrolysis product interference
- need more training and equipment
- Determining what is found in the can. Whether we are looking at something that is placed there as an accelerant, or if that pattern is originating from the material itself, in the can.
- finding time to develop and maintain skills
- limited workers experienced to analyze cases.

- being able to postivel identified trace post blast residue
- Lack of funding for good equipment/training
- Striving for perfections to be 100% correct.
- Coordinating the case with the collecting agency.
- SAFETY, THE COLLECTION OF EVIDENCE, AND COOPERATION FROM THE LAB PEOPLE, EDUCATION OF PROSECUTORS
- Acquiring the latest Ignitable liquid standards
- Getting casework done in a timely way.
- Explaining why our comparison capabilities between two samples is not as exact as the DNA analysts
- Fighting the defense of "Didn't follow 921 to the letter so he/she is wrong."
- To be capable of interpreting the patterns and pin point the location of proper samples
- funding for research
- Gaining access to necessary traing for fire and EOD.
- Getting funding to properly man and equipt MAnpower with the right tools
- Court attacks from other fire investigators that are not applying NFPA 921 principles or practices.
- Proving our case after a public/state investigator has conducted an inadequate investigation prior to ours.
- The scene tampering of a municipality and the practices imposed to process a scene.
- Getting proper funding from the muncipal government
- Collaborating with fire investigators for expert analysis of fire debris for cause and origin determination
- Getting the cases into an over crowded court system and not plea deals.
- turn around time from evidence submittal until results of testing are returned.
- That you do not get to focused on what you see and hear
- personnel and time managmen
- Figuring out how the fire or explosion took place is the biggest.
- Court cases seem to be the biggest challenge. You can pay anyone to say anything these days. A standard for defense experts would be welcome.
- getting the scene secured, collecting the proper evidence.
- Use of NFPA 921 to defeat by technicality
- new legal issues
- Determining electrical cause or result of a fire.
- Lack of desire to be objective in collecting data.
- Getting to the scene as quickly as possible - cutting down on the time between the incident and the time the incident is assigned by claims personnel to investigator.
- Early access to the scene before evidence is destroyed
- being able to
- Dealing with hack fire investigators with no real scientific training.
- resources- budget, training, personnal
- getting the local politicians to take it serious
- Lawyers
- ELIMINATION OF CIGARETTES AS POSSIBLE IGNITION SOURCE
- Getting samples evaluated on a timely manor.
- Obtaining the correct location for a sample
- not enough training
- For peers to evaulate new research with an open mind.
- Higher national standards placed on bomb squads making it harder for smaller squads to keep up or survive.
- Getting the Department to support you even though there is are only a few call for service.

- positively identifiying TATP and other peroxide based explosives
- Getting non experts to listen and understand.
- As a fire analyst my biggest challenge is being able to respond timely to a fire scene
- The need to stay a head of the bomb makers and their capabilities to make HME.
- Lack of understanding by prosecutors what fire scene investigators do.
- safety
- Coordination between me in the private sector and those in the goverment or public sector. Standardization of my datapoints and those of the many different agencies.
- scene contamination before inv. arrival and proper collection techniques
- Obtaining data from samples that have not been contaminated by poor handling
- not enough training time or money
- The frequency of changes in standards and laws regarding how we collect samples.
- Investigators standpoint is the LABRATORY.
- The preservation and security of the scene until the Investigator arrives to the scene.
- Getting reports out before the next fire.
- AS A FULL TIME FIREFIGHTER, THE PROBLEM IS OVERTIME TO DO A THROUGH JOB
- Information sharing
- Keeping current with proper investigation methods
- Managing the time required to perform a thorough examination with the resources at hand
- Dealing with people and ORGANIZATIONS who do not understand this business, yet they feel as if they have some right to stick their nose into the business.
- Cost of the materials and training
- The abiolity to allocate of time to train.
- pip bomb explosion's
- Lack of sufficient manpower to sustain an operation.
- ever changing world of petrochemical formulations
- Having the right equipment to conduct the proper analysis

An answer to this question is not required and 325 of 407 respondents chose not to answer.

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97) What area(s) of your investigation analysis is(are) most frequently challenged in court? List up to 3 please.

97a) Area 1

- professional qualifications
- Quality of analysis
- Who put it there.
- In Service Training
- Significance of findings
- results

- Can you tell how long the ig liq has been there?
- origin of sample
- comparing similar ignitable liquids
- fire debris
- potential for contamination by investigators/analysts
- My Knowledge of NFPA 921
- GETTING PROSECUTOR TO TAKE A CHANCE
- COC
- RT and Mass spec of accumulated target compounds in GC/MS
- Methodology
- Determination
- Credibility
- Documentation
- CFI and CFEI Certifications
- Expertise
- Why isn't my scene analysis the same as municipality.
- Skill Set
- Knowledge
- Suspect identification
- Origin and cause
- training
- Conclusions
- possible sample contamination by the FD
- My lack of college degree
- Application of Codes & Standards
- evidence collection
- Credentials
- Cause determination
- sample identification on lab analysis sheet
- Bias for my client
- Voir Dire
- ELIOMINATION OF CIGARETTES AS IGNITION SOURCE
- testimoney
- Type of explosive
- evidence collection
- NFPA 921
- objectivity
- Very rarely challenged
- Chain of custody
- Origin opinion
- bomb scene investigation
- Motive
- Background
- Elimination of other potential causes
- Documentation

- How evidence is collected
- interpretation of results
- Contamination
- electrical faults
- Canine detection
- origin & cause classification
- Record keeping
- Investigation process
- cause
- collection
- methodology
- collection of evidence
- general sessions court
- chain of evidence
- Collection and Storage
- Expertise
- pyrolysis samples
- Intent

An answer to this question is not required and 338 of 407 respondents chose not to answer.

97b) Area 2

- documentation of evidence locations (where found)
- chain of custody
- Certifications
- Exclusion of interferences
- chain of custody
- relevancy of results
- quantifying ignitable liquids
- gunshot residue analysis
- could the IL "belong" on the substrate
- PUTTING SUSPECT AT THE SCENE
- Subjectivity of Pattern Interpretation
- Responsible party
- Report
- NFPA 921
- Education
- Accidental fires vs. arson fires
- Spoliation.
- Training
- technique

- suspect identification/invov
- guilt of the accused
- Methodology
- Area of Expertise
- report writing
- Sense of smell
- Evidence collection methods
- contamination/spoliation
- Personal qualifications
- evidence
- explosive potential of particular devices
- Methodology
- thoroughness
- contamination
- Cause opinion
- explosive knowledge
- Actual guilt of suspect
- method
- Specific item[s] involved
- My Background
- significance of pattern analysis
- alternative hypotheses
- Chain of custody
- Fire scene examination
- Investigator's creditability
- credentials
- area of origin
- chain of custody
- photograpgy
- TrainingExperience
- Source of IL
- Qualification - Explosive cases rarely go to trial

An answer to this question is not required and 356 of 407 respondents chose not to answer.

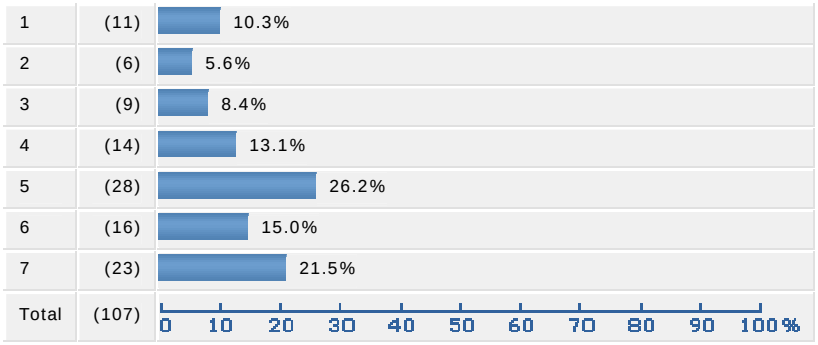
97c) Area 3

- opinion
- Evidence Submission/Packaging
- Contamination issues
- interpretation of results
- connecting lab results with the defendant

- explosives analysis
- why did the dog alert to the sample yet you called it negative?
- CONNECTION BETWEEN SUSPECT AND EVIDENCE
- Alternative Hypotheses
- LAb results
- Contract requirements
- Engineers.
- qualifications (very rare)
- Report Writing
- evidence storage
- Prosecutoers who are stupid
- Cause elimination
- expertise in field/accepted testing
- samples
- Experience
- training in explosives
- education
- determination of conclusion
- evidence
- initial on scene investigation

An answer to this question is not required and 382 of 407 respondents chose not to answer.

98) How significant are the Daubert/Frye standards when it comes to introducing a new methodology into your laboratory practice, and if this is an issue, can you suggest a method for overcoming the challenge? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)



An answer to this question is not required and 300 of 407 respondents chose not to answer.

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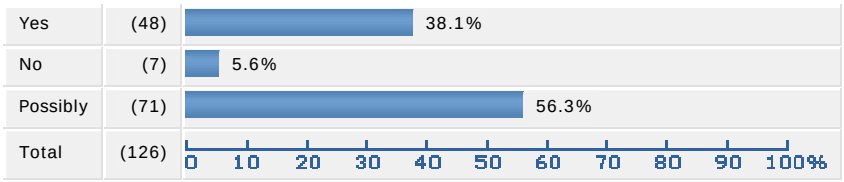
99) Would a "new practices" review panel comprised of academic and practicing forensic chemists facilitate the implementation of

new methodologies and their importance in court? (Yes, No, Possibly)



An answer to this question is not required and 281 of 407 respondents chose not to answer.

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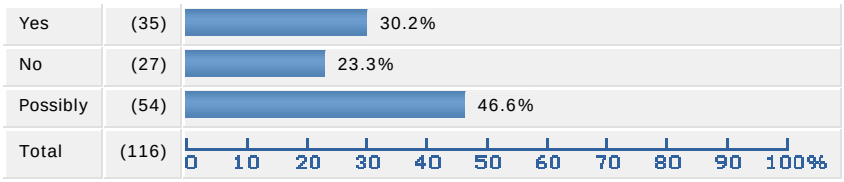
100) Are you or the analysts in your laboratory interested in collaborating with university researchers to provide an avenue for implementing new analytical and field methodologies? (Yes, No, Possibly)



An answer to this question is not required and 291 of 407 respondents chose not to answer.

Questionnaire

Because this survey is posted in a variety of locations, we ask that you fill and submit only one version. We also ask that you only complete answers to those questions that pertain to you. If a question does not pertain to the work you performed in 2006, please leave it blank.

1) **Part A. Demographics and General Questions**

Indicate the type of work you do and assign a percentage of time in that activity (if you perform in multiple areas please indicate):

Job Title / Percentage of Time

Fire Debris Analyst	-- Choose one --
Explosive Debris Analyst	-- Choose one --
Fire Scene Investigation	-- Choose one --
Explosives (Post Blast) Investigation	-- Choose one --
Supervisor/Administrator for either Laboratory Analyses or Scene Investigations	-- Choose one --
Academic/Teaching	-- Choose one --

2) Indicate the type of organization for which you work (check one):

-- Choose one --

3) List the number of all employees (including you) in your laboratory or unit involved in fire debris or explosives analysis, scene investigation, and/or reporting for each of the following categories:

Position / Number of Employees

Analyst /Scientist	
Lab. Supervisor/Manager	
Scene Investigator/EOD	
Scene/EOD Supervisor	

4) Years of Experience in this field / Number of employees

0-2	
2-5	
5-10	
10-15	
20-25	
25-30	

>30 ☐

5) List the number of all employees (including you) in your laboratory or unit involved in fire debris or explosives analysis, scene investigation, and/or reporting for each of the following categories:

Highest Education attained by each employee / Number of Employees:

High School	☐
2-3 year degree / diploma	☐
4 year BA or BS or BSc	☐
Master's degree	☐
PhD	☐

6) Indicate the number of times you testified in court in 2006

-- Choose one --

Part B. Professional Development (Check an answer only on those questions which apply to you)

7) Which, if any, of the following professional development activities will your laboratory or agency pay (in part or in full) for employees to attend (check all that apply):

- ☐ local/state/regional professional association meeting
- ☐ conference, seminar, or symposium held within the state/province
- ☐ conference, seminar, or symposium held outside the state/province
- ☐ conference, seminar, or symposium held outside home country
- ☐ seminar or course held off-site
- ☐ seminar or course held on-site
- ☐ classes held a local university
- ☐ on-line classes from an accredited university
- ☐ employer does not offer to pay for courses, seminars, or for conference/symposium attendance

8) On average, in 2006 what level of funding support did your agency provide for your continuing education/training/professional development? (This includes tuition, registration, travel, lodging, meals, and incidentals.)

-- Choose one --

9) Rate your level of interest (along the following scale) in attending college level courses if: (1-7 where: 1 = Never, 4 = Likely, 7 = Absolutely)

You had to pay 100% of the costs	-- Choose one --
You had to pay 75% of the costs	-- Choose one --
You had to pay 50% of the costs	-- Choose one --
You had to pay 25% of the costs	-- Choose one --
You had to pay 0% of the costs	-- Choose one --

10) Rate how interested you would be in taking each of the following types of continuing education courses: (1-7 where: 1 = Never, 4 = Likely, 7 = Absolutely)

- EOD Range Time (Training with EOD personnel) ☐
- Fire Scene Evidence Collection, Preservation, and Packaging ☐
- Explosives Scene Collection, Preservation, and Packaging ☐
- Fire Dynamics (including Chemistry and Physics) ☐
- Petroleum Refining Processes ☐
- Ignitable Liquid Classification System ☐
- Electrical circuitry and fire ☐
- Testifying as an Expert Witness ☐
- Explosives Manufacturing Processes ☐
- IED recognition and construction ☐
- Computer Fire Modeling ☐
- Gas Chromatography ☐
- Mass Spectral Interpretation ☐
- Raman Spectrosopy for Explosives ☐
- X-Ray Analysis Techniques (Diffraction, Fluorescence, Energy Dispersive) ☐
- Ion Chromatography ☐
- Capillary Electrophoresis ☐
- Fourier Transform Infrared Spectroscopy ☐
- Advanced Organic Chemistry for Fire Debris Analysis ☐
- Advanced Topics in the Chemistry of Organic Explosives ☐
- Advanced Topics in the Chemistry of Inorganic Explosives ☐
- Forensic Fire Scene Examination ☐
- Forensic Explosive Scene Examination ☐
- Communication and Cooperation between Investigators and Analysts in Fire Investigations ☐
- Communication and Cooperation between Investigators and Analysts in Explosion Investigation ☐

11) List a maximum of 3 other training / classes that you feel would be helpful to you in order to do your job better?

☐

12) Rank how important would each of the following resources be to you? (1-7 where: 1 = Not at all, 7 = Very Important)

- Comprehensive Listing of people working in the field (private and government) ☐
- Creation of a secure Internet link for E-mail and information exchange between professionals in the field of explosives and fire debris analysis ☐
- Establishment of a collection of sample laboratory reports ☐
- Creation of a glossary of analytical, explosives, and fire debris-related technology ☐
- Creation of information templates for evidence submission ☐

Establishment of a collection of methods and protocols for analytical techniques

Establishment of databases of reference materials for analytical techniques

Creation of a national database for tracking bombing matters

Creation of a national database for tracking arson matters

Establishment of a national resource database (for lab equipment, expertise, etc.)

Establishment of a national explosives formulation database

Creation of a bulletin board for communication between explosives analysts

Creation of a bulletin board for communication between fire debris

Creation of an library of manufacturers' literature

Database of explosives analyst training manuals and materials

Information center for inter-agency training exercises

13) Are you given time and resources to perform research in your field(s)?

- Yes
- No

14) If so, approximately how many hours in 2006?

Fire debris analysis

Explosives Analysis

Fire Scenes

Explosive Scenes

15) Rate each of the following statements as they apply to your laboratory or to you using the scale given below: (1-7 where: 1 = Not at all, 7 = Very)

How sufficient are the explosives and fire debris publications provided by your laboratory?

How interested would your laboratory be in receiving a library of ignitable liquid standards on a regular basis?

How interested would your laboratory be in receiving a library of pyrolysis standards on a regular basis?

How important do you feel it would be to have national standards for report writing?

How important would it be to have a specific protocol for wording of both positive and negative samples?

How important would it be to have a national database for chromatographic data for ignitable liquids?

How important would it be to have a national source for ignitable liquid standards?

How interested are you in participating in the fire and explosives debris analysis technical working group?

Part C. Fire Debris Analysis Case Work (Check an answer only on those questions which apply to you)

Indicate the total number of fire debris samples analyzed/processed in 2006 by all the analysts within your agency (check one): -- Choose one --

Indicate the total number of ignitable liquid samples analyzed/processed in 2006 by all the analysts within your agency (check one): -- Choose one --

Part D. Fire Debris Analytical Methods (Check an answer only on those questions which apply to you)

17) Extraction method routinely used for fire debris analysis (check one):

- [ ] activated charcoal (passive headspace sampling - includes strips, “tea bags”, wires, and ribbons)
- [ ] activated charcoal (dynamic headspace sampling)
- [ ] TENAX (passive or dynamic headspace sampling)
- [ ] SPME (please indicate the phase used):
- [ ] Other absorbent:

If you checked *"SPME"* (Please indicate the phase used here):

If you checked *"Other* absorbent" above, (please specify which one used here):

18) Indicate which eluting solvent used for extracts from fire debris:

- [ ] no eluting solvent used (e.g. thermal desorption or SPME)
- [ ] carbon disulfide (CS2)
- [ ] dichloromethane (CH2Cl2)
- [ ] diethyl ether
- [ ] pentane
- [ ] Other (specify):

If you checked *"Other"* above (please specify which one was used here):

19) Internal standard routinely added to fire debris?

- ○ Yes
- ○ No

If "Yes", (please specify which compound(s) used):

20) Internal standard routinely added to eluting solvent (if solvent used to elute absorbent)?

- ○ Yes
- ○ No

If "Yes", (please specify which compound(s) used):

21) For Instrumentation used in fire debris and/or ignitable liquid analysis, how often do you use each of the following analytical techniques? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

GC-FID

GC-MS

GC-MS-MS

FTIR

GC-FTIR

other: (specify)

If you checked "Other", (please specify which technique(s) used):

22) Sample introduction to GC

(check one): -- Choose one --

If you checked "*SPME"* above, (please specify phase used):

If you checked "*Other"* above, (please specify which was used):

23) Type of column phase routinely used for GC separation (check all that apply):

- ☐ 100% polydimethylsiloxane (e.g. DB-1, DB-1ms, HPMS-1, OV-1, Rtx-1, DB-PETRO, etc.)
- ☐ (5% phenyl)-methylpolysiloxane (e.g. DB-5, DB-5ms, HPMS-5, OV-5, Rtx-5, etc.)
- ☐ (14%-Cyanopropyl-phenyl)-methylpolysiloxane (e.g. DB-1701, SPB-1701, Rtx-1701, etc.)
- ☐ polyethylene glycol (e.g. DB-WAX, Carbowax, HP-20M, Supelcowax 10, HP-Innowax, etc.)
- ☐ other: (specify)

If you checked "*Other"* above, (please specify column phase used):

24) For fire debris analyses, how often do you use the following QA/QC tests? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

ASTM 1387 test mix or similar mixture

Internal Standards (e.g., 3-phenyltoluene)

Solvent Blanks

Apparatus Blanks (e.g., strips, glassware)

Recovery Checks (e.g., simulated case extractions

Peer Review

Other: (specify)

If you checked "Other" above, (please specify QA/QC tests used):

25) If you adhere to the following ASTM standards and guides, please indicate how closely you follow them? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

ASTM-E 1387-01 (Standard Test Method for Ignitable Liquid Residues in Extracts from Fire Debris Samples by Gas Chromatography)

ASTM-E 1618-06 (Standard Test Method for Ignitable Liquid Extracts by Gas Chromatography – Mass Spectrometry)

ASTM-E 1385-00 (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Steam Distillation)

ASTM-E 1412-00(2005) (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Passive Headspace Concentration)

ASTM-E 1413-06 (Standard Practice for Separation and Concentration of Liquid Residues from Fire Debris Samples by Dynamic Headspace Concentration)

ASTM-E 1388-05 (Standard Practice for Sampling of Vapors from Fire Debris Samples)

ASTM-E 1386-00(2005) (Standard Practice for Separation and Concentration of Ignitable Liquid Residues from Fire Debris Samples by Solvent Extraction)

ASTM-E 1492-05 (Standard Practice for Receiving, Documenting, Storing and Retrieving Evidence in a Forensic Science Laboratory)

ASTM-E 1459-92(2005) (Physical Evidence Labeling and Related Documentation)

26) Are you aware of new equipment or techniques on the market or in development that could be potentially of use in fire debris analysis? These may be in the extraction, analysis, instrumentation, or interpretation of fire debris and ignitable

liquids. Please indicate the type of potential improvement such as: reduction of analysis time, elimination of background, specificity of identification, etc…?

- Yes
- No

Description and/or Contact

27) What are the short-term needs in analytical methods for fire debris analysis?

28) What are the long-term needs in analytical methods for fire debris analysis?

Part E. Fire Debris Data Interpretation (Check an answer only on those questions which apply to you)

29) How often do you use an in-house ignitable liquid reference collection in case work?

-- Choose one --

30) How often have you used the on-line Ignitable Liquid Reference Collection (ILRC) in case work? (See http://ncfs.ucf.edu/databases.html for more information about this database)

-- Choose one --

31) How does your laboratory routinely identify an ignitable liquid in fire debris (check one):

-- Choose one --

If you checked "Other" above please specify how your laboratory would identify an ignitable liquid:

32) Rate the importance of the following courses as part of the education of fire debris analysts. (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

- General chemistry
- Advanced organic chemistry
- Inorganic chemistry
- Introductory physics
- Instrumental analysis
- Organic chemistry
- Analytical chemistry
- Advanced physics
- Physical chemistry
- Advanced physics
- Advanced mathematics
- Other:
- (if other please indicate course names here):

Part F. Explosives Analysis Case Work (Check an answer only on those questions which apply to you)

Please indicate which, if any, of the following explosives analytical laboratory procedures your agency performed (items 34 through 41) and the number of times they were performed items 42 through 49) in 2006:

Analytical Procedure (Yes/No)

33) Intact Low Explosives

- Yes
- No

34) Intact High Explosives

- Yes
- No

35) Intact IED's

- Yes
- No

36) Post-Blast Low Explosives

- Yes
- No

37) Post Blast High Explosives

- Yes
- No

38) Post Blast IED's

- Yes
- No

39) Intact Incendiary Device

- Yes
- No

40) Post-Reaction incendiary

- Yes
- No

41) Intact Low Explosives

-- Choose one --

42) Intact High Explosives

-- Choose one --

43) Intact IED's

-- Choose one --

44) Post-Blast Low

-- Choose one --

45) Post Blast High

-- Choose one --

46) Post Blast IED's

-- Choose one --

47) Intact Incendiary Device

-- Choose one --

48) Post-Reaction incendiary

-- Choose one --

Part G. Explosives Analytical Methods (Check an answer only on those questions which apply to you)

49) In explosives analyses, how often do you use each of the following analytical techniques? (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

- Microchemical analysis using PLM
- Spot tests
- Ignition analysis
- Microchemical analysis using stereomicroscopy
- TLC
- Field explosives screening
- IR
- Raman spectroscopy
- SEM-EDX
- ICP
- XRF
- GC/MS
- GC/FID
- CE
- HPLC
- HPLC/TEA
- FTIR
- NMR
- SEM-WDX
- IMS
- XRD
- GC/TEA
- GC/ECD

IC

HPLC/MS

Other:

(please indicate):

50) Are you aware of new equipment or techniques on the market or in development that could be potentially of use in explosives analysis? These improvements may be in analytical instrumentation, recovery of post-explosion residue, isolation of un-reacted products, component reconstruction, etc… Please indicate the type of potential improvement such as: reduction of analysis time, elimination of background, specificity of identification, etc…?

- Yes
- No

Description and/or Contact

51) What are the short-term needs in analytical methods for explosives analysis?

52) What are the long-term needs in analytical methods for explosives analysis?

53) For explosives/explosives residue analysis, how often do you see the following QA/QC tests: (1-7 where: 1 = Never, 2 = Rare, 5 = Often, 7 = Exclusive)

8095 Calibration Mix A

8095 Calibration Mix B

Smokeless Powder (or similar) mixture

Internal Standard

(please indicate):

Solvent Blank

Peer Review

Other:

(please indicate):

Part H. Explosives Data Interpretation (Check an answer only on those questions which apply to you)

54) How often do you use an in-house explosives reference collection in case work?

-- Choose one --

55) Would you use an on-line explosives data (morphological descriptions, microphotographs, IR, MS, etc…) in case work?

-- Choose one --

56) Rate the importance of the following courses as part of the education of explosives analysts. (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

General Chemistry

Advanced organic chemistry

Inorganic chemistry

Introductory physics

Advanced physics

Advanced mathematics

Intro. to explosives

Combustion explosions

Organic chemistry

Analytical chemistry

Physical chemistry

Instrumental analysis

Chemical analysis of explosives

The chemistry of pyrotechnics

Explosives analysis

Other:

(please indicate):

57) Rate training or course work in the following areas for explosives analysts? (1-7 where: 1 = Not Important, 4 = Moderate, 7 = Extremely)

History of Explosives

Terminology and vocabulary of explosives

Composition of low explosive materials

Construction of commercial pyrotechnic devices

Construction of military devices (e.g. simulators, rockets, hand grenades)

Range procedures

Peroxide Based Explosives

Manufacturing of explosives

Composition of high explosive materials

Construction of improvised devices

Analytical examination of high and low explosive materials and residues

Recognition of improvised device components

Other:

(please indicate):

Part I Fire Scene Specialists (Check an answer only on those questions which apply to you)

58) Indicate the number of fire scenes processed in 2006 by all of the investigators at your physical location (check one):

-- Choose one --

59) Have you had formal training in the investigation of fire scenes?

Yes

No

Rate the importance of formal training in the investigation of fire scenes: (1-7 with 1 = Not at all, and 7 = Very)

-- Choose one -

-

60) What type of containers do you use in submitting fire debris to a laboratory for ignitable liquid determination?

Container / Percent of Time

Clean Unused Paint Cans

Glass Jars/Vials

Nylon Bags

Other:

If you checked *"Other"* above, (please specify what you would use here):

61) What type of equipment is essential to help you process fire scenes?

62) What type of equipment is desirable to help you process fire scenes?

Does your agency have, or have access to, an accelerant (hydrocarbon) detection canine team to assist in investigations? -- Choose one --

If yes, what percentage of the investigations would utilize such a team? -- Choose one --

Does your agency have, or have access to, a portable electronic "sniffing" device to assist investigations? -- Choose one --

If yes, what percentage of the investigations would utilize such a device? -- Choose one --

63) Does your agency have a specific criteria used calling out the services of an accelerant (hydrocarbon) detection canine team?

- Yes
- No

If "Yes", (please briefly describe the criteria used here):

64) Does your agency officially track the usage of accelerant (hydrocarbon) detection canine team in each investigation?

- Yes
- No

65) Does your agency officially track the track positive/negative hit rate of accelerant (hydrocarbon) detection canine team in each investigation in which a team is used?

- Yes
- No

66) Do your fire/explosion scene investigators have access to laboratory tests other than fire debris/ignitable liquid analysis (e.g. flame spread testing, identification of unknown materials in debris, fire modeling, etc.)?

- Yes
- No

67) Do you think that you would benefit from having access to a national and/or international data base of certified accelerant (hydrocarbon) detection canine teams?

Yes

No

68) Does your agency have ready access to a fire debris analyst/scientist for consultation either with you at the fire scene or by telephone or Internet?

Yes

No

If Yes, how often was their expertise called upon while you were processing fire scene in 2006? -- Choose one --

69) If No, would you want to have access to this type of expertise to assist you with your investigation?

Yes

No

Rate the importance of having a fire debris analyst/scientist available for consultation while you are processing a scene. (1-7 where: 1 = Not at all, 7 = Very) -- Choose one --

Part J. Explosive Scene Specialists (Check an answer only on those questions which apply to you)

70) Indicate the number of explosive scenes analyzed/processed by all of the investigators at your physical location (check one):

-- Choose one --

71) Have you had formal training in the investigation of bombing crime scenes?

Yes

No

72) How important is formal training in the investigation of bombing crime scenes?
(1-7 where: 1 = Not at all, 7 = Very)

-- Choose one --

73) What types of containers do you use in submitting explosion debris to a laboratory for examination?

Container / Percent of Time	
Clean Unused Paint Can	-- Choose one --
Glass Jars / Vials	-- Choose one --
Nylon Bags	-- Choose one --
Other	-- Choose one --

If you checked *"Other"* above, (please specify what container you used here):

74) What type of equipment is essential to help you process bombing scenes:

75) What type of equipment is desirable to help you process bombing scenes:

76) Do you currently utilize the equipment you listed?

- Yes
- No

77) Are there other types of training/classes that you feel would be helpful to you in order to do your job?

78) Does your agency have, or have access to an explosives detection canine team to assist in investigations?

-- Choose one --

79) If yes, what percentage of the investigations would utilize such a team?

-- Choose one --

80) Does your agency have a specific criteria used calling out the services of an explosive detection canine team?

- Yes
- No

If "Yes", (please briefly describe the criteria used here):

81) Does your agency officially track the usage of explosive detection canine team in each investigation?

- Yes
- No

82) Does your agency officially track the track positive/negative hit rate of explosive detection canine team in each investigation in which a team is used?

- Yes
- No

83) Do you think that you would benefit from having access to a national and/or international data base of certified explosive detection canine teams?

- Yes
- No

84) Does your agency have ready access to an explosives analyst/scientist for consultation either with you at the bombing scene or by telephone or Internet?

- Yes
- No

85) If Yes, how often was their expertise called upon while you were processing bombing scenes in 2006?

-- Choose one --

86) If No, would you want to have access to this type of expertise to assist you with your investigation?

- Yes
- No

87) Rate the importance of having an explosives analyst/scientist available for consultation while you are processing a scene: (1-7 where: 1 = Not at all, 7 = Very)

-- Choose one --

88) In 2006 how often did you respond to scenes which contained the following:

Intact Explosives	-- Choose one --
Intact IED	-- Choose one --
Post Blast Explosives	-- Choose one --
Post Blast IED	-- Choose one --
Intact Incendiary Device	-- Choose one --
Post Reaction Incendiary Device	-- Choose one --

89) In 2006, of the scenes in which it was necessary to "render safe" a device, please indicate the method and times employed:

Hands on	-- Choose one --
Remote Cutter	-- Choose one --
Disrupter	-- Choose one --
Other	-- Choose one --
If you checked *"Other"* above, (please specify what container you used here):	

Part K. Laboratory Research Needs (Check an answer only on those questions which apply to you)

90) What major breakthrough in the area of ignitable liquid or explosives analysis would have the most impact on the area of forensic science? (Think big the sky is the limit)

91) Rank the following research areas in terms of how likely you believe they will have a significant impact on ignitable liquid or explosive analysis? (1-7 where: 1 = not likely, 3 is possible, 5 is probable, and 7 is extremely likely)

New Analytical Methods	-- Choose one --
New and Improved Databases	-- Choose one --
New Data Analysis Methodology	-- Choose one --
New Standards	-- Choose one --
Sample archiving practice/method	-- Choose one --

92) Is additional research required in the area of explosives disposal/disruption?

- Yes
- No

93) In your opinion, which of the following issues would provide the most significant improvement on the efficiency of useful sample collection at the fire and explosive scenes? (please select only one)

-- Choose one --

94) Please rank the importance of an analyst's knowledge of the fate and transport of explosives in the environment as related to forensic casework? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)

-- Choose one --

95) How important is it to push for lower detection limits in the laboratory analysis of explosives? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)

-- Choose one --

96) In fifteen words or fewer, what is the biggest challenge that you face as a fire or explosion analyst?

97) What area(s) of your investigation analysis is(are) most frequently challenged in court? List up to 3 please.

Area 1

Area 2

Area 3

98) How significant are the Daubert/Frye standards when it comes to introducing a new methodology into your laboratory practice, and if this is an issue, can you suggest a method for overcoming the challenge? (1-7 where: 1 is not at all, 3 is fairly important, 5 is very important, 7 is urgent)

-- Choose one --

99) Would a "new practices" review panel comprised of academic and practicing forensic chemists facilitate the implementation of new methodologies and their importance in court? (Yes, No, Possibly)

-- Choose one --

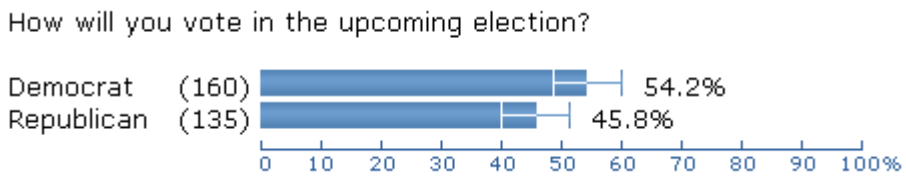
100) Are you or the analysts in your laboratory interested in collaborating with university researchers to provide an avenue for implementing new analytical and field methodologies? (Yes, No, Possibly)

-- Choose one --

Notes

Bar Graph Confidence Intervals:

The bar graphs presented in the Results Analysis section include 95% confidence intervals to illustrate the degree of precision available in your results. For example, in the following graph 54.2% (160/295) of the respondents indicated they will vote Democrat vs. 45.8% (135/295) Republican.



However, because the survey is based on the results of only 295 respondents, the actual percent of people who will vote Democrat could be somewhat higher or lower than 54.2%. Confidence intervals tell you how much higher or lower the percent could be. The I-bar show and the tip of each bar illustrates the spread between the lowest and highest value you are likely to see if you were to survey the entire population. In the example above, you can be 95% certain that the actual percent of people who will vote Democrat will be between 48% and 60%. Furthermore, somewhere between 40% and 52% of people will vote Republican. As you increase the number of respondents the range of uncertainty shrinks.

Confidence:

Each bar graph group is followed by the text "Confidence:" and a percentage. This number is the largest confidence interval found on any of the bars in the group and can be used as a summary measure of precision. The more precise, non-symmetrical confidence intervals are illustrated separately on each bar.

Average Score:

Some bar graph groups are followed by the text "Average Score:" and a number that represents the weighted average of all options chosen by the respondents. For example, if you asked respondents to rate their satisfaction on a scale including *Very satisfied, Satisfied, Neutral, Dissatisfied*, and *Very dissatisfied* and half responded *Very satisfied* and half responded *Satisfied*, the average score would be 1.5--half chose the first option (score=1) and half chose the second option (score=2), so the average score is 1.5.

Correlation:

The answers to two questions are correlated when they tend to move together. For example, if you ask respondents to rate their overall satisfaction with your company and also ask if they are likely to purchase from your company again, the answers to these questions will probably show a strong correlation. That is, when satisfaction is high, the likelihood of repeat purchase is high. This is a positive correlation. Some question pairs have negative correlation. For example, the time a person spends on hold when calling for support usually has a negative correlation with overall satisfaction. Correlation is presented as a number from -1 to 1 where -1 is perfect negative correlation, 0 is no correlation, and 1 is perfect positive correlation.

When a statistically significant correlation between the answers of any two questions is found the report will include a note highlighting the correlation. This information can be used to gain insight into what factors drive key measures such as overall satisfaction.

A-LIST COURSES

PROVIDER	
TEXAS COMMISSION ON FIRE PROTECTION COURSES	**COURSE #**
Note: TCFP courses require completion of state exam to receive credit	
Aircraft Rescue Fire Fighter	N/A
Driver Operator-Pumper	N/A
Fire Fighter I (component of Basic Structure certification)	N/A
Fire Fighter II (component of Basic Structure certification)	N/A
Fire Inspector I (component of Basic Inspector certification)	N/A
Fire Inspector II (component of Basic Inspector certification)	N/A
Fire Investigator	N/A
Fire Officer I	N/A
Fire Officer II	N/A
Hazardous Materials Technician	N/A
Instructor I (course completed after March 1, 2006)	N/A
Instructor II	N/A
Instructor III	N/A
NATIONAL FIRE ACADEMY COURSES	**COURSE #**
Advanced Analysis for Decision Making	R493
Advanced Fire Safety (Management/Administration of Public Fire Education)	R341
Advanced Incident Command (also Incident Command II)	R304
Advanced Leadership Issues in EMS	R151
Advanced Life Support Response to Hazardous Materials Incidents	R247 OR N247
Advanced Safety Operations and Management	R154 OR N822
All-Hazards Incident Management Team Training	(unk)
Analysis of Arson Management	R213
Applied Research Project (off-campus project, part of Executive Fire Officer Course)	N/A
Arson Detection	R200
Challenges for Local Training Officers	N815
Chemistry for Emergency Response	R233 or N233
Chemistry of Haz. Mat. - Instructor's Program, Level I	R239
Chemistry of Hazardous Materials (also Hazardous Materials I)	R234
Code Management: A Systems Approach	R101
Command and Control Decision Making at Multiple Alarm Incidents	R297
Command and Control of Fire Department Operations at Target Hazards	R314 or N825
Command and Control of Fire Department Operations at Multi-Alarm Incidents	R304
(also Command and Control of Fire Department Operations)	xxx
Command and Control of Fire Department Operations at Natural and Man-made Disasters	R308
(also Command and Control … at Catastrophic Disasters)	xxx
(also Command and Control … at Earthquakes and Catastrophic Disasters)	xxx
Command and Control of Incident Operations	R312 or N831
Community Education Leadership	R353
Community Fire Protection: Master Planning	(unk)
Developing Fire and Life Safety Strategies	R362
Discovering the Road to High Risk Audiences	R359

A-LIST COURSES

Emergency Medical Services: Special Operations	R152 or N152
Emergency Medical Services: Management of Community Health Risks	R149 or N149
Emergency Medical Services-Administration for Volunteers	U153
Emergency Response to Terrorism - Incident Management	R817
Emergency Response to Terrorism: Adv Tactical Consequence Mgmt	(unk)
Evaluating Performance Based Designs	R108 or N108
Executive Analysis of Community Risk Reduction	R274
Executive Analysis of Fire Service Operations in Emergency Management	R306
(also Strategic Analysis of Fire Department Operations)	xxx
Executive Development (Senior Executive Development/Fire Executive Development III)	R123
Executive Leadership (also Strategic Analysis of Executive Leadership)	R125
Executive Planning (Executive Information Planning)	R506
Fire and Emergency Services Pre-Disaster Long Term Recovery Planning	R526 or N526
Fire Arson Investigation (Arson Investigation)	R205
Fire/Arson Origin and Cause Investigations	R206
Fire Cause Determination for Company Officers	R811 or N811
Fire Command Operations	R801
Fire Dynamics-Fire Modeling	R203
Fire Inspection Principles (also Fire Prevention Specialist I)	R220 or N220
Fire Prevention Specialist II (also Fundamentals of Fire Prevention II)	R222
Fire Protection for the Built Environment	R135 or N135
Fire Protection Systems for Emergency Operations	R227 or N227
Fire Service Communications	R107
(also Executive Development II/Leadership and Communications)	xxx
(also Fire Service Leadership Communications)	xxx
Fire Service Course Design (also Fire Service Course Development)	R129
Fire Service Financial Management	R333
Fire Service Information Management	R502
Fire Service Instructional Methodology (also Educational Methodology)	R113
Fire Service Organizational Theory	R331
(also Executive Development II: Middle Management I	xxx
(also Executive Development for Middle Management)	xxx
Fire Service Planning Concepts for the 21st Century	R802 or N808
Forensic Evidence Collection	R214
Hazardous Materials II	(unk)
Hazardous Materials Incident Management	R243 or N814
Hazardous Materials Operating Site Practices	R229 or N229
Hazardous Materials Operating Site Practices--Instructor's Program	R404
Hazardous Materials Tactical Considerations	R235
Hazardous Substance Specialist (also Hazardous Materials Substance Specialist)	R237
Interpersonal Dynamics in Fire Service Organizations	R332
(also Executive Development for Middle Management II)	xxx
Interviewing - Interrogation Techniques and Courtroom Testimony	R208
Introduction to Fire Safety Education	R115
Juvenile Firesetter Intervention Specialist I and II Leadership	R628
Leadership and Incident Command/Communications Course (also Incident Command I)	R301
Leading Community Risk Reduction	R280

A-LIST COURSES

Management for Arson Prevention and Control	R207
Management of Emergency Medical Services	R150
(also Management of Emergency Medical Services for the Fire Service)	xxx
Management of Fire Prevention Programs	R225
Management Strategies for Success	R824
Managing the Code Process (also Codes and Ordinances)	R101
National Fire Incident Reporting System Program *(Resident course-not online)*	R499
Organization and Use of Instructional Materials	(unk)
Organizational Theory in Practice	R331
Partnering for Fire Defense and Emergency Services Planning	R508 or N508
Planning for a Hazardous Materials Incident (also Hazardous Materials III)	R236
Plans Review for Inspectors (also Overview of Plans Review for Inspectors)	R102
Presenting Effective Public Education Programs	R116 or N826
Prevention Solutions for Small Departments and Communities	R823
Principles of Fire Protection: Structures and Systems	R222
Public Fire Education Specialist (also Public Information)	R340
Rescue Systems 1	(unk)
Strategic Analysis of Community Risk Reduction	R309
(also Strategic Analysis of Fire Prevention Programs)	xxx
Strategic Analysis of Fire Department Operations	R306
Strategic Management of Change	R130
Strategies for Community Risk Reduction	R274
Training Program Management	(R342)
Use of Microcomputers for Fire Service Management	R500
VIP: Leadership and Administration	R810
Wildland/Urban Interface Fire Protection: A National Problem with Local Solutions	R600
TEEX COURSES	**COURSE #**
Advanced Structural Collapse 3	TNG25S
Advanced Structural Collapse 4	TNG26S
Advanced Structural Collapse 5	TNG27S
Collapse Rescue Operations (also Structural Collapse Technician 1)	TNG23R
Disaster Medical Specialist	TNG30S
Disaster Technical Search Specialist	TNG11S
Hazardous Materials Transportation Specialist Training	HAZ029
Structural Collapse Technician I (also now called Collapse Rescue Operations)	TNG23O
Structural Collapse Technician 2	TNG23T
Trench Rescue Technician	RES020
OTHER PROVIDERS (provider in parentheses)	**COURSE #**
Confined Space Resuce (Tarrant County College)	FPTA-1000
Hazardous Device School (U.S. Army)	N/A
NIMS Train the Trainer (GDEM)	G-449
Rope Rescue (Tarrant County College)	FPTA-1002
Swiftwater Technician (Tarrant County College)	FIRS-1091

A-LIST COURSES

Technical Rope Rescue: Technician Level (Rescue 3 International)	TRR:TL
Trench Rescue (Tarrant County College)	FIRS-1091
Vehicle and Machinery Rescue (Tarrant County College)	FPTA-1004

B-LIST COURSES

PROVIDER	
TEXAS COMMISION OF FIRE PROTECTION COURSES	**COURSE #**
Note: TCFP courses require completion of state exam to receive credit	
Hazardous Materials Awareness (component of Basic Structure certification)	N/A
Hazardous Materials Operations (component of Basic Structure certification)	N/A
Instructor I (course completed before March 1, 2006)	N/A
Plans Examiner I (component of Basic Inspector certification)	N/A
NATIONAL FIRE ACADEMY COURSES	**COURSE #**
A Comprehensive Fire Protection Approach for Commercial Occupancies	F355 or W355
Alternative Water Supply: Planning and Implementing Programs (online course)	Q217
Arson Detection for 1st Responders	F201
Basic Life Support and Hazardous Materials Response	F246 or R246
Bldg Construction for Fire Suppr. Forces: Non combustible/Fire Resistive Construction	F150 or W150
Bldg Construction for Fire Suppr. Forces: Principles, Wood/Ordinary Construction	F100 or W100
Command/Control of Wildland/Urban Interface Operations for the Structural Chief Officer	F612 or W612
Commanding the Initial Response	F240
Community Fire Defenses: Challenges and Solutions	F800
Community Risk Issues and Prevention Intervention	F347 or W347
Community Risk Issues and Prevention Interception	(unk)
Community Safety Educators (online course)	Q118
Command and Control Simulation Series I: Ranch House (online course)	Q324
Command and Control Simulation Series I: Town House (online course)	Q325
Command and Control Simulation Series I: Strip Mall Hostage/Arson Fire (online course)	Q328
Command and Control Simulation Series I: Casper Hall Dorm (online course)	Q327
Command and Control Simulation Series I: Mansion (Q326) (online course)	Q326
Command and Control Simulation Series I: Nursing Home (online course)	Q424
Conducting Basic Fire Prevention Inspections (Replaced in 1995)	(unk)
Cooperative Leadership Issues in Wildland/Urban Interface Operations	F613 or W613
Courtroom Preparation and Testimony for First Responders	F209 or W209
Emergency Medical Service and Administration: An Overview	F500
Emergency Response to Terrorism: Strategic and Tactical Considerations for Supervisors	F549 or W549
Emergency Response to Terrorism: Strategic Considerations for Company Officers	F555 or W555
Emergency Response to Terrorism: Tactical Considerations for Company Officers	(unk)
Emergency Response to Terrorism: Tactical Considerations for EMS	(unk)
Emergency Response to Terrorism: Tactical Considerations: Hazardous Materials	F553
Emergency Response to Terrorism: Basic Concepts	H531
Emergency Response to Terrorism (online course)	Q534
Executive Skills Series - Leading Diverse Communities beyond Conflict	F516 or W516
Executive Skills Series: Influencing	F518 or W518
Executive Skills Series: Managing and Leading Change	F517 or W517
Fire Behavior in a Single Family Occupancy	F356 or W356
Fire Modeling	F357 or W357
Fire Prevention for 1st Responders and Small Departments	F271 or W271
Fire Prevention for High-Risk Populations: Age and Disability Factors	F275 or W275

B-LIST COURSES

Fire Risk Analysis: A Systems Approach	F200
Fire Service Management	(unk)
Fire Service Supervision: Increasing Personal Effectiveness	F310 or W310
Fire Service Supervision: Increasing Team Effectiveness	F320 or W320
Fire Service Supervision (online course)	Q318
Firefighter Health and Safety: Program Implementation and Management	(unk)
Firefighter Safety and Survival: Company Officer's Responsibility	F125
Hazardous Materials Incident Analysis	F410
Hazardous Materials: The Pesticide Challenge	(unk)
Health and Safety Officer	F730 or W370
Incident Command System	(unk)
Incident Command System for Structural Collapse Incidents	F322 or W322
Incident Command Systems for EMS	F160
Incident Command Systems for High-rise Operations	F321
Incident Safety Officer	F729 or W729
Infection Control for Emerg Response Personnel: Supervisor's Role & Responsibility	W250
Initial Company Tactical Operations	F175
Initial Fire Investigation	N216 or R216
Initial Response to Hazardous Materials Incidents: Basic Concepts	F809 or W809
Initial Response to Hazardous Materials Incidents: Concept Implementation	F808 or w808
Instructional Techniques for Company Officers	(unk)
Interface Fire Operations for Structural Chief Officers	(unk)
Introduction to Fire Inspection Principles and Practices	(unk)
Intro to Wildland/Urban Interface FF for the Structural Company Officer	W610
Intro to Unified Command for Multi-Agency and Catastrophic Incidents	W315
Juvenile Firesetter Intervention Specialist I	F626 or W626
Juvenile Firesetter Intervention Specialist II	F627 or W627
Leadership I: Strategies for Company Success	F803 or W803
Leadership II: Strategies for Personal Success	F804 or W804
Leadership III: Strategies for Supervisory Success	F805 or W805
Managing Company Tactical Operations: Decision Making	F450 or W450
Managing Company Tactical Operations: Preparation	F375 or W375
Managing Company Tactical Operations: Simulation	(unk)
Managing Company Tactical Operations: Tactics	F451 or W451
Managing in a Changing Environment	F604 or W604
Methods of Enhancing Safety Education	F344 or W344
National Fire Incident Reporting System Program (online course)	Q494
NIMS Incident Command System for Emergency Medical Services	(unk)
NIMS Incident Command System for the Fire Service	F806
Preparation for Initial Company Operations	F458 or W458
Preparing for Incident Command	F210
Prevention and Mitigation Advocacy for Small Departments	F272 or W272
Principles of Building Construction: Combustible	(unk)
Principles of Building Construction: Noncombustible	(unk)
Public Fire Education Planning	(unk)
Recognizing and Identifying Hazardous Materials, 2nd Ed.	(unk)
Rescue Systems One	(unk)

B-LIST COURSES

Shaping the Future	F602 or W602
Strategy and Tactics for Initial Company Operations	F455
Tactical Operations for Company Officers I	F801 or w801
Tactical Operations for Company Officers II	F802 or W802
Testing and Evaluation of Water Supplies for Fire Protection (online course)	Q218
Training Operations in Small Departments	F290 or W290
Volunteer Fire Service Management	(unk)
Wildland Urban Interface Fire Operations	(unk)
Wildland/Urban Interface Fire Protection	(unk)
TEEX COURSES	**COURSE #**
Confined Space Rescue Technician Training	RES002
Confined Space Rescue Training	RES001
Hazardous Materials Highway Specialist Training	HAZ027
Hazardous Materials Intermodal Training	HAZ028
Hazardous Materials Rail Specialist Training	HAZ026
LNG Spill Control and Fire Suppression	LNG101
LNG Spill Control and Fire Suppression: Workshop	LNG102
Rescue in a Contaminated Environment	TNG63S
Rope Rescue Awareness and Operations	RES000
Rope Rescue Certification	RES005
Safe Practices for Traffic Incident Responders	HWS020
Swift Water Rescue Operations	TNG80O
Swift Water Rescue Operations Upgrade	TNG80U
Swift Water Rescue Technician	TNG80Z
Trench Rescue Awareness and Operations	RES500
WMD Enhanced Urban Search and Rescue Operations	TNG61O
WMD Terrorism Awareness for Emergency Responders (online course)	AWR110 or AWR160
WMD Terrorism Incident Defensive Operations for Emergency Responders	PER212
OTHER PROVIDERS (provider in parentheses)	**COURSE #**
Advanced Disaster Life Support (AMA)	(unk)
Basic Disaster Life Support (AMA)	(unk)
Basic/Intermediate Groundcover & Wildland Urban Interface FF (Texas Forest Service)	BIG-WUI
Incident Command System-100 (various providers-must be NIMS compliant)	N/A
Incident Command System-200 (various providers-must be NIMS compliant)	N/A
Incident Command System-300 (various providers-must be NIMS compliant)	N/A
Incident Command System-400 (various providers-must be NIMS compliant)	N/A
Incident Response to Terrorist Bombings (Four-day course at New Mexico Tech Univ.)	(unk)
Incident Safety Officer Academy (Fire Department Safety Officers' Association)	(unk)
Modular Emerg. Response Radiological Transportation Trng. (U.S. Dept of Energry)	(unk)
National Incident Management System: NIMS (DHS/FEMA/EMI)	IS-700 or 700a
National Response Plan or National Response Framework (DHS/FEMA/EMI)	IS-800, 800a, or 800b
Radiological/Nuclear Course for Hazmat Technicians (DHS/ODP)	PER-241
Swiftwater Rescue Technician (Rescue 3 International)	SRT-1

B-LIST COURSES

Swiftwater Rescue Technician, Advanced (Rescue 3 International)	(unk)
Wildland Firefighter Training (Texas Forest Service) *must include courses L-180 and I-100*	S-130/S-190
WMD Emergency Medical Services Training (DHS/ODP, Anniston, AL)	(unk)
WMD Hazardous Materials Technician Training (DHS/ODP, Anniston, AL)	(unk)
WMD Incident Command Training Course (DHS/ODP, Anniston, AL)	(unk)
WMD Incident Management/Unified Command Concept (DHS)	(unk)
WMD Incident Management/Unified Command Concept-Internet course (DHS)	(unk)
WMD Technical Emergency Response Training Course (DHS/ODP, Anniston, AL)	(unk)
WMD Terrorism Awareness for Emergency Responders (DHS)	(unk)

The Ignition Matrix

Source / Fuel	clock radio	cell phone charger	cigarette	candle	compact fluorescent lamp	plug-in room refresher
Lace night table cover	1. yes (a) 2. yes, close 3. no (d) 4. yes path	1. yes (a, c) 2. not close 3. 4. yes	1. 2. yes close 3. no evid. 4.	1. yes comp 2. yes 3. maybe 4. yes	1. yes (a, c) 2. yes 3. no (d) 4. yes gravity	1. yes (a) 2. not close 3. no (d) 4.
Sheets or covers	1. no (c) 2. not close 3. no (d) 4. yes gravity	1. yes (a, c) 2. yes close 3. no (d) 4. yes	1. 2. not close 3. no evid. 4.	1. yes comp 2. not close 3. 4.	1. yes (a, c) 2. no 3. no (d) 4. no	1. yes (a) 2. yes close 3. 4.
Curtains	1. no (c) 2. not close 3. no (d) 4. yes path	1. yes (a, c) 2. yes close 3. no (d) 4. yes	1. 2. not close 3. no evid. 4.	1. yes comp 2. not close 3. 4.	1. yes (a, c) 2. no 3. no (d) 4. yes shade	1. yes (a) 2. yes close 3. no (d) 4.
Plastic decorative flowers	1. no (c) 2. not close 3. no (d) 4.	1. yes (a, c) 2. not close 3. no (d) 4. no	1. not comp. 2. 3. no evid 4.	1. yes comp 2. yes close 3. maybe 4. yes	1. no (a, c) 2. no 3. no (d) 4. yes shade	1. no (a, c) 2. not close 3. no (d) 4. no
Lamp shade	1. yes comp 2. not close 3. no (d) 4. yes path	1. yes (a, c) 2. not close 3. no (d) 4. no	1. 2. not close 3. no evid 4.	1. yes comp 2. not close 3. indirect 4. yes path	1. no (a, c) 2. yes close 3. no (d) 4. yes	1. no (c) 2. not close 3. no (d) 4. no

1. Competent Ignition Source Y/N?
2. Proximity, ignition close to Fuel Y/N?
3. Evidence of ignition Y/N?
4. Initial Fuel path to Fuel Load Y/N?

Color Legend
Red = Competent and close
Blue = not competent
Yellow = competent but ruled out

Codes
P = plume or flashover
W = witnessed
F = open flame
N = not energized

Notes
a. *if the device failed*
b. *if fuel was cellulosic with a breeze*
c. *only with open flame*
d. *device was intact*

Courtesy of Lou Bilancia, Synnovation Technology

ADDENDUM TO THE APRIL 15, 2011 REPORT OF THE TEXAS FORENSIC SCIENCE COMMISSION

WILLINGHAM/WILLIS INVESTIGATION

OCTOBER 28, 2011

I. Introduction

On April 15, 2011, after extensive deliberations regarding the Willingham/Willis complaint filed by the Innocence Project in August 2007, the Texas Forensic Science Commission ("FSC" or "Commission") issued its written report. (*See* www.fsc.state.tx.us). This addendum supplements the report and should be read in conjunction with it. The report describes the following:

(1) Developments in fire science since the trials of Cameron Todd Willingham and Ernest Ray Willis, particularly with respect to incendiary indicators;

(2) Key testimony regarding incendiary indicators given at the trials of Willingham and Willis; and

(3) Seventeen recommendations for improving arson investigation and the criminal justice system's treatment of arson cases in Texas.

The Commission declined to issue any finding regarding allegations of negligence or misconduct by the City of Corsicana or the Texas State Fire Marshal ("SFMO") pending the issuance of a legal opinion on jurisdiction from Texas Attorney General Greg Abbott ("Opinion"). During the same period, the Commission awaited the outcome of legislative action designed to clarify the scope of its jurisdiction.

During the 82nd Legislative Session, Senator Juan C. Hinojosa (D-McAllen) proposed legislation (SB-1658) that would have set clear parameters for the Commission's jurisdiction. Though the bill passed unanimously in the Senate, it was not considered in the House before adjournment was reached. The Commission expects that legislation similar to SB-1658 will be introduced during the 83rd Legislative Session.

Though the Commission did not receive any legislative clarity during the 82nd Session, the Commission's Presiding Officer received the attached Attorney General Opinion on July 29, 2011. The Opinion addresses the scope of the Commission's jurisdiction under its current enabling statute. (*See* TEX. CODE CRIM. PROC. art. 38.01)

II. July 29, 2011 Opinion of Texas Attorney General Greg Abbott

The Opinion contains two conclusions that restrict the Commission from proceeding with further investigation or reaching a finding of negligence and/or misconduct in this case. The first is that the FSC is prohibited from taking any action with respect to evidence offered or entered into evidence before September 1, 2005. The second is that the FSC's authority is limited to laboratories, facilities, or entities that were accredited by DPS at the time the forensic analysis took place.

On the first point, the forensic analysis in question (arson investigation) was completed and entered into evidence before 2005 and thus falls outside the FSC's jurisdiction. In addition, the analysis was performed by two entities—the SFMO and the City of Corsicana. Neither of these entities was an accredited laboratory, facility, or entity as defined in the Opinion.[1]

The complainant has requested that the Commission issue a finding of negligence against the SFMO notwithstanding this language. The complainant argues that the Opinion does not prevent the Commission from issuing a finding regarding the SFMO's alleged negligence in failing to inform the criminal justice system of developments in fire science before Mr. Willingham's execution. Specifically, the complainant points to the following language in the Opinion:

> "…the Act contains no time limitation on the FSC's general authority under section 4(a)(3) to 'investigate in a timely manner any allegation of professional negligence or misconduct.' Thus, although the FSC may investigate allegations arising from incidents that occurred prior to September 1, 2005, it is prohibited in the course of any such investigation from considering or evaluating specific items of evidence that were tested or offered into evidence prior to that date."

[1] Though the SFMO now has a DPS-accredited laboratory as part of its operation (DPS first accredited the SFMO lab in 2003), none of the allegations of negligence or misconduct in the Willingham/Willis complaint involved forensic testing in the SFMO laboratory. Moreover, the SFMO laboratory was not yet accredited when the forensic analysis took place in either of these cases.

The complainant's interpretation would require the Commission to read the "general authority" sentence in isolation, without considering the remaining guidance in the Opinion and the specific language of Section 4(a)(3) of the Act. Returning to the plain language of the Commission's enabling statute under Section 4 entitled "Duties," the Commission shall: "investigate, in a timely manner, any allegation of professional negligence or misconduct *that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility, or entity.*" An allegation regarding the SFMO's failure to inform the criminal justice system of developments in fire science years after trial is not an allegation "that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory, facility, or entity" as that language is described in the Opinion and set forth in the statute.

The Commission accepts the Attorney General's Opinion as guidance for its jurisdictional scope, and will consider complaints that come before it on a case-by-case basis. Because the Commission has agreed that it will abide by the Opinion, the Commission declines to issue any finding regarding alleged misconduct or negligence by the SFMO or the City of Corsicana. This is not an indicator that the Commission would have reached any particular finding absent the Opinion, but rather that the Commission accepts the jurisdictional limitations set forth by the Attorney General.

Notwithstanding these jurisdictional challenges, the Commission made important observations and recommendations regarding the state of arson investigation in Texas in its April report, including a recommendation that the SFMO develop a method for alerting the criminal justice system when advances in fire science impact the outcome in criminal cases. The question of when and how an agency responsible for forensic analysis should inform the criminal justice system of scientific changes that could impact the outcome of

criminal cases is the subject of ongoing discussion in many forensic fields. These issues require a willingness on the part of responsible forensic experts, lawyers, and legislators to develop a systematic and reasoned approach.

The Commission also reiterates the importance of continuous improvement in arson investigation, and is encouraged by the SFMO's commitment to working with appropriate stakeholders to implement the seventeen recommendations set forth in the report. The Commission encourages all stakeholders to work collaboratively to enhance the integrity and reliability of arson investigation in Texas. The Commission also encourages the Texas Legislature to take an active role in providing the SFMO and related agencies the tools they need to achieve these improvements, and to hold parties accountable for demonstrating continuous progress.

SUMMARY OF FORENSIC SCIENCE COMMISSION RECOMMENDATIONS IN WILLINGHAM/WILLIS REPORT

The Commission recognizes that progress on each recommendation is dependent upon the ability and willingness of the SFMO and other key stakeholders to devote resources to implementation. The SFMO has requested the Commission's assistance in facilitating implementation, and the Commission will provide such assistance over the coming months. The Commission's Presiding Officer will update Commissioners periodically regarding the status of various recommendations. To ensure that each recommendation accurately reflects the input of the SFMO, applicable recommendations are provided below with SFMO feedback included.

FSC RECOMMENDATIONS

The SFMO considers the FSC's 17 recommendations to be appropriate and fair. The SFMO is committed to ensuring the best possible forensics are used in fire investigations in Texas. The SFMO will consult with credible organizations, seek expert advice and coordinate with the FSC to implement the recommendations.

RECOMMENDATION 1: ADOPTION OF NATIONAL STANDARDS

Summary: The FSC recommends that the State Fire Marshal's Office (SFMO) work with the Texas Commission on Fire Protection (TCFP) and other relevant agencies to develop its own strategic plan setting forth best practices in fire investigation. The plan should meet the recommended national standards that exist at the time it is completed.

Examples of guiding documents for current standards include but are not limited to: the current edition of NFPA 921, NFPA 1033, the National Institute of Justice's June 2000 report entitled *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel*; and the National Center for Forensic Science, and Technical/Scientific Working Group's January 2008 report entitled *Fire and Explosion Investigations and Forensic Analyses: Near-and Long-Term Needs Assessment for State and Local Law Enforcement.*

SFMO: The SFMO will collaborate with the Texas Commission on Fire Protection (TCFP) and the Texas Engineering Extension Service (TEEX) at Texas A&M University to develop a multi-agency strategic plan to address concerns raised by the FSC. The SFMO will update the FSC as that process moves forward.

RECOMMENDATION 2: RETROACTIVE REVIEW

If new scientific knowledge develops over time that would materially change the opinions or results in a criminal investigation, the individual or agency has a responsibility to inform the parties involved or develop procedures for doing so.

Accredited disciplines of forensic science have standards that promote the re-examination of cases when science has evolved to create a material difference in the original analysis or result. Those standards include: (1) duty to correct; (2) duty to inform; (3) duty to be transparent; and (4) implementation of corrective action. The SFMO should develop similar standards.

SFMO: The SFMO agrees to perform an internal review of the forensics of its cases where: (1) a cause and origin fire investigation performed by SFMO resulted in a determination that the fire was incendiary; (2) the case went to trial; and (3) a conviction of arson or murder by arson was made. The Innocence Project of Texas (IPOT) has agreed to help identify cases and categorize those cases (*i.e.*, distinguish between cases involving the SFMO and cases involving other fire investigation agencies), based in part on work it has done already. IPOT will document and distribute its proposed methodology for identifying cases in the coming weeks. The approach to studying the cases identified by IPOT (*e.g.*, who should be on the subject matter expert committee, etc.) will then be further refined through discussion. The review will take many months to complete. All parties agree to work collaboratively and to comply with any applicable laws and regulations.

RECOMMENDATION 3: ENHANCED CERTIFICATION

The primary mechanism for training and educating fire investigators in Texas is individual certification. The certification process is administered by the TCFP. Texas has two separate certification titles for fire protection personnel: fire investigator and arson

investigator. The main difference between the two is that an arson investigator must be certified both as a fire investigator and as a peace officer. The Texas Commission on Law Enforcement Officer Standards and Education ("TCLEOSE") administers peace officer certification.

In 2009, the NFPA released enhanced guidelines for education and training of fire investigators nationwide, and clarified that the guidelines should apply to *all fire investigators*. Under NFPA 1033's guidelines, fire investigators should have, at a minimum, a high school degree plus successful coursework in the following topics at a "post-secondary education" level:

- fire science;
- fire chemistry;
- thermodynamics;
- thermometry;
- fire dynamics;
- explosion dynamics;
- computer fire modeling;
- fire investigation;
- fire analysis;
- fire investigation methodology;
- fire investigation technology;
- hazardous materials; and
- failure analysis and analytical tools. (NFPA 1033 at 1.3.8.)

Fire investigators must also maintain their knowledge in these subject areas and "remain current" with investigation methodology, fire protection technology, and code requirements by attending workshops and seminars and/or through professional publications and journals. (*Id.* at 1.3.7.)

The Commission recommends that the TCFP phase in a timeline for requiring all investigators to comply with NFPA 1033. The first phase should require that any fire investigator who testifies in court come into compliance with NFPA 1033 standards as soon as practicable. Subsequent phases should require compliance based on the levels of responsibility assumed by investigators. The timeline should be aggressive but flexible to encourage a smooth transition toward compliance. Continuing education requirements promulgated by the TCFP should incorporate NFPA 1033's guidelines.

SFMO: This recommendation pertains to the authority of TCFP. As of June 2, 2011, TCFP has adopted NFPA 1033. Thus, all certified fire investigators in Texas will be required to come into compliance with these standards.

RECOMMENDATION 4: COLLABORATIVE TRAINING ON INCENDIARY INDICATORS

The FSC is encouraged by recent efforts among fire scientists, investigators and officials at the SFMO to develop a training course that includes hands-on analysis of incendiary indicators through live burn exercises. The SFMO and TCFP should work with local fire departments to encourage maximum participation, possibly by offering sessions in multiple regional locations. A special effort should be made to ensure participation by smaller rural communities. The SFMO and TCFP should also take into consideration any other pertinent curriculum recommended by the NIJ and other national agencies and working groups. The FSC recommends that the following subjects be reviewed at a minimum:

- fire science basics;
- fuels;
- ignition;
- fire growth;
- incendiary indicators;
- myths and misconceptions;
- elimination of accidental causes;
- proper documentation and photos;
- eyewitness interviews; and
- diagrams and use of the Ignition Matrix.

Training should be limited to active fire investigators currently serving in Texas to encourage an open and honest exchange (similar to "post-mortem" sessions conducted by medical doctors and scientists). It should include opportunities for investigators to participate in live burn exercises. All attendees should be given current copies of NFPA 921 and *Kirk's Fire Investigation* at a minimum. Participants should receive continuing education credit for their attendance. Finally, an examination should be given at the end of the course to determine whether attendees absorbed key principles.

SFMO: The SFMO is planning forensic fire investigation training from Dr. DeHaan for all SFMO Fire Investigators. The State Fire Marshal will also explore additional options with Dr. DeHaan regarding how to make the training available to as many fire investigators as possible. This may be done through TEEX, the TCFP, or through the highly attended annual arson investigation seminar in Austin.

RECOMMENDATION 5: TOOLS FOR ANALYZING IGNITION SOURCES

New tools exist to help investigators identify and analyze various sources of ignition during a fire investigation. For example, the Ignition Matrix was introduced in the latest edition of *Kirk's Fire Investigation* and NFPA 921 as a straightforward method for ensuring compliance with the various requirements of NFPA 921.[2] The matrix prompts investigators to ask a series of questions regarding potential ignition sources. Investigators

[2] Information regarding the Ignition Matrix, developed by Lou Bilancia, was provided to the FSC by Dr. John DeHaan in February 2011.

then label the information they have gathered based on pre-established color and notation categories. The approach constitutes a "best practice" method for evaluating sources of data at the scene of a fire and documenting the facts relied upon when reaching conclusions about various ignition possibilities. When carried out with a comprehensive map of the suspected area of origin, the Ignition Matrix provides investigators with a concrete way to conduct a methodical review of data and facts before forming an opinion, in compliance with NFPA 921. The SFMO should consider methods for integrating the Ignition Matrix into its training and investigative work.

SFMO: The SFMO will explore options for use of this tool by SFMO Investigators, and talk with Dr. DeHaan about how best to integrate the matrix into fire investigations.

RECOMMENDATION 6: PERIODIC CURRICULUM REVIEW

The FSC recommends that stakeholders (including representatives from the TCFP, SFMO, fire investigators and scientists) form a regular working group to review training curricula and ensure that it meets the ongoing needs of fire investigators in Texas. The group could also identify ways to take advantage of Internet-based training such as CFITrainer and virtual reality fire investigation programs. Because CFITrainer provides a variety of online options for achieving compliance with NFPA 1033, use of the website may be particularly helpful in rolling out the enhanced certification requirements discussed above.

SFMO: The SFMO supports having a working group to review curriculum, which would encourage information sharing among the agencies. The SFMO will discuss how to approach this with the TCFP Director.

RECOMMENDATION 7: INVOLVEMENT OF SFMO IN LOCAL INVESTIGATIONS

Local fire departments call the SFMO for assistance when they believe a case is significant enough to warrant such assistance. If the SFMO has personnel available, it sends them to assist. Based on discussions with SFMO leadership, it appears that the SFMO is always available to assist when called upon; the agency rarely denies assistance. Some Commissioners have questioned whether there should be clear legal requirements governing cases in which the SFMO appears for assistance. The Commission strongly recommends that the SFMO have an Advanced or Master Arson Investigator participate in all fire investigations involving the loss of life.

SFMO: The SFMO does not have the authority to require local fire departments to call the SFMO for assistance with fire investigations. Though they do have rulemaking authority, it only governs the SFMO's activities, not the activities of municipalities. The SFMO can only prioritize among cases where they are called to assist. Any change to this process would require legislative intervention as well as additional resources. The FSC will add this to the list of items for consideration by the legislative development committee.

RECOMMENDATION 8: ESTABLISHMENT OF PEER REVIEW GROUP/MULTIDISCIPLINARY TEAM

The Commission strongly recommends that the SFMO establish a peer review team (perhaps to include someone from the SFMO, a local investigator, a fire scientist, and a medical examiner) to review pending and completed arson cases on a quarterly basis (similar to the cold case DNA task force group, or CPS' review of child abuse cases, multidisciplinary team (MDT) models, etc.) This would be a good-faith effort to assure the public that there is a review mechanism in place, especially for structure arson cases involving fatalities. It would also be a way to encourage ongoing professional development across the field. The most efficient approach may be to establish regional MDTs.

SFMO: The FSC and the SFMO recognize that this is a good idea, but are concerned about the implications of creating a multidisciplinary team without confidentiality protection for pending cases (the examples cited in other areas such as child death cases, etc. include confidentiality protection). The FSC will also add this to the list of items for consideration by the legislative development committee.

RECOMMENDATION 9: STANDARDS FOR TESTIMONY IN ARSON CASES

The FSC recommends that the SFMO and local fire investigators begin implementing the standards set forth in NFPA 1033 and related guidelines to improve the overall quality of testimony offered in arson investigations.

SFMO: NFPA 1033 is the new standard in Texas, and thus all testifying investigators will have to comply with the requirements set forth in the standard.

RECOMMENDATION 10: ENHANCED ADMISSIBILITY HEARINGS IN ARSON CASES

The FSC recommends that admissibility hearings (also referred to as *Daubert/Kelly* hearings) be conducted in all arson cases, due to the inherently complex nature of fire science and the continuously evolving nature of fire investigation standards. The FSC encourages both prosecutors and defense counsel to aggressively pursue admissibility hearings in arson cases. In addition, judges should affirmatively exercise their discretion to hold such hearings in all arson cases as a method of ensuring that fire science testimony is reliable and relevant.

RECOMMENDATION 11: EVALUATING COURTROOM TESTIMONY

The Commission recommends that the SFMO and local fire departments develop policies and procedures for the evaluation of courtroom testimony.

The FSC also recommends that the SFMO expand its mock trial program to include more participants. One alternative would be to allow for online participation, or to work with the TCFP to make the program a component of continuing education for arson investigators.

SFMO: SFMO investigators rarely testify in court, but the SFMO recognizes that testimony must be based on modern scientific principles. The SFMO will work to ensure that its analysis and investigators' testimony is based on the most current scientific practices available. Courtroom training will be provided using mock trail and other techniques.

RECOMMENDATION 12: MINIMUM REPORT STANDARDS

SFMO leadership reviews each fire investigation report submitted by its investigators and instructs investigators to revise their reports if there is any indication of an incomplete analysis. This process is designed to help ensure that the scientific method is followed by SFMO investigators. However, it is limited to fire reports submitted by investigators employed by the SFMO; there is no standardized reporting method that applies to fire investigators statewide.

The Commission recommends that the SFMO develop and release minimum standards for fire investigation reporting statewide. As the NAS Report notes, "there is a critical need in most fields of forensic science to raise the standards for reporting and testifying about the results of investigations." (NAS Report at 185.) Minimum standards should verify that key elements have been reviewed, documented, collected, photographed (to the extent applicable) and analyzed. They should also have a method for red-flagging scenarios in which additional consultation might be necessary (such as when an electrical engineer should be called in to help with arc mapping, etc.). They should track key elements of NFPA 921 and evolve as new editions are released. Tools such as the Ignition Matrix and voice-recognition software should be integrated into the report-writing process. The SFMO has obtained a grant for the use of voice-recognition software; the FSC encourages the agency to seek additional ways to expand opportunities for using the software.

SFMO: While the SFMO cannot require local jurisdictions to adopt any particular reporting standard, it can post a model fire investigation report as a resource and encourage its adoption. The SFMO has been reviewing other reporting systems and will continue that process to include ATF's BATS (Bomb and Arson Tracking System), FireFiles Software and other nationally recognized systems. The SFMO has requested a BATS demonstration to review the changes and improvements made to the system since the last demonstration.

RECOMMENDATION 13: PRESERVATION OF DOCUMENTATION

The Commission notes that review of documentation in the Willingham case presented difficulties because the documents, photographs of fire debris, and related records were no longer available. Local fire departments and the SFMO should preserve originals and forward only copies of documentation.

SFMO: The SFMO keeps original documents (primarily the investigator's reports and schematics) and photographs. With the introduction of digital photography and related technology, this is much easier to accomplish today than it was in the early 1990's.

RECOMMENDATION 14: DISSEMINATION OF INFORMATION REGARDING SCIENTIFIC ADVANCEMENTS

The SFMO should identify additional ways to help the fire investigation community in Texas stay current with national developments in fire science. For example, there should be a consistent and effective method for disseminating new information regarding the results of fire science experiments and controlled burn studies. Formats could include quarterly electronic newsletters, regular online forums, periodic webcast updates, NIST and NCJRS library resources, journal abstracting services, etc. The SFMO may also consider retaining a fire scientist to consult on an as-needed basis. Such a relationship would encourage the free flow of information between the two communities and provide a continuous source of outside expertise for particularly challenging interpretive questions.

The FSC recommends that the SFMO perform an internal audit to evaluate fire investigation training, certification, and policies and procedures to ensure compliance with all relevant national standards. The FSC recommends that the SFMO develop a plan for implementing new standards as they evolve as well as ongoing quality assurance measures.

SFMO: The SFMO will look for ways to disseminate advances in fire science electronically to fire investigators throughout the state, whether through an in-house newsletter or by forwarding existing available resources. SFMO will consult with staff, Dr. DeHaan, and others regarding possible options for achieving this.

RECOMMENDATION 15: CODE OF CONDUCT/ETHICS

State agencies and professional organizations often have a Code of Conduct or Ethics to guide expectations. The FSC understands that the SFMO does not currently have such a Code; the FSC recommends that the SFMO establish a Code of Conduct/Ethics for fire investigators in Texas.

SFMO: The SFMO has in place a Code of Professional Ethics in the Standard Operating Procedures manual. SFMO Peace Officer Investigators also subscribe to the Law Enforcement Code of Ethics and Code of Conduct which is also in the Standard Operating Guidelines.

RECOMMENDATION 16: TRAINING FOR LAWYERS/JUDGES

The FSC recommends that the Texas Legislature and/or any other body overseeing continuing education in Texas consider requiring judges and lawyers practicing in criminal courts to have some form of ongoing forensic science training as a component of their Continuing Legal Education obligations.

RECOMMENDATION 17: FUNDING

The Commission urges that the Texas Legislature and municipalities take steps to ensure sufficient funding is available to provide training to fire and arson investigators so that may meet the standards set out in NFPA 921 and NFPA 1033, and stay current with national advances in fire science.

The FSC further recommends that the Texas Department of Insurance make it a priority to ensure that the SFMO receives sufficient funding so that its fire and arson investigators are properly trained to meet the standards set out in NFPA 921 and NFPA 1033, and so they are able to stay current with advances in fire science.

FSC staff visited the National Fire Research Laboratory of the Bureau of Alcohol, Tobacco, Firearms & Explosives in July 2011. Staff met with lab leadership and investigators who conduct extensive research and fire reconstruction activities in the laboratory. ATF investigators and program managers expressed their willingness to assist state and local investigators in Texas with training and research activities. The Commission encourages the SFMO and related agencies to work with federal training managers, especially to the extent they can supplement state resources.

Finally, the FSC recommends that the SFMO aggressively seek out alternative sources of funding for education of its investigators, including but not limited to federal and private grants.

SFMO: The SFMO has applied for and received federal grant money (from Coverdell and other programs) and will continue to research ways to obtain grant funding. Additional support from the Legislature would also be helpful. The agency does not have an oversight board currently and believes they would be assisted by having some oversight from a legislative committee, such as a requirement for submission of an annual report. The agency raised this point with the Legislature during the last session. The FSC will add this to the list of items for consideration by the legislative development committee.

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