

USDOJ/OIG Special Report

**The FBI Laboratory: An Investigation into Laboratory Practices  
and Alleged Misconduct in Explosives-Related and Other Cases (April  
1997)**

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## **EXECUTIVE SUMMARY**

This investigation by the Department of Justice Office of the Inspector General (OIG) concerned allegations of wrongdoing and improper practices within certain sections of the Federal Bureau of Investigation (FBI) Laboratory. Those allegations involved some of the most significant prosecutions in the recent history of the Department of Justice, including the World Trade Center bombing, the Oklahoma City bombing, and the mail bomb assassination of U.S. Circuit Judge Robert Vance (which was referred to within the FBI as the VANPAC case). The allegations implicated fundamental aspects of law enforcement: the reliability of the procedures employed by the FBI Laboratory to analyze evidence, the integrity of the persons engaging in that analysis, and the trustworthiness of the testimony by FBI Laboratory examiners. The allegations were brought to the OIG's attention by Supervisory Special Agent Frederic Whitehurst, a Ph.D. scientist employed in the FBI Laboratory. We also investigated problems that we ourselves identified in the course of our investigation, as well as information brought to our attention by other employees in the Laboratory.

The investigation spanned more than eighteen months and addressed a very large number of allegations. Most of Whitehurst's allegations were not substantiated; some important ones were. Our investigation identified policies and practices in need of substantial change. Since the allegations involved incidents that occurred over nearly a decade, some of those policies had already been changed by the FBI or were in the process of being changed before the draft report was completed. In a number of key instances, we found problems that Whitehurst had not raised. We also saw examples of superb work and encountered Laboratory personnel dedicated to the highest traditions of forensic science. But we also found some Laboratory supervisors and examiners whose performance merits critical comment, and raises serious questions about whether they should continue in their current roles within the Laboratory. Accordingly, in addition to general recommendations we made about Laboratory practices and procedures, we recommended that certain supervisors and examiners be reassigned from their current positions.

This investigation and our findings primarily concerned three units of the FBI Laboratory -- the Explosives Unit (EU), the Materials Analysis Unit (MAU), and the Chemistry-Toxicology Unit (CTU), all of which were in the Scientific Analysis Section (SAS), one of five sections of the Laboratory. Our findings and conclusions regarding certain cases in those units should not be imputed to other cases within those units, nor to other units in the SAS or other sections of the Laboratory that we did not investigate.

The next section of this Executive Summary provides an overview of our principal findings and recommendations. The Summary then generally corresponds to the organization of the Report. Section II describes the OIG investigation (Part Two of the Report). Section III summarizes the significant cases that are treated in detail (Part Three, Sections A-G of the Report). Section IV sketches the many other matters investigated (Part Three, Sections H1-H13 of the Report). Section V describes our findings and conclusions on Whitehurst's allegations of retaliation (Part Four of the Report). Section VI describes our findings and recommendations with respect to the conduct and performance of particular individuals (Part Five of the Report). Section VII summarizes our recommendations regarding general Laboratory practices and procedures (Parts Six and Seven of the Report).

## **I. Principal Findings and Recommendations**

### **A. Findings Regarding Alleged Misconduct And Performance Deficiencies**

We did not substantiate the vast majority of the hundreds of allegations made by Whitehurst, including the many instances in which he alleged that Laboratory examiners had committed perjury or fabricated evidence. We found, however, significant instances of testimonial errors, substandard analytical work, and deficient practices. Those findings with respect to individual cases appear in Section III of this Executive Summary and are



treated in detail in Part Three of the Report. The types of problems we found included:

- Scientifically Flawed Testimony in the Psinakis, World Trade Center, Avianca, and Trepal cases.
  
- Inaccurate Testimony by an EU examiner in the World Trade Center case, by a former Laboratory examiner (who is still an FBI agent) in a hearing conducted by the judicial committee of the Judicial Council of the Eleventh Circuit regarding then-Judge Alcee Hastings, and by the CTU Chief in the Trepal case.
  
- Testimony Beyond the Examiner's Expertise in the World Trade Center, Avianca, and Hastings cases.
  
- Improper Preparation of Laboratory Reports by three EU examiners who altered, omitted, or improperly supplemented some of Whitehurst's internal reports (dictations ) as they were being compiled into an official report of the Laboratory. A former EU Chief failed to substantively review all of the reports in his unit, authorized EU examiners to modify Whitehurst's dictations when incorporating them into EU reports, and fostered a permissive attitude toward changes to Whitehurst's dictations.
  
- Insufficient Documentation of Test Results by the examiner who had performed work on hundreds of cases, including Psinakis and the UNABOM investigation, and by the CTU Chief.
  
- Scientifically Flawed Reports in the VANPAC and Oklahoma City cases, and in numerous cases by the former MAU examiner

who worked on Psinakis, and in a few instances by an EU examiner who altered Whitehurst's reports.

- Inadequate Record Management and Retention System by the Laboratory.
  
- Failures by Management to resolve serious and credible allegations of incompetence lodged against the examiner who worked on the Psinakis case; to review properly the EU report in the Oklahoma City case; to resolve scientific disagreements among Laboratory examiners in three cases, including Avianca; to establish and enforce validated procedures and protocols that might have avoided problems in examiner reports in the Psinakis and VANPAC cases; and to making a commitment to pursuing accreditation by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board before 1994.
  
- A Flawed Staffing Structure of the Explosives Unit that should be reconfigured so that examiners possess requisite scientific qualifications.

## **B. Findings and Recommendations Concerning Individuals**

The OIG investigation exonerated most of the persons named in Whitehurst's allegations. Regarding some personnel, however, we criticized certain practices and performances in particular cases and recommended reassignments from their current positions and other actions. Our principal recommendations included:

- Because we recommended that the EU be restructured so that its unit chief and examiners have scientific backgrounds, EU Chief J. Thomas Thurman and all non-scientist EU examiners should be reassigned outside the Laboratory when the restructuring is accomplished. In the interim, the FBI should assess whether Thurman should continue to hold a supervisory position.
  
- CTU Chief Roger Martz should not hold a supervisory position in the Laboratory, and the FBI should assess whether he should continue to serve as a Laboratory examiner.
  
- EU examiner David Williams, who worked on the World Trade Center and Oklahoma City cases, should be reassigned outside the Laboratory.
  
- The FBI should assess what disciplinary action is now appropriate for Michael Malone, the former Laboratory examiner who testified in the Hastings hearing.
  
- We concluded that Frederic Whitehurst cannot effectively function within the Laboratory and suggested that the FBI consider what role, if any, he can usefully serve in other components of the FBI. In making that determination, the FBI and the Department of Justice must weigh the significant contribution he has made by raising issues that needed to be addressed within the Laboratory against (1) the harm he has caused to innocent persons by making many inflammatory but unsubstantiated allegations, and (2) the doubts that exist about whether he has the requisite common sense and judgment to serve as a forensic examiner.

### **C. Recommendations Concerning Policies and Procedures**

To enhance the quality of the Laboratory's forensic work, we made recommendations in the following areas: (1) accreditation, (2) restructuring the EU, (3) the roles of Laboratory examiners and resolutions of disputes, (4) report preparation, (5) peer review, (6) case documentation, (7) record retention, (8) examiner training and qualification, (9) examiner testimony, (10) protocols, (11) evidence handling, and (12) the role of management. In response to a draft of this Report, the FBI accepted full responsibility for the failings we identified within the Laboratory. The FBI's response concurred with nearly all of the OIG's recommendations and stated that the Laboratory has implemented or is taking steps to implement them. The FBI's response to the draft report is contained in an Appendix, along with our reply to specific points raised in its response.

## **II. The OIG Investigation**

The OIG investigation essentially occurred in two phases. The first phase, lasting from 1994 to the summer of 1995, was limited in scope. As is detailed in the Report, during that period, allegations by Whitehurst were the subject of various reviews by the FBI Office of General Counsel (FBI OGC), the FBI Office of Professional Responsibility (FBI OPR), and the FBI Laboratory itself until mid-1995. The OIG's investigation in that period focused on Whitehurst's contentions that his analytical reports had been substantively altered by an EU examiner.

By the summer of 1995, after other scientists in the Laboratory confirmed certain aspects of Whitehurst's allegations, it became clear that a more global, comprehensive investigation was warranted. With the agreement of FBI Director Louis Freeh, and the full cooperation of the FBI, the OIG undertook such an investigation and retained an international panel of five scientific experts to consult with the OIG. Those experts, whose combined experience exceeds 100 years of work in forensic and national laboratories, have been integrally involved in the process of interviewing witnesses, reviewing documents, and writing this report. Four experienced prosecutors from United States Attorneys' Offices and the Criminal Division were detailed to the OIG to

lead the investigation, and have provided considerable investigative expertise in this matter.

From the autumn of 1995 to the present, the OIG team has conducted hundreds of interviews, including re-interviews of key witnesses, and reviewed more than 60,000 pages of documents and transcripts. Upon completion of a draft report on January 21, 1997, the OIG solicited comments from the FBI and from prosecutors (primarily in the United States Attorneys' Offices) and other lawyers who handled the cases at issue to ensure that no factual errors were inadvertently included. The responses themselves, as well as our replies, are contained in a separate Appendix. In evaluating those responses, the OIG made some revisions to the Report. After careful consideration, in most instances we did not agree with requests to change the language in the draft report or our findings, and have explained our reasoning either in the Report itself or in the Appendix.

One general point about the responses bears highlighting in this summary. As to cases in which we criticize the work of FBI Laboratory personnel, such as in the World Trade Center and Avianca cases, the FBI and U.S. Attorneys have responded by saying, in essence, that nothing in the Report should be read as affecting the outcome of those cases. Our purpose has not been to determine whether a defendant in any given case was improperly convicted of a crime; it was to ascertain whether the performance of the Laboratory personnel met general standards of conduct for forensic scientists and complied with policies in the FBI Laboratory in effect at the time the work was performed. Our findings of deficiencies in the work performed in cases should in no circumstance be read as expressing a view as to whether that case should have reached a different outcome. That role is properly performed by the prosecutors, defense counsel, and judges who can assess the work of the FBI Laboratory in the context of all of the evidence in the case. We, therefore, concluded that it would be inappropriate for us to make any judgments as to whether our findings will or should affect a particular case.

### **III. Significant Cases Treated in Detail**

## **A. Allegations Concerning Agent Terry Rudolph (Part Three, Section A of the Report)**

From the time Frederic Whitehurst first joined the FBI Laboratory in 1986, he repeatedly complained about the work practices of Agent Terry Rudolph, who preceded Whitehurst as the Laboratory's senior examiner for the analysis of explosives residue. Those complaints reached an apex with work Rudolph performed in connection with the Psinakis case. After that case ended in an acquittal, the Assistant United States Attorney (AUSA) who tried the case wrote a letter to the FBI complaining that Rudolph's performance was deficient, that the judge had nearly excluded his testimony, and that the defense had seriously impeached his scientific work and conclusions relevant to that case. That letter raised serious questions about certain Laboratory practices. For example, it noted the apparent absence within the Laboratory at the time of established protocols to determine when certain tests should be performed and of peer review to confirm the sufficiency of the analysis conducted by the Laboratory examiner.

Laboratory management responded to the AUSA's letter by directing that Rudolph's case files be audited. In August 1989, an internal audit of some of Rudolph's files found numerous shortcomings and recommended that an extensive technical review be undertaken. That review was assigned to Roger Martz, the chief of the Chemistry-Toxicology Unit (CTU). Martz reviewed 95 of Rudolph's files, concluded that Rudolph's analysis supported the results, and reported finding no technical errors. Upon the completion of Martz's review, the Laboratory determined that no further action concerning Rudolph was necessary. That decision proved to be a significant error in judgment. Our investigation showed that Martz's review was seriously deficient, that he failed to engage in the type of technical review that would actually have assessed the competence and sufficiency of the work purportedly performed by Rudolph, and that Martz's written reporting led Laboratory managers to believe that there were no problems with Rudolph's work or his files.

Because the Laboratory took no action against Rudolph, Whitehurst continued to complain about Rudolph's sloppy work habits, and added charges that Rudolph had perjured himself in a case, lied to an AUSA, abused annual leave,

and made racist remarks. Those allegations led to an FBI OPR investigation in 1991-1992. Although we did not find evidence of a deliberate effort to dismiss or ignore Whitehurst's allegations -- as he has maintained -- we did find significant deficiencies in the OPR investigation of this matter.

The OPR investigators lacked the technical expertise to review Whitehurst's allegations concerning Rudolph's casework, so the Laboratory itself conducted yet another review of Rudolph's case files, this time in 1992. James Corby, the chief of the Materials Analysis Unit (MAU), performed that review. Corby analyzed approximately 200 cases and found significant flaws, such as Rudolph's failing to follow his own explosives residue protocol, to form conclusions with a valid scientific basis, and to conduct necessary tests. Corby recommended that Rudolph be disciplined and removed from doing any further explosives work in the Laboratory. Corby's supervisor, Kenneth Nimmich (chief of the Scientific Analysis Section (SAS) of the Laboratory), then directed that Corby, Martz, and CTU examiner Lynn Lasswell engage in a panel review of Rudolph's files to determine whether any errors needed to be brought to the attention of any prosecutor or defense attorney. Lasswell analyzed 57 of the 200 case files and found serious deficiencies. We found no evidence, however, that Martz conducted any review of Rudolph's files or otherwise assisted in this effort.

Nimmich recommended to John Hicks, the Laboratory Director, that Rudolph be severely reprimanded. Instead, Hicks decided to orally admonish Rudolph. When Hicks delivered that punishment, however, he also gave Rudolph a check for \$500, which represented an incentive payment for recent work. The monetary award meant that a decidedly mixed message was sent to Rudolph, who reported to us that he was quite surprised by how leniently he had been handled.

In 1993, Corby continued to express concern over the condition of Rudolph's files and asked James Kearney (who had replaced Nimmich as the head of the SAS) to raise the issue anew with Hicks. Hicks, however, decided that the Rudolph matter had been adequately reviewed and took no action. In 1994, Whitehurst's attorney complained in a letter to the FBI about Rudolph. The FBI Office of General Counsel (FBI OGC) conducted an investigation, determining

that Rudolph's files were sloppy and that his [Rudolph's] conclusions are not supported by appropriate documentation. The FBI OGC recommended a comprehensive review, a recommendation not welcomed by the Laboratory Division.

A year after that recommendation was made, in June 1995, Corby was directed to review all cases in which Rudolph had worked as an examiner. Corby completed his review before the end of that year, and found that nearly one-quarter of Rudolph's files did not meet the administrative or technical guidelines at the time the cases were worked. (Emphasis in original.) Rudolph wrote a 200-page response in which he took issue with many of Corby's conclusions. We did not attempt to replicate Corby's work, but our review convinced us that his findings were generally correct.

Although our investigation did not reveal intentional misrepresentations by Rudolph, we did find serious performance deficiencies in his work. As the foregoing discussion of management efforts reveals, it took FBI management nearly six years to perform the type of comprehensive review of Rudolph's files that should have occurred in 1989 after Rudolph's performance in the Psinakis case was so sharply criticized by the AUSA who handled that case. Former Director Hicks was especially remiss for failing to respond adequately to the mounting concerns about Rudolph's competence. CTU Chief Martz was derelict in his technical review and misleading memorandum in 1989. The 1992 review largely failed as an effort to ascertain fully the true extent of the deficiencies in Rudolph's files. Had Laboratory managers performed responsibly, the Rudolph matter might have been appropriately resolved much earlier than 1995. Instead, the Rudolph problem continued to fester.

### **B. The Mail Bomb Assassination of Judge Robert Vance (Part Three, Section B)**

In 1989, mail bombs killed U.S. Circuit Judge Robert Vance and a civil rights attorney. A massive investigation ensued, ultimately leading to the indictment and conviction in 1991 of Walter Leroy Moody, Jr. Whitehurst complained to



the OIG that J. Thomas Thurman of the Explosives Unit (EU) and Martz of the CTU circumvented Laboratory procedures because Thurman arranged for Martz's unit to analyze material in the mail bombs even though Whitehurst's unit, the Materials Analysis Unit (MAU), was responsible for analyzing explosives residue. Whitehurst also contended that, because Martz failed to follow the protocol for residue analysis developed by the MAU, he reached a flawed opinion in concluding that the mail bombs contained a particular smokeless powder. Whitehurst further alleged that Martz and Thurman fabricated evidence, perjured themselves, and obstructed justice in the case. He also suggested that prosecutors Louis J. Freeh and Howard Shapiro, at that time the AUSAs who tried the case, may have committed misconduct by offering the testimony of Martz and Thurman.

We found no evidence to support Whitehurst's charges that Thurman and Martz perjured themselves, fabricated evidence, obstructed justice, or violated any FBI policies or procedures in the case. We did not find any evidence of prosecutorial misconduct. In our investigation of this matter, we also reviewed the analytical work of Robert Webb, an examiner in the MAU who analyzed certain tape, paint, sealant, and glue, and whose conclusions were reported in Thurman's testimony. Although Whitehurst had made no allegations against Webb, we found that Webb stated certain conclusions about his work more strongly than were warranted by the results of his examinations. We found that Webb did not fabricate evidence or intentionally bias his conclusions.

Although we did not find the kinds of misconduct alleged by Whitehurst in this matter, our investigation of this case found ways in which Laboratory practices and procedures could have been improved. Those included: (1) establishment of clear guidelines stating the respective responsibilities of different units with regard to explosives residue analysis; (2) clearer guidance as to the proper scope of the testimony by examiners other than those who conducted the underlying analytical tests; (3) an improved record retention and retrieval system; (4) written and validated protocols for standardized procedures; and (5) contemporaneous peer review to ensure that conclusions are properly supported by analysis and data.

### **C. The World Trade Center Bombing (Part Three, Section C)**

After the bombing of the World Trade Center on February 26, 1993, law enforcement authorities investigated and apprehended several suspects, which led to convictions in two trials: one beginning in 1993, Salameh, which dealt primarily with the bombing, and the other in 1995, Rahman, a broader case that included evidence of the bombing. Prior to the Salameh trial, Whitehurst complained within the Laboratory about the scientific work in several respects, all of which were ultimately resolved to his satisfaction prior to the first trial. In January 1996, however, Whitehurst submitted to the OIG an 80-page critique of the Salameh testimony of David Williams, an examiner in the Explosives Unit (EU). Among the many allegations framed by Whitehurst, he specifically accused Williams of misrepresenting the truth, testifying outside his area of expertise, and presenting testimony that was biased in favor of the prosecution. We concluded that Williams gave inaccurate and incomplete testimony and testified to invalid opinions that appeared tailored to the most incriminating result. We did not substantiate Whitehurst's many other allegations.

Williams testified in the Salameh trial as an explosives expert, and his testimony was potentially significant. He opined (1) that the defendants had the capacity to manufacture about 1200 pounds of the explosive urea nitrate, an explosive rarely used for criminal purposes, and (2) that the main explosive (main charge ) used in the World Trade Center bomb consisted of about the same amount (1200 pounds) of the same explosive (urea nitrate). Normally, the way a crime laboratory determines the main charge of an exploded bomb is by finding unconsumed particles or distinctive byproducts of the explosive among the debris. The search for such residues is made by a forensic chemist. The FBI chemists specializing in the examination of explosives residue, however, did not find any residue identifying the explosive at the World Trade Center. Thus, the normal way of scientifically determining the main charge was unavailable. Williams' testimony filled that scientific void.

Williams' opinions that the defendants had the capacity to manufacture about 1200 pounds of urea nitrate and that about 1200 pounds of urea nitrate was used in the bombing were deeply flawed. As explained in detail in the Report, his testimony about the defendants' capacity exceeded his expertise, was unscientific and speculative, was based on improper non-scientific grounds, and appeared to be tailored to correspond with his estimate of the amount of

explosive used in the bombing. His opinions about the explosive used in the bombing were based on an invalid inference concerning the velocity of detonation (VOD) of the main charge, an incomplete statement of the VOD of urea nitrate, invalid and misleading statements about the type of explosives that could have been used, and speculation beyond his scientific expertise that appeared to be tailored to the most incriminating result.

Ultimately, Williams conceded during our investigation that he had no basis from the crime scene for determining the type of explosive used, acknowledging that based on the crime scene the main charge could have been anything. That opinion differs substantially from the opinions he rendered in the Salameh trial that narrowed the category of possible explosives and ultimately identified the main charge as urea nitrate. During the Salameh trial, Williams testified that he was a scientist ; the prosecutors referred to him as an explosive expert witness. In contrast, Williams' identification of urea nitrate was based not on science but on speculation based on evidence linking the defendants to that explosive.

Additionally, we concluded that Williams gave inaccurate testimony regarding his role -- and the formulas used -- in the FBI's manufacture of urea nitrate, and that his testimony concerning his attempt to modify one of Whitehurst's dictations was misleading.

The Report also details many other allegations made by Whitehurst, which we found to be unsubstantiated. We also concluded that the World Trade Center case exemplifies the need for persons within the EU to have scientific expertise, examiners to understand the distinctions between their role as forensic science experts and the role of a criminal investigator, clear guidelines about matters within the expertise of an EU examiner when testifying, and proper documentation of case work.

#### **D. The Avianca Case (Part Three, Section E)**

The Avianca case involved the midair explosion aboard Avianca Airlines Flight 203 shortly after its takeoff from Bogota, Colombia, on November 27, 1989. Everyone onboard, including two Americans, were killed in the crash. Agent Richard Hahn, at that time an examiner in the EU, was assigned to the team of Americans sent to Colombia to assist with the investigation. Hahn collected evidence at the crime scene, examined evidence, and prepared a final report. He also testified both in the first trial in New York, which ended in a mistrial, and the second trial, which resulted in the 1994 conviction of Dandeny Munoz-Mosquera (Munoz).

In 1990 Whitehurst conducted chemical analysis of evidence found at the scene, and his findings were part of Hahn's final report for the Laboratory. After the Munoz trials, Whitehurst alleged that Hahn fabricated evidence, committed perjury, and testified outside his area of expertise in those trials.

Whitehurst's first disagreement with Hahn's testimony concerned the type of explosive used in the blast. Hahn testified in both trials that a high velocity explosive was used in the bombing, based on his observation of indentations on the fuselage known as pitting and cratering, a phenomenon in which an explosion causes small indentations on metal surfaces. We concluded that Hahn's correlation of the pitting and cratering to a high velocity explosive within a narrow range of velocity of detonation was scientifically unsound and not justified by his experience. Moreover, in light of scientific literature Whitehurst submitted to Hahn before the second trial, Hahn erred by not inquiring about the validity of the theory upon which he based his testimony concerning pitting and cratering.

Next, Whitehurst alleged that Hahn gave inappropriate testimony regarding Whitehurst's 1990 findings of two explosives (RDX and PETN) in the evidence from the aircraft, because Hahn failed to mention the conclusions set forth in a memorandum written by Whitehurst in 1994. That memorandum, written on the same day Hahn testified in the first trial, addressed whether the FBI could scientifically disprove a story advanced by someone in Colombia (the Confessor ) who confessed to the Avianca bombing and claimed that the defendant was not involved. We found that Hahn's testimony in the first trial was unobjectionable in that respect (since he was unaware of the

memorandum) but that his testimony in the second was incomplete for having failed to take into account certain aspects of the analysis advanced by Whitehurst in the memorandum. We further concluded that SAS Chief Kearney contributed to Hahn's incomplete testimony by not properly resolving the issues raised in Whitehurst's memorandum.

Whitehurst's memorandum was a deeply flawed document, however, because it: (1) reached an invalid conclusion (from Whitehurst's failure properly to review his own laboratory work) about whether he could scientifically exclude the explosive the Confessor said was used; (2) misstated a conversation he had had with Hahn on a material point; (3) rendered a misleading and overstated opinion suggesting that the data was consistent with a potential defense; and (4) improperly raised questions about whether contamination may have accounted for Whitehurst's original scientific findings.

Finally, Hahn testified to a theory that a fuel-air explosion followed the initial blast and that certain of the passengers' injuries were indicative of such an explosion. That testimony was flawed and exceeded Hahn's expertise.

The Avianca case was an unfortunate instance in which communication broke down between examiners and supervisors in the Laboratory, and in which the EU examiner testified to opinions that were not justified by his experience or the applicable science or that exceeded his expertise. It was not, as Whitehurst alleges, an illustration of a Laboratory examiner committing perjury or fabricating evidence. And indeed, Whitehurst's own conduct in this matter, especially his 1994 memorandum, was seriously flawed.

#### **E. Testimony by Agent Martz in the O.J. Simpson Case (Part Three, Section F)**

To address the defense's contention that the police had planted blood at the crime scene and on socks found in the defendant's residence, the prosecutors in

the O.J. Simpson case asked the FBI Laboratory to determine whether the blood preservative EDTA was present in those blood stains. CTU Chief Roger Martz and several research chemists at the FBI Forensic Science Research Unit (FSRU) at Quantico worked to develop a method for identifying EDTA in blood. After Martz testified in the Simpson trial, Whitehurst alleged that scientists at the FSRU had commented that Martz had committed perjury, misled the jury concerning the validation studies conducted by the FSRU scientists, misled the defense by stating that all digital data from the analysis of the evidence had been erased, and generally testified in an arrogant manner.

We found no basis to conclude that Martz committed perjury or any corroboration that FSRU scientists had made such allegations. Nor did we find that Martz improperly erased digital data. Martz was unfairly criticized by the defense for not conducting certain tests. We did not criticize Martz for the substance of the analytical work performed by him and the FSRU chemists, but rather for his deficient record-keeping and note-taking and for the manner in which Martz testified. That testimony ill served the FBI because it conveyed a lack of preparation, an inadequate level of training in toxicological issues, and deficient knowledge about other scientific matters that should be within the expertise of a chief of a unit handling chemical and toxicological analyses in the Laboratory.

## **F. The Oklahoma City Bombing (Part Three, Section G)**

Not long after the EU completed its report on the Oklahoma City bombing, Whitehurst wrote a 30-page letter to the OIG criticizing David Williams, the EU examiner responsible for the report. We concluded that many of the same errors committed by Williams in the World Trade Center case were repeated in the Oklahoma City case -- principally, that Williams based some of his conclusions not on a valid scientific analysis but on speculation from the evidence associated with the defendants.

Williams' September 5, 1995, report contained several serious flaws. Just as he had done in the World Trade Center case, he offered an opinion about the

velocity of detonation (VOD) of the main charge that was unjustified. His statement about the VOD of an ammonium nitrate fuel oil (ANFO) explosive -- the explosive allegedly used in the bombing -- was incomplete. His categorical identification of the main charge as ANFO was inappropriate based on the scientific evidence available to him. Here, Williams did not draw a valid scientific conclusion but rather speculated from the fact that one of the defendants purchased ANFO components. His estimate of the weight of the main charge was too specific, and again was based in part on the improper, non-scientific ground of what a defendant had allegedly purchased. In other respects as well, his work was flawed and lacked a scientific foundation. The errors he made were all tilted in such a way as to incriminate the defendants. We concluded that Williams failed to present an objective, unbiased, and competent report.

Williams' supervisor, J. Thomas Thurman, did not properly review Williams' report. Thurman left too much discretion to Williams to include certain opinions, and Thurman allowed certain conclusions to stand even though he told us that he now does not agree with them and cannot justify them, and the conclusions are unsupported in the body of the report.

All cases handled by the Laboratory deserve professional, diligent treatment. Williams' and Thurman's performances in the Oklahoma City case -- a prosecution of enormous national significance -- merit special censure.

#### **IV. General Summary of Other Matters (Part Three, Sections H1-H13)**

In the course of providing more than 1000 pages of written allegations to the OIG, Whitehurst has also alleged wrongdoing in a range of other cases also addressed in our Report. In none of those cases did we find Whitehurst's allegations of intentional misconduct to be borne out by facts, even when those allegations concerned Laboratory personnel who are sharply criticized in the Report. In investigating those allegations, however, we found instances in which general practices and procedures could be improved. Those more general recommendations are set forth later in this Summary.

In the following cases, our findings and conclusions are set out in detail in the report and we will not repeat the conclusions in this Summary:

- Yu Kikumura, a 1988 prosecution of a member of the Japanese Red Army terrorist faction;
  
- a Laboratory report analyzing two pipe bombs found in fuel storage tanks at a marine terminal in Norfolk, Virginia, in 1991;
  
- analytical work conducted in connection with the disappearance of a young girl named Melissa Brannen in 1989;
- testimony and analytical work in the Italian prosecution of the murderers of Paolo Borsellino, who was killed in a car bombing in Sicily in 1992; the 1994 prosecution of the person charged with the attempted murder of Miami criminal defense attorney Gino Negretti;
  
- work conducted by the Laboratory after James Conlon, a hydraulic crane operator, died in an explosion while working at a scrap metal yard in New Jersey in 1992;
  
- the analysis of smokeless powder found in a pipe bomb sent to U.S. District Judge John Shaw in 1995;
  
- a Laboratory report in which David Williams offered an expert opinion about the main charge in an improvised explosive device in connection with an investigation of the Ghost Shadow Gang of New York; and



- a 1994 article describing fourteen explosive devices thought to be associated with the so-called Unabomber.

Four other matters are also addressed in this section of the Report:

1) Whitehurst alleged that Thurman committed willful misconduct by changing Whitehurst's Laboratory reports. This, and a similar allegation regarding other examiners, arose because one of the supervisors in the Laboratory who has since retired did not strictly adhere to an unwritten policy that auxiliary examiner reports were to be included verbatim in final reports unless the person preparing the final report and the person who had prepared the auxiliary report agreed on the changes. We found numerous instances in which Whitehurst's reports were changed by Thurman. Some of those changes resulted in inaccuracies and unsubstantiated conclusions. Other modifications did not concern matters of substance but were stylistic changes.

2) Whitehurst also contended that EU examiner Wallace Higgins had significantly changed a number of Whitehurst's dictations without his authorization. We substantiated that charge. Both the Thurman and Higgins alterations underscore the need for Laboratory personnel to follow Laboratory policy to ensure that the reports of analytical work prepared by Laboratory scientists are not substantively altered unless agreement is reached on the changes. Our views on the preparation of Laboratory reports are detailed in a later section stating general recommendations.

3) William Tobin, a metallurgist now working in the Materials Analysis Unit (MAU), brought several matters to the OIG's attention. These included cases in which he believed that other examiners (principally in the EU) had incorrectly conducted or reported metals-related examinations. He also contended that Michael Malone, who was formerly in the Hairs and Fibers Unit, testified inaccurately and outside his area of expertise in a 1985 hearing by a judicial committee of the Judicial Council of the Eleventh Circuit relating to then-U.S. District Judge Alcee Hastings, who was subsequently impeached. With respect to the Hastings matter, we concluded that Malone falsely testified that he had performed a tensile test and that he testified outside his area of expertise and inaccurately with respect to the test results. Tobin himself acknowledged that Malone's misstatements did not affect the assessment they both shared that a particular purse strap had been cut. The judicial committee appeared not to place any significance on Malone's testimony with respect to the purse, since there is no mention of it in the specific findings articulated by the committee to support its conclusion that Hastings had committed misconduct. Nonetheless, we found Malone's testimony inexcusable and criticized the Laboratory's failure properly to deal with Tobin's complaint about it.

4) Late in our investigation, Whitehurst wrote a letter to the OIG expressing concerns about testimony given by CTU Chief Roger Martz in Florida v. George Trepal, a case that resulted in the conviction and death sentence of Trepal for having added the poison thallium nitrate to bottles of Coca-Cola. We found that Martz could have properly opined that certain samples were consistent with thallium nitrate having been added to them. Martz,

however, did not limit his conclusions that way, but instead offered an opinion stronger than his analytical results would support. He also failed to conduct certain tests that were appropriate under the circumstances, failed to document adequately his work, and testified inaccurately on various points. Martz's work in this case was seriously deficient.

## **V. Whitehurst's Allegations of Retaliation (Part Four)**

A recurring theme in Whitehurst's complaints and allegations to the OIG has been that the FBI retaliated against him for raising concerns about the FBI Laboratory to the FBI and others. Retaliation is a difficult issue to investigate, because it rests on the motivations of persons taking actions with respect to the complainant. Neutral explanations may sometimes mask an unstated intent to take harmful actions. Some of the allegations in lawsuits filed by Whitehurst against the FBI and the Department of Justice involve actions taken after the OIG launched this investigation. We did not attempt to assess whether recent actions taken by the FBI -- such as placing Whitehurst on administrative leave with pay after the OIG draft report was issued -- constituted acts of retaliation. Rather, our focus was on retaliatory conduct Whitehurst alleged was directed at him before November 1995. With respect to all but one of Whitehurst's contentions, we concluded that the evidence did not substantiate his allegations of retaliation because we discerned no retaliatory purpose behind the FBI's decisions that he questioned. As for the remaining contention, we were unable to complete our investigation due to Whitehurst's decision not to provide a release form that would have permitted key personnel to speak to us about medically sensitive information regarding Whitehurst.

Whitehurst claimed that he was retaliated against for accusing Terry Rudolph of misconduct in the Psinakis case. After he criticized Rudolph, Whitehurst was suspended without pay for seven days and placed on probation for six months. We did not substantiate Whitehurst's claim. FBI management had reason to criticize Whitehurst's actions in the Psinakis case because he erred in making his concerns known only to the defense attorneys, without first discussing them with the prosecutor, case agent, or his supervisors. The evidence further

showed that the FBI's internal discipline unit imposed the suspension despite opposition from Laboratory managers, who recommended the least severe form of discipline possible for Whitehurst. The disparity in treatment between Whitehurst and Rudolph appeared to reflect a failure by management adequately to appreciate the seriousness of Rudolph's conduct rather than an attempt to retaliate against Whitehurst.

Whitehurst also contended that FBI OPR ignored and covered up his allegations that personnel in the Criminal Investigative Division were unlawfully using computer software and that an agent assaulted Whitehurst's wife, who also works at the FBI. Although the evidence showed that the OPR investigation was not as thorough as it should have been, we did not substantiate charges of a coverup. Indeed, Mrs. Whitehurst herself told the OPR investigator that she did not suffer any retribution or continuing harm, although she did feel threatened by the agent at the time of the incident.

Whitehurst next maintained that FBI OPR improperly initiated an investigation into his disclosure of information to the Senate Judiciary Committee. FBI OPR investigated the disclosures, which were admitted by Whitehurst, because of concerns that confidential FBI records had been disclosed to unauthorized persons. When the Judiciary Committee refused to disclose Whitehurst's letters on the ground of protecting confidentiality, FBI OPR closed its investigation and no administrative action was taken against Whitehurst. We found no retaliatory purpose in the actions taken by FBI OPR with respect to this allegation.

In addition, Whitehurst alleged that FBI OPR improperly disclosed derogatory information about him to prosecutors in the World Trade Center and O.J. Simpson cases. After reviewing the disclosures of materials made by the FBI in those cases and interviewing the relevant FBI and U.S. Attorney personnel, we concluded that the FBI did not improperly disclose derogatory information about Whitehurst in those cases, but rather attempted to provide appropriate material regarding witness credibility.

In May 1994, the FBI reassigned Whitehurst from the explosives residue program to be an analyst of paints and polymers. Whitehurst alleged that this reassignment was in retaliation for reporting misconduct in the Laboratory and especially in the Explosives Unit. The Chief of the Scientific Analysis Section, James Kearney, made the decision to transfer the explosives residue program from the Materials Analysis Unit (MAU) to the Chemistry-Toxicology Unit (CTU). He gave two reasons for that move. One was to more closely balance the responsibilities and staffing of the CTU and MAU after a reorganization. A second was to place the explosives residue analysis program under a single unit chief; before that time responsibilities had been divided between the CTU and MAU. Although there was internal opposition to the transfer in responsibilities on the ground that CTU Chief Martz lacked the expertise to supervise the program, we found no evidence of a retaliatory purpose in the transfer of the explosives residue program from the MAU to the CTU.

Similarly, Kearney explained that the reason he moved Whitehurst out of the explosives residue program was because of Whitehurst's poor working relationship with EU and other personnel. Whitehurst acknowledged tension between himself and the EU examiners. MAU Chief Corby also noted that transferring Whitehurst to the CTU with the explosives residue program would have been problematic because of friction between Whitehurst and Martz. Thus, substantial credible evidence showed that the decision to move Whitehurst out of the explosives residue program was not made for a retaliatory purpose.

We also investigated other information proffered by Whitehurst in support of his retaliation claim, but we did not find the anecdotes he supplied to be sufficient to support his claim that an atmosphere of retaliation existed in the Laboratory.

Finally, Whitehurst alleged that in 1993, the FBI ordered him to undergo psychiatric evaluation and therapy in retaliation for his raising various complaints against the FBI Laboratory. We concluded that the Laboratory personnel did not act with a retaliatory purpose in referring the matter to the FBI Health Care Program Unit (HCPU) and the FBI Employee Assistance Program (EAP). However, because Whitehurst did not provide the necessary

medical release forms to allow us to interview key personnel with the HCPU, EAP, and Personnel Section, we could not reach any definite conclusions concerning the motives of any such personnel in referring Whitehurst to psychotherapy.

## **VI. Findings and Recommendations Concerning Individuals (Part Five)**

Because Whitehurst made allegations of misconduct against a large number of persons in a large number of cases, we detailed in a separate part of the Report our findings and conclusions about each person against whom allegations were made or when our findings led us to conclude that the conduct of a person merited critical comment. In some instances, we made recommendations that persons be transferred from the positions they held prior to completion of our draft report, they be given special supervision, and/or their Laboratory reports be reviewed because of concerns we identified in their work.

CTU Chief Roger Martz lacks the judgment and credibility to perform in a supervisory role within the Laboratory. If Martz continues to work as an examiner, we suggest that he be supervised by a scientist qualified to review his work substantively and that he be counseled on the appropriate manner for testifying about forensic work. We further recommended that another qualified examiner review any analytical work by Martz that is to be used as a basis for future testimony.

EU Chief J. Thomas Thurman deserves special censure for his inadequate supervisory review of Williams' report in the Oklahoma City bombing case. Because we concluded that all examiners in the EU, including the Chief, should have a scientific background, we recommended that he be reassigned outside the Laboratory when that restructuring occurs.

EU examiner David Williams should be reassigned outside the Laboratory. Although we did not find that Williams had perjured himself in the World Trade Center case, his work in that case and in the Oklahoma City investigation demonstrate that he lacks the objectivity, judgment, and scientific knowledge that should be possessed by a Laboratory examiner.

EU examiner Wallace Higgins should be reassigned outside the FBI Laboratory when the restructuring of the EU occurs. In the interim, while Higgins remains in the EU, the SAS Chief should counsel Higgins on the proper preparation of reports and monitor his work. A qualified explosives examiner also should review any reports prepared by Higgins.

Richard Hahn no longer works in the Laboratory. If in the future he is called upon to testify about his work as an examiner, we recommended that he be specially counseled about the importance of not testifying on matters beyond his expertise and that his testimony should be reviewed by qualified examiners to ensure that it is appropriately limited.

Michael Malone no longer works in the Laboratory, having been transferred from the Hairs and Fibers Unit in 1994. We concluded that Malone testified falsely and outside his expertise in the Hastings matter. We recommended that the FBI assess what discipline is appropriate and monitor future expert testimony to assure that it is accurate and limited to matters within his knowledge and competence.

Robert Webb also has been transferred out of the Laboratory. We found that Webb's report in the VANPAC case stated conclusions more strongly than were justified by the results of his examinations and the background data. We recommended that another qualified examiner review Webb's analytical work in the event it is to be used as the basis for future testimony.

J. Christopher Ronay was the EU Chief from 1987 through October 1994, when many of the problems raised by Whitehurst first surfaced. We found that he exhibited poor judgment as a manager in approving EU reports. Because he is retired, we did not recommend any action concerning Ronay.

Terry Rudolph is now retired from the FBI. Although we were told that he worked as a consultant for a period of time after his retirement, we recommended that he not be employed in any capacity by the FBI in the future. We further recommended that a notation referring the findings of this Report be placed in each of his case files.

With respect to managers in the FBI Laboratory, we found important instances of deficiencies and failures to handle situations in an expeditious, thorough, and effective manner. A significant example of that finding occurred at the very outset of Whitehurst's criticisms and the weak response of Laboratory management to AUSA Burch's letter to the Laboratory Director regarding deficiencies in Rudolph's performance in Psinakis in 1989. More recent examples involved significant problems in explosives-related cases. Management lapses included failures to supervise appropriately the drafting of Laboratory reports in the EU, to evaluate the competence of examiners, and to establish a climate in which meaningful peer reviews and the professional resolution of scientific disagreements were the norm. The Report singles out for criticism Charles Calfee, Kenneth Nimmich, James Kearney, and John Hicks, all of whom are now retired from the FBI. We did not, however, substantiate criticisms of Alan Robillard, who transferred out of the Laboratory in 1994.

Our investigation exonerated a number of persons against whom allegations of misconduct were made. Those persons included: Roger Asbury, Edward Bender, Louis J. Freeh, Donald Haldiman, Ronald Kelly, Lynn Lasswell, Richard Laycock, Thomas Mohnal, Bruce McCord, Mark Olson, and Howard Shapiro. Furthermore, we did not substantiate Whitehurst's allegations against Alan Jordan, and although we did not substantiate allegations against Robert Heckman in the Borsellino matter, we did find reason to criticize Heckman for his work in the Conlon case.



Finally, the Report discusses Frederic Whitehurst, the complex person whose expression of concern about problems in the Laboratory sparked this investigation. He is an experienced scientist who identified significant problems in certain cases and in certain practices within the Laboratory. He also accused many of his colleagues of perjury, fabrication of evidence, and conspiracy. Those allegations were not supported by the facts uncovered in the investigation. Any decisions about Whitehurst must involve a careful weighing of the substantial contribution he made in bringing to light issues in the Laboratory that needed to be addressed against the considerable harm he has caused to the reputations of innocent persons and the fact that his frequently overstated and incendiary way of criticizing Laboratory personnel will make it extremely difficult if not impossible for him to work effectively within the Laboratory. Our own view is that Whitehurst lacks the judgment and common sense necessary for a forensic examiner, notwithstanding his own stated commitment to objective and valid scientific analysis.

## **VII. Summary of Recommendations Regarding Laboratory Policies and Practices (Parts Six and Seven)**

Although we made recommendations with respect to individuals, we perceived our principal mission to be to make systemic recommendations on Laboratory practices and procedures, the full implementation of which would help the FBI Laboratory avoid in the future the problems we encountered in the matters we investigated. The recommendations as to individuals are, however, a necessary concomitant to achieving the type of organizational and cultural changes that should be undertaken by the FBI. The FBI has recognized in the immediate past that some aspects of its policies and procedures demand change, and upper management has taken steps to put new policies into effect. It is not clear from those policy changes that Laboratory top management has acknowledged that appropriate assessments of personnel are also required. Steps must be taken to provide personnel with the appropriate training, background, and commitment to quality that is required in a first-class forensic laboratory.

In its response to our draft report, the FBI concurred with nearly all of the OIG's systemic recommendations, even though it frequently disagreed with how we applied those general principles in assessing individual performances.

Our emphasis in the previous section on individuals, therefore, should also be read in light of the importance

of investing personnel in the Laboratory with the appropriate skills and motivations to change old practices, as well as of underscoring the need for personal accountability as those changes are made. Thus, although virtually all of the following general recommendations are recognized within the FBI as appropriate and have been accepted as valid, the best proof of acceptance will not be in the articulation of new practices, but in their complete implementation in the coming years.

Our first recommendation was one already accepted by the FBI -- that the Laboratory should pursue accreditation by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). In 1994, Director Freeh announced that the Laboratory would pursue accreditation at the earliest possible time, and the FBI's response to the OIG draft report acknowledged that the Laboratory could and should have sought ASCLD/LAB accreditation a decade ago. We commend the FBI for now making such accreditation a top priority for the Laboratory. The criteria imposed in the accreditation process should promote valuable and productive interchanges with other laboratories to change some of the insular and parochial views we encountered in the EU, CTU, and MAU, as well as to assist the Laboratory in modernizing policies and practices. Accreditation is not a panacea, nor is the absence of accreditation an indictment of all tests performed in the Laboratory. But the process of undergoing accreditation should enhance quality performance.

Second, we recommended that the Explosives Unit be restructured and its mission clarified. One existing problem in the EU is that its personnel are not forensic scientists. We recommended (and the FBI agreed) that examiners in the EU have scientific background in pertinent disciplines such as chemistry, metallurgy, or engineering, as well as technical training in the assembly, deactivation, and use of explosive devices. Although EU examiners should be available to consult at crime scenes, primary responsibility for conducting investigations and directing crime scene management functions should rest with components of the FBI outside the Scientific Analysis Section. (The recommendation concerning the proper role of EU examiners at the crime

scene was the only recommendation discussed in this Section with which the FBI disagreed.)

Third, the Laboratory should abolish its current distinction between principal and auxiliary examiners, in which the auxiliary examiners' reports are combined into

a single report by a principal examiner. In cases in which more than one examiner is called upon to evaluate evidence, we suggested that a coordinating examiner assume the role of ensuring that the correct units of the Laboratory have been enlisted to work on the case and that the reports generated by those units are accurately included in the final set of reports. Although we were told that an unwritten policy (prior to a formal written directive in September 1994) had long been that auxiliary examiner reports were incorporated verbatim, we found numerous instances in which that policy was not followed.

Fourth, we recommended that, instead of one report emanating from the Laboratory with analytical results reflected in the body of that report without attribution to individual examiners, each examiner who performs work should prepare and sign a separate report, even if such individual reports are ultimately collected together as the unified report of the Laboratory as a whole.

Fifth, analytical reports should also be substantively reviewed by the unit chief or another examiner (if the unit chief lacks the requisite expertise or has performed the analysis) before they are released in final reports. Forensic science is sufficiently complex that such substantive review need not always follow hierarchical lines within the Laboratory management structure. A junior examiner who is qualified in the area should be capable of substantively reviewing a unit chief's analysis. Our central point is that peer review by qualified personnel is an essential aspect of a high-performing forensic science laboratory. The Rudolph matter, certain conclusions in the Oklahoma City report, and other cases demonstrate the importance of vigorous, substantive peer review.

Sixth, reports must be supported by adequate case files. The Rudolph files and some of Martz's work underscore the importance of case files containing all of the documentation necessary for another appropriately qualified examiner to be able to understand and replicate the examiner's data and analysis. We encountered the problem of incomplete or missing documentation in many case files. Accreditation will require the Laboratory to maintain a rigorous system of case filing, which has not existed in the past.

Seventh, not only must the files contain all relevant documentation of results, but the records themselves must be maintained so as to facilitate ready retrieval. We suggested that the Laboratory keep its own files rather than integrating Laboratory files with the Bureau's general case filing system.

Eighth, we recommended that the Scientific Analysis Section of the Laboratory Division develop and implement a coordinated training program for examiners. Training has been conducted at the unit level, and has developed in an ad hoc manner. As suggested in the ASCLD/LAB accreditation process, a unified curriculum for common issues and moot courts for testimony would be helpful. At the unit level, managers should clearly articulate training criteria and document completion of curricula.

Ninth, the FBI should develop a uniform program for training examiners with respect to court testimony and monitoring such testimony. We found the problem of examiners testifying to matters beyond their expertise or in ways that were unprofessional in Hahn's testimony in the Avianca case, Williams' testimony in the World Trade Center case, and Martz' testimony in Trepal and Simpson.

Our tenth and eleventh recommendations addressed the development of written protocols generally for the scientific procedures utilized. For the analysis performed in the FBI Laboratory to have wide-ranging credibility in courts and in the forensic science community, examiners must strictly adhere to established protocols for the analysis of evidence or document the reasons for

departing from them. The same is true for the handling of evidence and the adoption of measures to prevent and detect contamination.

Finally, the role of management is critical to achieving the types of reforms needed in the Laboratory. As we have noted, before and during our investigation Laboratory managers have begun the process of implementing many of the recommendations we noted above, as the process of preparing for accreditation continues. Those reforms must be substantive and should be structured to address the fundamental issues raised in our Report.

### **VIII. Conclusion**

The FBI's cooperation with the OIG investigation and acceptance of our systemic recommendations should be lauded. The process of managing necessary changes will be challenging in an environment in which scientific knowledge is expanding and forensic science is increasingly under scrutiny. We welcome the FBI's suggestion of our continued involvement in oversight to assist in ensuring that needed reforms are fully implemented. We will seek to perform that function in a manner consistent with the Laboratory's expeditious efforts to obtain ASCLD/LAB accreditation and its ongoing development of first-class examiners and standards. Although we have rejected the most inflammatory allegations made by Whitehurst, the FBI Laboratory must fully acknowledge past problems that have been identified as it continues its pursuit of excellence in forensic science.

Michael R. Bromwich

Inspector General

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## **PART TWO: BACKGROUND TO THE OIG INVESTIGATION**

In September 1995, the Department of Justice announced that the Office of the Inspector General (OIG) was investigating allegations made by Frederic Whitehurst about the FBI Laboratory. Whitehurst is an FBI Supervisory Special Agent (SSA) with a doctorate in chemistry who has worked in the FBI Laboratory since 1986. During most of his career in the Laboratory, Whitehurst performed chemical analyses of explosives and explosives residue, and his criticisms relate primarily to bombings and explosives cases.

Over several years, Whitehurst has accused other FBI personnel of serious misconduct and even illegal acts. Whitehurst alleges that Laboratory examiners have improperly testified outside their expertise, presented insupportable conclusions, perjured themselves, fabricated evidence, and failed to follow appropriate procedures. He also contends that FBI management retaliated against him for making these accusations. His allegations involve some of the most highly publicized and significant cases investigated by the FBI in recent years, including the mail bomb assassination of United States Circuit Judge Robert Vance, the World Trade Center bombing, the attempted assassination of former President George Bush in Kuwait, and the bombing of the Alfred P. Murrah Federal Building in Oklahoma City.

The OIG investigation focused on Whitehurst's allegations, which largely concern three components of the Laboratory: the Explosives Unit, the Chemistry-Toxicology Unit, and the Materials Analysis Unit. At the outset, the Inspector General emphasized that the investigation would not be restricted to Whitehurst's specific allegations, and that the report would also address any other pertinent issues identified in the course of the investigation and comment on ways to further enhance the quality of the Laboratory's work. We have not, however, attempted to review the Laboratory overall. This report should not be interpreted as either criticism or approval of the Laboratory as a whole or of particular components that are not addressed in the report.

We also think it appropriate to state explicitly our perspective in conducting the investigation and reaching our conclusions. The FBI Laboratory aspires to provide forensic services of the highest quality, and we did observe some impressive work by Laboratory personnel. We recognized, however, that one cannot expect an examiner's work or testimony to have been perfect in every case if it is subjected to a detailed, after-the-fact analysis such as we employed in our investigation. Laboratory examiners work under time constraints and other pressures; scientists can legitimately differ in their interpretation of data; and knowledge and practices in forensic disciplines evolve over time. We also reviewed, with the benefit of hindsight, certain testimony given under courtroom examination, where a witness generally cannot reflect at length on the questions or answers. Bearing these points in mind, when we critically evaluated individual conduct or Laboratory practices, we attempted to apply standards that were generally accepted at the time of the events in question.

Whitehurst's allegations encompass events dating from the early 1980s to the present. During this period, there have been significant changes in the Laboratory and the broader legal and scientific environment in which it operates. To place Whitehurst's allegations and the OIG investigation in context, this Part of the report provides background information. Section I briefly describes the organization of the FBI Laboratory, the Laboratory units that are central to Whitehurst's allegations, and some recent developments affecting the Laboratory in general. Section II describes Whitehurst's background and career in the Laboratory and then reviews the history of his complaints about Laboratory practices and personnel. Section III summarizes the OIG's role in investigating Whitehurst's allegations and how this Report was prepared.

## **I. The FBI Laboratory**

This section of the report describes the Laboratory's organization and the particular units that are the focus of Agent Whitehurst's allegations. We also discuss three developments over the last several years that have affected, or will likely affect, the Laboratory's operations. These are: (1) the Laboratory's adoption of a formal quality assurance program and the decision to pursue accreditation from the American Society of Crime Lab Directors/Laboratory

Accreditation Board (ASCLD/LAB); (2) the FBI's decision to reduce the number of agents assigned as examiners within the Laboratory and to replace many of them with professional support examiners who are not agents; and (3) changes in the legal standard for the admissibility of scientific testimony as a result of the Daubert decision and changes in the federal rules for pretrial disclosure concerning expert witnesses.

## **A. Organization of the Laboratory**

The FBI's Laboratory is formally known as the Laboratory Division. Approximately 583 FBI personnel now work in this division. As shown in the organizational chart that appears in Attachment B to this Report, the Laboratory Division comprises five sections: the Scientific Analysis Section (SAS), the Latent Fingerprint Section, the Special Projects Section, the Forensic Science Research and Training Center (FSRTC), and the Investigative Operations and Support Section. Sections within the Laboratory Division are divided into different units according to function. Although there have been certain organizational changes since the 1980s, the Laboratory's basic organizational structure and managerial hierarchy have largely remained the same.

The Laboratory Division is headed by an Assistant Director of the FBI. Donald W. Thompson has served as Acting Laboratory Director since January 16, 1996. His predecessor as Laboratory Director was Milton Ahlerich, who held the position from July 1994 until his retirement in January 1996. John Hicks was the Laboratory Director from 1989 until his retirement in July 1994.

The Scientific Analysis Section (SAS) is responsible for forensic examinations, except those involving the examination of latent prints or documents. Until recently, the SAS was divided into seven units: Chemistry-Toxicology, Explosives, DNA Analysis, Firearms and Toolmarks, Hairs and Fibers, Materials Analysis, and Forensic Science Systems. The SAS is headed by a Section Chief, currently Randall S. Murch, and each unit is headed by a Unit Chief.



Cases submitted for analysis in the SAS are typically assigned to a Principal Examiner, who may also be referred to as the Primary Examiner or PE. The Principal Examiner is responsible for preparing the Laboratory's final report on the case, which may include analyses performed by that examiner and other Laboratory examiners designated Auxiliary Examiners or AEs. When Auxiliary Examiners complete their examinations, they submit reports, called dictation, for inclusion in the Principal Examiner's official report. For example, an explosives case might be assigned to a Principal Examiner in the Explosives Unit, who prepares a Laboratory report based on his or her own work and on dictation submitted by Auxiliary Examiners in other units.

In bombing and other explosives-related cases, two different units normally have important roles. The Explosives Unit (EU) has been responsible for the analysis of the overall construction of explosive devices, and examiners from that unit have been assigned as the Principal Examiners in most explosives-related cases. EU examiners, however, are not chemists and do not perform a chemical analysis of the explosive material of unexploded devices or the explosives residue of exploded devices. The EU examiners generally do not have academic degrees or significant experience in scientific disciplines; most of them are experienced FBI agents with backgrounds in military explosive ordnance disposal (EOD).

Until mid-1994, the chemical analysis of most explosives and explosives residue was largely conducted by examiners in the Materials Analysis Unit (MAU). From 1989 until 1994, Frederic Whitehurst was the Laboratory's senior examiner of explosives residue. In 1993, Steven Burmeister also began examining explosives residue, and since mid-1994, Burmeister has been the Laboratory's senior examiner in that field. Before 1994, the Chemistry-Toxicology Unit (CTU) also worked on certain explosives cases because that unit performed analyses to identify smokeless powder. The CTU had one or more mass spectrometers (a sophisticated instrument used to identify chemical materials), which the CTU used to analyze various substances for its own examinations or for other units, including the MAU. In the summer of 1994, SAS Chief Kearney transferred responsibility for explosives residue analysis from the MAU to the CTU. Burmeister was reassigned to the CTU, while

Whitehurst remained in the MAU and later began training to become an examiner of paints and polymers.

## **B. The Laboratory' s Quality Assurance Plan and Accreditation**

Changes in Laboratory practices are occurring due to the Laboratory' s decisions over the last several years to implement a formal quality assurance plan and to seek accreditation by ASCLD/LAB. These changes merit comment for two reasons. In evaluating Whitehurst' s accusations that others have violated Laboratory policies or otherwise acted unprofessionally, it is important to recognize that the Laboratory' s practices related to quality assurance have evolved significantly. This fact is also relevant in attempting to identify ways to further improve the quality of the Laboratory' s work.

Before November 1992, there was no formal quality assurance plan for the Laboratory. Instead, the Laboratory sought to promote quality through practices that included: (1) assigning agents to the Laboratory only after they had worked for at least three years in the field and requiring one to two years of on-the-job training in the Laboratory for agents to qualify to work as examiners; (2) consultation among examiners about the interpretation of their results; (3) review and approval of work by unit chiefs before reports were released; and (4) proficiency tests. Because there was no comprehensive quality assurance plan, however, separate units within the Laboratory largely implemented quality assurance measures on an individual basis.

In August 1991, Laboratory Director Hicks approved a recommendation by James Kearney, then the Chief of the FSRTC, to create a quality assurance group to develop a quality assurance and safety program for the entire Laboratory. At that time, an ASCLD Study Committee within the Laboratory was already conducting an internal review of practices and procedures based on standards used by the American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB). ASCLD/LAB administers a voluntary program for accreditation of forensic laboratories based on several objective criteria.

On September 6, 1991, the Study Committee reported to Hicks that it had completed its self-review of the Laboratory. The Study Committee observed that the Laboratory could meet the requirements for accreditation, provided that ASCLD/LAB clarified certain requirements and the Laboratory implemented certain recommendations made by the Study Committee. Within a week of the self-review, however, the Study Committee advised Hicks that the internal inspection showed that several units had not incorporated recently approved policies, including policies related to protocols and the handling of evidence, into their respective manuals.

In December 1991, Study Committee member James Mudd participated as an observer in an ASCLD/LAB inspection of another laboratory. Mudd was impressed by the thoroughness of the inspection. Based on Mudd's experience, Kearney sent a January 17, 1992, memorandum to Hicks noting that:

Compared to the ASCLD/LAB inspection, the initial internal inspection conducted by the [Study Committee] lacked sufficient depth to be a true reflection of what might be encountered during a[n] actual ASCLD/LAB inspection. Therefore, before the Laboratory Division applies for accreditation by ASCLD/LAB, a more thorough and in-depth self-evaluation, based on ASCLD/LAB accreditation criteria, should be undertaken by the Laboratory Division.

Kearney also noted that the ASCLD/LAB inspection placed a great deal of emphasis on documentation and the extent to which a laboratory followed documented procedures. Hicks endorsed Kearney's recommendation that the Laboratory undertake a more thorough self-evaluation. During 1992, Mudd and others at the FSRTC developed a formal Quality Assurance Program Implementation Plan (the QA plan ) based primarily on the ASCLD/LAB standards for accreditation.

Hicks approved the QA plan and distributed it to the section chiefs in November 1992, with a memorandum noting that the plan would be administered by the Quality Assurance and Safety Group (QASG) at the FSRTC. The plan outlined the organizational structure, procedures, and implementation schedule for a comprehensive, Laboratory-wide QA program. In 1993, Hicks approved a recommendation that each unit chief designate a quality control coordinator for each unit. The QASG also began developing a program to audit quality assurance within the Laboratory. Training of representatives from different units for the QA program was conducted in May and November 1993. Over the next two years, the Laboratory continued to refine its QA program and to conduct further internal reviews.

The Laboratory has also implemented several new policies since 1991 as it has formalized its quality assurance program. In May 1991, Hicks approved recommendations by the Study Committee that the Laboratory adopt policies related to the marking and storage of evidence, the use of new technical procedures, corrective actions, and open proficiency testing. Examiners know they are being tested in open proficiency tests; in contrast, they are not aware they are being tested in blind proficiency tests. In September 1991, Hicks endorsed the Study Committee's recommendation that individual units establish manuals for protocols, quality control, training, and safety. Hicks recirculated these policies in January 1994, along with a directive that each unit chief prepare a memorandum describing his unit's compliance.

Two reviews of the Laboratory were completed in the summer of 1994. In June 1994, the Audit Division of the OIG issued a report on the Laboratory. The Audit Report noted that not all Laboratory units had implemented the QA plan uniformly and recommended, among other things, that the Laboratory improve its procedures for documenting casework. That summer, the QASG evaluated the implementation of the QA plan by different units. The QASG review found inconsistent policies and procedures among units on such matters as the unit manuals, evidence handling policies, and protocol format. The review also noted a lack of Laboratory-wide guidelines for casework documentation, report writing, and proficiency testing.

In July 1994, FBI Director Louis J. Freeh appointed Milton Ahlerich to succeed John Hicks as Laboratory Director after Hicks retired. Freeh directed Ahlerich to improve quality assurance generally in the Laboratory and to actively pursue accreditation. Consistent with this directive, and as a result of the Laboratory's internal reviews and the OIG audit, Ahlerich implemented several new policies.

In September 1994, Ahlerich issued a memorandum restating Laboratory-wide policies for case review, documentation, evidence handling, and safety. In January 1995, the Laboratory adopted revised policies for blind proficiency testing. The next month, Ahlerich approved guidelines for standard operating procedures in the Laboratory. In July 1995, new policies concerning the preparation of case notes and the monitoring of testimony by Laboratory examiners were adopted. In September 1995, Ahlerich approved a new open proficiency testing program. That same month, Ahlerich also approved a new policy for the control of evidence.

Implementation of a formal QA plan is important to the quality of the Laboratory's work and is a preliminary step to obtaining accreditation by ASCLD/LAB. Many federal, state, and local forensic laboratories in the United States have been accredited, including eight operated by the Drug Enforcement Administration and three operated by the Bureau of Alcohol, Tobacco, and Firearms. Laboratories in Australia, Canada, Hong Kong, New Zealand, and Singapore also have been accredited by ASCLD/LAB.

The FBI Laboratory has not previously applied for accreditation, although the FBI supported the formation of ASCLD and the later development of the accreditation program. Former Laboratory Director Hicks told us that the FBI had not sought accreditation during his tenure for reasons that included: (1) the costs and time demands of the ASCLD/LAB inspection; (2) the fact that accreditation was not required for examiners to testify; and (3) doubts by management whether the Laboratory needed to be formally accredited. ASCLD/LAB itself acknowledges that the fact that a laboratory chooses not to apply for accreditation does not imply that the laboratory is inadequate or that its results cannot be trusted.

To prepare for accreditation, in January 1995, the Laboratory created a separate Quality Assurance Unit (QAU) as part of the FSRTC in Quantico, Virginia. The QAU was charged with working with other units of the Laboratory and management to review practices and procedures and to assure that the standards for accreditation are met. James Mudd, who had worked on the Laboratory's quality assurance programs since 1990, was named the Quality Assurance Program Manager.

The QAU gave a presentation about the accreditation process to all Laboratory Division employees in March 1995. Subsequently, Ahlerich circulated a memorandum dated May 31, 1995, asking all Laboratory employees to read the ASCLD/LAB manual and to return a signed acknowledgment that they had done so. The Laboratory initially planned to submit an application in 1995, but that goal was not met because the QAU and other units of the Laboratory have continued to review and revise various policies and procedures.

Accreditation will be an on-going process. It begins with a self-evaluation by the applicant laboratory, which then submits an application to ASCLD/LAB. Teams of inspectors, who are from other accredited laboratories, inspect the applicant laboratory to determine if it meets specified criteria. After the inspection report is prepared, the applicant laboratory has a one-year period in which to remedy any deficiencies before ASCLD/LAB decides on the application. Once a laboratory is accredited, it must submit annual accreditation review reports to ASCLD/LAB. To remain accredited, a laboratory must complete the entire application process again after five years.

The FBI advised the OIG in February 1997 that it now intends to submit its written application to ASCLD/LAB later this year. Because the decision on accreditation may not occur until as long as a year after the on-site inspection, it will still be some time before the Laboratory obtains accreditation.

### **C. The Hiring of Non-Agent Examiners**

While attempting to implement a formal QA plan and to otherwise prepare for accreditation, the FBI Laboratory in the last few years has seen major changes in its staff of forensic examiners. Until 1994, the Laboratory Division generally required its examiners to also be FBI agents, except in the Latent Fingerprint section, where the examiners have always been non-agent professional staff. The FBI in 1993 reduced the number of agents assigned to FBI Headquarters in Washington, D.C., a step that had a substantial impact on the Laboratory Division. Many experienced agent examiners have left the Laboratory Division and have been transferred to FBI offices around the country, where they are working as investigative agents rather than as forensic examiners.

The Laboratory Division has begun training civilian professional support examiners to replace some of the former agent examiners. New examiners have been hired from other forensic laboratories and from personnel who have worked in the Laboratory but were previously ineligible to become examiners because they were not agents. As of September 1996, the Laboratory had approximately 204 examiners, including 61 agent examiners and 143 professional support examiners. Of the latter, 102 had fully completed their training and had been deemed qualified by the FBI to testify to their examinations. Within the SAS, there were 68 examiners, including 38 agent examiners and 30 professional support examiners. In contrast, at the end of 1993, there were 60 agent examiners in the SAS and 103 agent examiners in the Laboratory Division overall, as well as 84 non-agent fingerprint examiners.

The reduced agent staff has continued to do case work while also assisting in the training of new examiners. The Laboratory Division acknowledges that these personnel changes have caused some disruption and delays in the processing of cases. Over time, the FBI intends to have professional support examiners occupy nearly all examiner positions in the Laboratory.

#### **D. Changing Legal Standards for Admissibility and Disclosure**

In the last several years, the legal standards for the admissibility of scientific expert testimony and for pretrial disclosure concerning expert testimony have

significantly changed. Because these evolving standards are part of the context in which the Laboratory operates, and they may affect the operations of forensic laboratories in general, we comment briefly on them here.

The United States Supreme Court in June 1993 adopted a new standard for the admissibility of scientific evidence in its decision in Daubert v. Merrill Dow Pharmaceuticals, Inc. The Court there held that Federal Rule of Evidence 702 supersedes the general acceptance test established nearly 70 years earlier in Frye v. United States. Rule 702, the Supreme Court concluded, does not require general acceptance in the relevant scientific community as an absolute prerequisite for the admissibility of scientific evidence. Instead, when presented with proposed scientific testimony, the district court must make a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid, and is therefore reliable in an evidentiary sense.

Daubert explicitly contemplates that the district courts will have a gatekeeping role with respect to scientific expert evidence. While declining to adopt a definitive checklist or test, the Supreme Court noted several factors a court should consider. Those factors include: (1) does the theory or technique involve testable hypotheses; (2) has the theory or technique been subject to peer review and publication; (3) are there known or potential error rates and are there standards controlling the technique's operation; and (4) is the method or technique generally accepted in the scientific community? The trial court must also consider the relevance or fit of the proposed testimony by determining if the reasoning and methodology can properly be applied to the facts at issue.

The application of Daubert in criminal cases will be clarified through further court decisions, and we do not attempt in this Report to assess Daubert's implications for testimony by Laboratory examiners in particular areas. Nor do we address how courts should distinguish scientific expert testimony from non-scientific expert testimony or what standards should determine the admissibility of the latter.



The federal rules concerning the disclosure of expert testimony changed effective December 31, 1993. Although the Federal Rules of Criminal Procedure previously allowed defendants to obtain certain test results and reports, some courts had held that the rules did not necessarily require pretrial disclosure of the identity of expert witnesses who had not prepared reports. Under the amended rules, the government, if requested by the defendant, must provide a written summary of intended expert testimony. The summary must describe the opinions of the witness, the bases and reasons therefore, and the qualifications of the witness.

Expert testimony may be subject to increased scrutiny as a result of Daubert and the changes in the disclosure rules. If so, these new legal standards will have an impact on forensic laboratories as well as the courts. Laboratories will need to provide sufficient information so counsel can make the required written disclosures, including the bases and reasons for opinions and the expert's qualifications. Such information in turn will likely be part of the material considered by district courts in those cases where Daubert is applied to evaluate proposed expert scientific testimony.

## **II. Whitehurst and His Allegations**

This section describes Agent Whitehurst's background and career in the FBI and provides a brief history of his allegations about misconduct in the Laboratory.

Frederic Whitehurst entered college in 1965 at East Carolina University in Greenville, North Carolina. In 1968, he interrupted his college studies to enlist in the U.S. Army. Whitehurst served in the Army until 1972, when he was honorably discharged after three tours of duty in Vietnam. In 1974, Whitehurst received a bachelor's degree in chemistry from East Carolina University. He received a doctorate in chemistry from Duke University in 1980 and then worked for two years as a research associate in chemistry at Texas A & M University.

In 1982, Whitehurst joined the FBI. After completing training at the FBI facility in Quantico, Virginia, he worked as a field agent on criminal investigations in Houston, Sacramento, and Los Angeles. In 1986, he began working in the Laboratory at FBI Headquarters in Washington, D.C., where he was assigned to the Materials Analysis Unit (MAU). As a matter of FBI policy, Laboratory scientists generally do not testify until they have been qualified as examiners. Whitehurst was qualified by the Laboratory as an examiner in forensic chemistry in 1987. From that time until 1994, his work focused on the analysis of lubricants, explosives, and explosives residue.

After the explosives analysis program was transferred to the CTU in June 1994, Whitehurst remained in the MAU, where he was reassigned to begin training to become an examiner of paints and polymers. He maintains that the transfer of the explosives analysis program to the CTU and his reassignment were in retaliation for his allegations that Laboratory scientists improperly performed analyses in certain cases, including the World Trade Center bombing case. In 1996, Whitehurst was reassigned to the newly-formed Hazardous Material Response Group (HMRG) after the MAU's paint and polymer analysis program was transferred to the CTU. In the HMRG, Whitehurst conducted studies related to environmental crimes investigations while he also continued to work on becoming qualified as an examiner in paints and polymers.

Whitehurst's complaints about other FBI scientists arose soon after he joined the Laboratory. Whitehurst trained as an examiner under Terry Rudolph, who also has a doctorate in chemistry and who was the Laboratory's senior examiner in the field of explosives residue analysis from 1977 to 1988. According to Whitehurst, Rudolph was very sloppy in his work habits. Whitehurst maintains that Rudolph kept his work area dirty and in disarray, that he was indifferent to problems of contamination, and that he reached conclusions that were not supported by adequate analyses. Whitehurst also maintains that he voiced his concerns about Rudolph to the MAU chiefs and others in the Laboratory to no avail.

In May 1989, Whitehurst communicated his concerns about Rudolph's work to persons outside the Laboratory during the trial in United States v. Psinakis. In that case, Whitehurst reexamined evidence that Rudolph in 1982 had

determined contained traces of the explosive PETN. While the trial was under way, Whitehurst approached a defense expert and told him that he thought the identification of PETN on the evidence might have resulted from contamination due to Rudolph's work habits. Whitehurst did not tell the prosecutor or Rudolph about his misgivings before he spoke with the defense expert.

After returning to the Laboratory from the Psinakis trial, Whitehurst advised his unit chief and the Laboratory Director of his actions because he was concerned that he may have violated FBI policy. In August 1989, the FBI's Office of Professional Responsibility (FBI OPR) began an investigation of Whitehurst's actions in the Psinakis trial. John Hicks, the Laboratory Director, wrote to FBI OPR in November 1989, recommending that Whitehurst receive an oral reprimand. Hicks later repeated this recommendation in the fall of 1990. Consistent with FBI procedures, the FBI Administrative Service Unit (ASU) reviewed the matter to determine an appropriate sanction. On October 26, 1990, Whitehurst was suspended for one week without pay and placed on six months probation.

In July 1989, the Assistant United States Attorney (AUSA) in Psinakis wrote to Laboratory Director Hicks and stated that Rudolph's analysis was deficient, that the judge had nearly excluded Rudolph's testimony, and that the defense had seriously impeached Rudolph. This was the first formal, written complaint against Rudolph. It came from a reliable source, independent of Whitehurst. The prosecutor did not criticize Whitehurst, but instead noted that he appeared sincerely committed to the integrity of the judicial process.

As a result of the letter from the prosecutor, MAU chief Jerry Butler reviewed 200 of Rudolph's cases and found administrative shortcomings including missing notes and lack of documentation. After Butler recommended a more thorough technical review, CTU chief Roger Martz reviewed 95 of Rudolph's case files. In August 1989, Martz reported that Rudolph's analyses supported the results and that Martz found no technical errors in the final reports. The Laboratory concluded that further inquiry was not required. Despite the prosecutor's written complaint, the Laboratory did not then review a transcript of Rudolph's testimony in Psinakis, and Rudolph was never disciplined for his actions in that case.

In December 1990, Whitehurst again complained within the Laboratory about Rudolph's work habits and also alleged that Rudolph was a racist, had abused annual leave, had perjured himself, and had lied to an AUSA. As a result, FBI OPR opened an investigation on Rudolph and the Laboratory in March 1991 directed MAU Chief James Corby to review a number of Rudolph's cases. After reviewing 200 cases, Corby found that 57 lacked sufficient information to support certain of Rudolph's conclusions. Based on this review, in April 1992, SAS Chief Kenneth Nimmich recommended to Director Hicks that Rudolph review the 57 cases and attempt, based on his recollection or personal notes, to add documentation to support the findings and then prepare a memorandum for each file describing any additional information. Nimmich also recommended that Rudolph be severely reprimanded for his casework. Instead, Director Hicks admonished Rudolph orally at a meeting in which Hicks also gave Rudolph a cash bonus.

After the FBI OPR completed its investigation, the FBI Administrative Services Division (ASD) advised Rudolph in June, 1982 that the inquiry had not developed facts warranting any administrative action. In March 1993, Nimmich reported to Hicks that Rudolph had reconstructed 57 files and that the action taken was documented in the files. Nimmich further recommended that the matter be closed. Whitehurst apparently was not formally told by Laboratory management about the results of the FBI OPR investigation or the various reviews of cases worked by Rudolph.

In the spring and summer of 1993, Whitehurst became embroiled in controversies within the Laboratory about the analysis of certain evidence from the February 1993 bombing of the World Trade Center. Briefly stated, he contended that Lynn Lasswell improperly labeled certain peaks on the output from an Ion Mobility Spectrometer (IMS) as indicative of the explosive urea nitrate; that Lasswell incorrectly concluded that urea nitrate could be identified with the use of mass spectrometry in a report approved by his Unit Chief Roger Martz; and that another examiner had pressured Whitehurst to remove qualifying language from his conclusions in a report. In July 1993, Whitehurst sent Hicks memoranda describing these complaints and also asserting that Lasswell and Martz were not qualified to examine explosives.

Whitehurst's allegations first came to the attention of the OIG in the fall of 1993 during an OIG audit of the Laboratory Division. When OIG auditors interviewed Whitehurst in October and December 1993, he described his complaints about other Laboratory personnel in the World Trade Center investigation and Rudolph. He later wrote two memoranda to OIG auditor Dan Strohl in December 1993 that primarily concerned the World Trade Center case.

The first trial related to the bombing of the World Trade Center began in September 1993. The government submitted copies of the Strohl memoranda to the district court, which in turn directed the government to give the memoranda to the defense attorneys and to allow Whitehurst to be interviewed by them. Defense counsel interviewed Whitehurst in January 1994; the transcript of the interview was placed under seal by the district court. Neither the prosecution nor the defense called Whitehurst as a witness at this trial.

In February 1994, Whitehurst's attorney, Stephen Kohn, wrote to the FBI describing various allegations regarding the Laboratory and stating that an investigation should be conducted by a special counsel. FBI General Counsel Howard Shapiro responded to Kohn that the FBI Office of General Counsel (FBI OGC) would conduct an investigation itself. Over the next several months, the FBI OGC interviewed Whitehurst and other persons, reviewed documents, and reviewed the previous internal investigations. The FBI OGC investigation is described in a May 1994 memorandum to Shapiro from Steven Robinson, the Principal Deputy General Counsel, and John Sylvester, an Assistant General Counsel. Robinson and Sylvester concluded that, except for the Rudolph matter, the Laboratory had fully investigated each of Whitehurst's allegations and taken appropriate action. Regarding Rudolph, the authors of the May 1994 memorandum noted that they did not think his work product would withstand significant scientific or legal scrutiny and they recommended that MAU chief James Corby review all of Rudolph's casework.

During the spring of 1994, the OIG Audit Division was completing a draft report based on its review of the Laboratory. In May 1994, the Audit Division referred the allegations made by Whitehurst to the OIG Investigations Division (OIG INV). That month, OIG INV agents interviewed Whitehurst, who

repeated allegations he had made earlier to OIG audit personnel. After meeting with the FBI OGC and reviewing the May 1994 memorandum by Robinson and Sylvester, OIG INV concluded that the issues raised by Whitehurst were largely being addressed by either the OIG audit process or the FBI OGC investigation.

OIG INV did, however, decide to review further Whitehurst's allegations that conclusions or dictation he had prepared as an auxiliary examiner had not been accurately incorporated by EU examiner J. Thomas Thurman into final Laboratory reports. This was an issue that the FBI OGC had also determined merited further investigation. In the fall of 1994, the FBI gave the OIG copies of reports prepared by Thurman that incorporated dictation by Whitehurst. After reviewing these reports, Whitehurst identified to the OIG what he maintained were material alterations in several of his dictations. In January 1995, the OIG interviewed James Corby, then the unit chief of the MAU, who had also reviewed Thurman's reports and concluded that some of Whitehurst's dictations had been significantly changed.

OIG INV sought to interview MAU examiner Steven Burmeister to determine if his dictation, like Whitehurst's, had been changed in reports prepared by Thurman. Because Burmeister was involved in several on-scene bombing investigations, this interview did not occur until May 1995. In the interview, Burmeister did not identify any significant changes to his dictation, but he did support Whitehurst's allegations that some CTU examiners in the World Trade Center case had examined explosives residues without having been qualified by the Laboratory to perform such examinations and they had incorrectly concluded that urea nitrate had been identified in certain evidence.

Based on the Burmeister interview and additional correspondence from Whitehurst, the OIG concluded that it should review Whitehurst's allegations more broadly. Over the spring and summer of 1995, the OIG discussed with FBI OPR possibly conducting a joint investigation. In July 1995, the Inspector General determined that the OIG should expand its investigation to include those allegations previously being reviewed by FBI OPR. FBI Director Freeh agreed with this determination and advised the OIG that the FBI would cooperate fully in the investigation.

Whitehurst's allegations became publicized in the late summer and early fall of 1995. On August 14, 1995, he was called by the defense to testify in the trial of Sheik Omar Abdel-Rahman, who was charged with various co-defendants with a conspiracy that included the World Trade Center bombing as an overt act, other bombings in New York, and the murder of two individuals. In testifying, Whitehurst claimed that he had been pressured to bias his interpretation of evidence in the World Trade Center investigation and that initial reports about the presence of urea nitrate were incorrect.

Nearly one month later, on September 12, 1995, defense attorneys subpoenaed Whitehurst to testify in People v. O.J. Simpson, the California state court trial of O.J. Simpson for the murders of Nicole Brown Simpson and Ronald Goldman. Shortly thereafter, Whitehurst made several media appearances, appearing on the television programs Prime Time Live on September 13, 1995; The Larry King Show on September 14, 1995; and The Today Show on September 25, 1995. An article about Whitehurst's allegations also appeared in the September 25, 1995, issue of Newsweek magazine.

In response to the media attention, the FBI issued a press release on September 13, 1995. The release noted that Whitehurst had raised a variety of concerns about forensic protocols and procedures employed in the FBI Laboratory, and stated that the FBI had vigorously investigated his concerns and is continuing to do so. The FBI press release further stated that the FBI had reviewed more than 250 cases involving prior work in the Laboratory and to date had found no evidence tampering, evidence fabrication, or failure to report exculpatory evidence. The press release observed that [a]ny finding of such misconduct will result in tough and swift action by the FBI. The release also stated that the FBI was fully cooperating with the OIG investigation of Whitehurst's allegations.

On September 16 and 17, 1995, defense attorneys and prosecutors in the Simpson case interviewed Whitehurst regarding Roger Martz and related matters. In July 1995, Martz had testified in the Simpson trial that he had examined certain blood samples and concluded that they did not contain blood that had been preserved with the compound EDTA. The defense in Simpson

proposed calling Whitehurst to testify that Martz had a habit or custom of biasing test results to support the prosecution.

In an order issued September 20, 1995, California Superior Court Judge Lance Ito ruled that Whitehurst would not be allowed to testify. Judge Ito noted that Whitehurst had no direct knowledge concerning the EDTA testing in the Simpson case and that whether Martz was qualified to conduct explosives residue testing in other cases had no direct bearing on the EDTA testing.

### **III. The OIG Investigation**

On September 18, 1995, the Department of Justice announced that the OIG was investigating allegations by Whitehurst and that the OIG would select a panel of forensic scientists to assist in the investigation. The OIG invited both the FBI and Whitehurst to suggest names of possible outside experts. Laboratory Director Milton Ahlerich responded with suggestions and also stated that the Laboratory welcomed a review of its work and would cooperate completely with the OIG to facilitate whatever review it deemed appropriate. Whitehurst also said he welcomed an outside review of his allegations, and he too suggested experts who might participate.

In identifying experts to assist in the investigation, the OIG sought scientists who are respected internationally and who have expertise both in the relevant scientific areas and in the operation of scientific laboratories. On November 8, 1995, the OIG announced that five scientists would serve as consultants in the investigation. Those scientists, their positions, and their qualifications are described below:

- Mr. Nicholas S. Cartwright is currently the Officer in Charge of the Science & Technology Branch of the Royal Canadian Mounted Police (RCMP) and the Manager of the Canadian Police Research Centre. He served previously as the Chief Scientist-



Chemistry in the RCMP Central Forensic Laboratory and has extensive experience in the forensic applications of analytical chemistry, including explosives residue, paints, and fire debris. He chairs the International Civil Aviation Organization's Ad Hoc Group of Specialists on the Detection of Explosives and is a member of the Federal Aviation Administration's Security Research & Development Scientific Advisory Panel.

- Dr. Paul B. Ferrara is the Director of the Division of Forensic Science for the Commonwealth of Virginia. A nationally recognized expert in the field of DNA analysis, Dr. Ferrara serves on the National DNA Advisory Board. He is the past chairman of ASCLD/LAB and was a member and consultant, respectively, to the 1992 and 1996 National Research Council Committees on DNA Technology in Forensic Science.
  
- Mr. Douglas M. Lucas is the retired Director of the Centre of Forensic Sciences of the Province of Ontario, Canada. He is a past president of the American Academy of Forensic Sciences (AAFS), and served for twelve years as the Chair of the AAFS Ethics Committee. He also is a past president of ASCLD and the International Association of Forensic Sciences.
  
- Dr. Gerard Murray, a Principal Scientific Officer of the Forensic Science Agency of Northern Ireland, is one of the world's leading authorities in the analysis of explosives residue. He has testified in terrorist cases in the United States, Germany, the Republic of Ireland, and the United Kingdom. In 1994, he was named an Officer of the Order of the British Empire.
  
- Dr. Richard Schwoebel retired in 1995 from the Sandia National Laboratories in Albuquerque, New Mexico, where he had held numerous posts in a thirty-three year career. As Director of the Surety Assessment Center, he was responsible for nuclear weapon

safety and reliability. While serving as Director of Components at Sandia, Dr. Schwoebel led a team of scientists that provided the General Accounting Office with an independent assessment of the 1989 explosion that killed 47 crewmen aboard the U.S.S. Iowa.

Four attorneys from the Department of Justice also played central roles in the investigation. These attorneys are Barry Rand Elden, an Assistant United States Attorney and the Chief of Appeals for the United States Attorney's Office for the Northern District of Illinois; Scott Bales, an Assistant United States Attorney in the District of Arizona; Nicole Cubbage, a prosecutor in the Fraud Section of the Justice Department's Criminal Division; and Lawrence Lincoln, an Assistant United States Attorney in the Western District of Washington. Also assisting in the investigation were several personnel from the OIG, including Inspector Alison Murphy and Special Agents Robert Mellado, Kimberly Thomas, Joseph LeStrange, and Judson Spring.

After the investigative team was assembled in late 1995, the OIG began obtaining pertinent documents from the FBI and continued reviewing communications received from Whitehurst. Ultimately, the FBI provided more than 60,000 pages of documents in response to requests from the OIG, including case files, work notes, test results, policies, internal memoranda, and other materials. The OIG's investigative team also interviewed individuals who were identified as possibly having relevant information.

Interviews were conducted by the attorneys and OIG special agents working on the investigation. In some instances, one or more of the scientific experts attended the interviews and asked questions themselves. Certain witnesses, including Agent Whitehurst, were interviewed under oath, and their interviews were transcribed. Other interviews were summarized in memoranda prepared by OIG special agents. More than 100 witnesses were interviewed as part of the investigation, and several were interviewed more than once. The experts and attorneys met in Washington, D.C., beginning in late 1995 and continuing through early 1997 to discuss the course of the investigation, additional information to be obtained, and our conclusions.

After a draft of the Report was completed on January 21, 1997, the OIG invited the FBI to review the draft for factual accuracy. The FBI provided seventy-two pages of written comments on February 12, 1997 and twelve additional pages of comments on March 24, 1997. The OIG also solicited comments on parts of the draft from certain United States Attorneys' Offices or others who had been involved in the prosecution of particular cases. Agent Whitehurst began reviewing a draft of the Report, but declined to provide comments after the OIG refused to allow his private attorney to also review the draft. Based on the responses received from the FBI and others, the experts and attorneys again met and considered whether revisions were appropriate.

This report is the result of the foregoing investigative efforts.

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## **PART THREE: ANALYSIS OF PARTICULAR MATTERS**

### **SECTION A: ALLEGATIONS CONCERNING TERRY RUDOLPH**

#### **I. Introduction**

Since Whitehurst joined the Laboratory in 1986, he has repeatedly complained about SSA Terry Rudolph, who preceded Whitehurst as the Laboratory's senior examiner of explosives residue. Whitehurst alleges that Rudolph was incompetent and that the Laboratory sought to ignore or cover up his deficiencies. In this section, we address allegations that Whitehurst and others have made concerning Rudolph, and we evaluate the Laboratory's actions in response to those allegations.

Terry Rudolph worked as an explosives residue examiner in the Laboratory from 1979 until 1988, when he began teaching at the FBI Academy in Quantico, Virginia. After Whitehurst joined the Laboratory in 1986, he worked with Rudolph to become qualified to examine explosives residue. Whitehurst soon began complaining to his unit chiefs that Rudolph was sloppy in that he maintained a messy work area and performed inadequate examinations.

In 1989, Whitehurst voiced his concerns about Rudolph for the first time outside the Laboratory. During the trial in United States v. Psinakis, Rudolph was expected to testify about his identification of the explosive PETN on certain evidence. After the prosecutor learned the defense intended to challenge Rudolph's analyses, Whitehurst was asked to re-examine the evidence. Whitehurst also found PETN in his examinations, and he attended the trial prepared to testify. Without first raising his concerns with the prosecutor or Rudolph, Whitehurst approached a defense expert and said he thought the FBI's

identification of PETN may have resulted from contamination of the evidence due to Rudolph's sloppy work habits.

Whitehurst ultimately did not testify at the trial. In Part Four of this Report, we discuss our evaluation of his conduct and his claim that the FBI improperly retaliated against him by suspending him for one week for his actions.

Rudolph did testify in Psinakis. At the end of the trial, the jury acquitted the defendant. In July 1989, the prosecutor, Assistant United States Attorney (AUSA) Charles Ben Burch, wrote to the FBI complaining that Rudolph's analysis was deficient, that the judge had nearly excluded his testimony, and that Rudolph had been seriously impeached by the defense.

In August 1989, the Laboratory completed two internal reviews of Rudolph's casework. MAU Chief Jerry Butler reviewed 200 cases, found numerous administrative shortcomings, and recommended a further in-depth review. CTU Chief Roger Martz reviewed 95 case files, reported that Rudolph's analyses supported the results and that Martz found no technical errors, and recommended there be no further technical review of Rudolph's cases. The Laboratory concluded that no further action concerning Rudolph was necessary.

In 1991, the FBI OPR opened an investigation concerning Rudolph after Whitehurst complained not only about his sloppy work but also that Rudolph had perjured himself, lied to an AUSA, and abused annual leave, and that Rudolph and his technician Edward Bender were racists. As a result of Whitehurst's allegations, the Laboratory also initiated a third review of Rudolph's case files, this one by MAU Chief James Corby.

After reviewing 200 cases, Corby reported that he found 57 lacking adequate documentation or information to support the stated conclusions. CTU examiner Lynn Lasswell also reviewed the 57 cases identified by Corby. In April 1992,

SAS Chief Kenneth Nimmich advised Laboratory Director John Hicks that Rudolph would be asked to review the 57 cases and, if possible, reconstruct from his personal recollection, diaries, or other personal notes sufficient documentation for the findings reported. Nimmich stated that a memorandum should be prepared for each file describing any additional information.

Nimmich also recommended in April 1992 that Rudolph be severely reprimanded for his lack of professionalism and inattention to detail. Instead, Hicks admonished Rudolph orally at a meeting in which Hicks also gave Rudolph a cash incentive award. In June 1992, the FBI advised Rudolph that the FBI OPR inquiry had not developed facts warranting administrative action. In March 1993, Nimmich reported to Hicks that Rudolph had reconstructed the 57 files and that Nimmich recommended the matter be closed.

Within the Laboratory, MAU Chief Corby advocated a further review of Rudolph's case work. In May 1994, after investigating Whitehurst's allegations on several matters, the OGC recommended that Corby review all of Rudolph's cases. After reviewing 654 of Rudolph's cases, Corby reported in November 1995 that 24% contained errors or were administratively or technically incomplete. Rudolph disputed these findings. He retired from the FBI in June 1996.

To investigate the Rudolph matter, we conducted sworn and transcribed interviews of Edward Bender, Steven Burmeister, Charles Calfee, James Corby, Terry Rudolph, Roger Martz, Kenneth Nimmich, and Frederic Whitehurst. We also interviewed other witnesses, including Milton Ahlerich, Roger Asbury, Ben Burch, John Dietz, Frank Doyle, John Hicks, James Kearney, Lynn Lasswell, Randy Murch, Robert O'Brien, Ralph Regalbuto, Steven Robinson, John Sylvester, and Don Thompson. We reviewed all available documents produced by the FBI pertaining to the Psinakis case, the reviews of Rudolph's case files, and the relevant FBI OPR investigations.

Based on our investigation, we conclude that, in Psinakis and in numerous other cases, Rudolph did not competently or professionally perform his work as

an examiner. As is discussed infra in Part Three, Section H9, we also note similar problems in certain work that Rudolph did in the UNABOM case. We further conclude that the Laboratory did not adequately investigate or resolve the concerns about Rudolph after the Psinakis prosecutor's July 1989 letter, after Butler's 1989 review, or after Corby's 1992 review. We recommend that a notation concerning this Report's findings be included in each of Rudolph's case files. We further recommend that the FBI not employ Rudolph in any capacity in the future.

## **II. The Psinakis Case**

### **A. Factual Background**

This case involved an American citizen suspected of smuggling explosives to the Philippines. During the investigation, a large quantity of detonating cord that had been stripped, or cut along the side so the explosive inside could be removed, was found in the suspect's garbage. At the Laboratory, Rudolph examined a white powder extracted from the cord and determined, through the use of x-ray powder diffraction (XRD), that it was PETN, an explosive commonly found in detonating cord. The suspect's home was then searched, and FBI agents found tools that were submitted for examination to ascertain if they had been used to strip the cord and extract the powder.

In January 1982, Rudolph conducted a liquid chromatography test on white powder removed from the tools and concluded it was PETN. He issued AE dictation stating that PETN was found on the tools, including pliers and a utility knife. A Laboratory report dated February 18, 1982, similarly stated that the identified tools had been instrumentally examined and determined to contain PETN. Neither Rudolph's dictation nor the final report identified the instrumental analyses performed. This report was given to the prosecutor and turned over to the defense.

In 1989, Rudolph was called to testify at the Psinakis trial. AUSA Burch recalls that Rudolph assured him that the examinations were sufficient, conclusive, and

could easily be used at trial. Burch learned through discovery that the defense was prepared to offer expert witnesses to challenge Rudolph's conclusions. As a result, Burch retrieved certain evidence from the court's custody and sent it back to the FBI Laboratory for additional testing. By this time, Rudolph was no longer working in the Laboratory as an examiner. Whitehurst conducted the tests and confirmed the presence of PETN by the use of gas chromatography/mass spectrometry. He then went to San Francisco so he could testify about his results if needed.

In late May 1989, the court in Psinakis held an evidentiary hearing on the admissibility of expert testimony. While waiting to testify, Whitehurst approached a defense expert and told him he had concerns about the reliability of Rudolph's conclusions. Whitehurst told the defense expert that Rudolph's work area had always been very dirty and possibly contaminated, and he suggested that this sloppy behavior could have been the source of the explosive found on the evidence. Whitehurst did not tell the prosecutor or Rudolph about his misgivings before speaking with the defense.

At the May 1989 hearing, the court did not allow Whitehurst to testify about his own test results because the court concluded the government had improperly removed the evidence from the court's custody for further testing. Burch mistakenly thought the court clerk had the judge's approval to release the evidence. Defense counsel, however, asked the court to have Whitehurst held on call because someone at the FBI had doubts about Rudolph's testimony. Whitehurst ultimately did not testify.

Rudolph testified at the evidentiary hearing about his identification of PETN on the tools. He acknowledged that the only instrumental technique he had used was liquid chromatography (LC). He agreed with statements in a treatise that LC most often provides only a tentative confirmation and that a final confirmation requires use of an ancillary method such as mass spectrometry and infrared spectroscopy. Rudolph admitted he had not used any confirmatory techniques in addition to the LC test.



To counter the defense argument that LC alone was insufficient to identify PETN, Burch elicited from Rudolph that his opinion rested on many other factors. Rudolph noted that the cord found in the garbage was found to contain PETN; that the tools were of the type used to strip detonating cord; that he had examined microscopically a known sample of PETN and white powder from the tools and they compared essentially identically ; that he tested the powder with diphenylamine and it gave a blue color in just seconds which is another factor that tells me that I'm dealing with PETN ; that the sample was immediately soluble in a mixture of acetonitrile and water, again, a factor, an indicator that we are dealing with the same material [PETN] ; and, additionally, I took into consideration that in the time that I had done these analysis I have never ever encountered another explosive that interfered with the analysis of PETN on this [liquid chromatography] system.

The court asked Rudolph why the diphenylamine test and other tests he described were not documented in his notes. Rudolph responded, When I examine a case I put in my notes things that are important to me when I . . . give testimony. I don't write my notes for the United States Attorney. I don't write my notes for the defense. I write my notes for myself. Rudolph said he had done thousands of tests since 1982 and could not possibly remember them all. The court asked, Isn't that one of the reasons you keep notes? Rather than respond directly, Rudolph said this case was different because he and his technician remembered it specifically. Rudolph also said he often used this case as an example in teaching classes.

On further examination by the defense, Rudolph was asked the following:

Q: Mr. Rudolph, did I understand you to say that your opinion is based, in part, on the suggestion that PETN was found in the garbage?

A: Yes.

Q: And therefore, that helped you conclude what the traces were on tools inside the house?

A: Yes.

Rudolph also stated the following:

Q: In other words, what you've done is take a liquid chromatography and then bolster it or add to it by your own observations about the state of the physical evidence in the case; is that right?

A: That would be correct.

Rudolph admitted that liquid chromatography was not used to identify total unknowns. He said that as a chemist he had learned to do things in an expedient way, but yet still efficient. As an example, he said he would confirm the identity of PETN in blasting caps by liquid chromatography, because I could do a liquid chromatography analysis in a few minutes while it would take 45 minutes to do x-ray powder diffraction. Regarding the evidence in Psinakis, Rudolph stated that there is absolutely no doubt that that material was PETN, absolutely none. I felt as strong about that identification that that material on those blades were PETN as I have in any analysis I have ever done.

After the evidentiary hearing, the defense urged the court to exclude the evidence because all the witnesses, including Rudolph, agreed that LC was not an adequate test to identify PETN. Without directly countering this argument, AUSA Burch noted that the FBI had recently tested the powder from the utility knife by the use of mass spectrometry and another test and determined it was PETN. Burch also argued that Rudolph based his opinion on information in

addition to the LC test. Burch stated that Rudolph doesn't purport to be somebody who is simply a chemist testifying. He is a forensic examiner of materials. He uses chemistry as one of the bases for his opinion. Burch argued that Rudolph's testimony should be admitted and the jury could assess its weight.

The court ruled:

Well, I'll permit the testimony of Mr. Rudolph with the understanding that if he persists in making his statement that he is as positive about this as he is that the sun rose this morning, I may very well make some comment to the jury to put the basis for his opinion in somewhat better perspective.

So he better be alerted to the fact that his testing was not totally adequate.

I thought for a time that if he used this case, as he says, as a subject matter of his courses of instruction, that it might have stood for a different proposition than he has had it stand for up to now; that proposition being that even with the FBI lab, completion of all necessary processes in investigations is an awfully good idea, and leaving things undone because it takes more than 45 seconds to do them is not one of the smarter things to do.

But this jury, I think, is capable of appraising what he has done and what he hasn't done. And it is, in large degree, a matter of weight. And I'll permit him to testify.

After this ruling, the defense moved to exclude Rudolph's testimony because it offered an investigative opinion rather than a scientific one. The defense attorney stated, [Rudolph] bolsters his opinion, as I understand it, by saying I was a trained FBI agent and, therefore, I look things over and I see certain things and this helps me in my opinion.' The court responded, [H]e is entitled to tell the jury what he based his conclusion on. Some of these things may be a little strange for a scientist, but he will be testifying as a scientist, not as an FBI agent.

Rudolph later testified at the Psinakis trial. On direct examination he testified that he identified PETN through the use of LC in conjunction with other factors which indicated to him that he was dealing with PETN. On cross-examination, Rudolph admitted that he had other instruments available to confirm the presence of PETN but that he did not use them. Rudolph agreed that what happened in this case is that [he] used one method which is used to separate substances, not to identify them, and [he] didn't use anything else in the whole FBI lab. On redirect AUSA Burch asked Rudolph, [W]as your opinion that the material was PETN based solely upon the liquid chromatography test that you ran? Rudolph answered, No it was not, or I would have not -- If it was just based solely on that, I would have used some confirmatory techniques.

The trial ended in an acquittal.

In a four-page letter dated July 8, 1989, AUSA Burch informed Laboratory Director John Hicks that Rudolph's performance in the Psinakis case was deficient. Burch stated, I believe part of the reason for the acquittal stemmed from some serious questions that arose concerning the handling of exhibits involving trace or residue amounts of explosives and the analysis of these exhibits at the FBI laboratory. Burch complained that Rudolph relied on the hearsay reports of a field agent in rendering an expert opinion that evidence contained PETN. Burch observed:

The first deficiency in Rudolph's analysis seems obvious. Relying on the hearsay views of field agents in rendering an opinion as to

the presence of a chemical compound seems obviously wrong-headed. The FBI chemist is being asked to independently ascertain the existence of a substance not just regurgitate information he has received from the field. Secondly, the information from the field agents may be wrong or so speculative as to be accorded little weight. Finally, using any basis other than instrumental analysis for an opinion as to the presence of a chemical or compound leads, [a]s in this case, to insufficient instrumental testing.

(Emphasis in original).

Rudolph, Burch stated, used liquid chromatography as the only chemical test to ascertain the presence of PETN, and he failed to perform confirmatory tests. Burch noted that the defense called a world-renowned expert who testified that liquid chromatography was the equivalent of a presumptive test that did not rule out the possibility of compounds other than PETN. Burch noted that the case raised serious questions about the Laboratory's procedures:

The first problem is that there appears to have been no protocol establishing what analytical/instrumental tests were to be performed in order to identify trace elements on items. Second, it appears that no peer review or other review process existed in order to confirm the sufficiency of instrumental analysis and the accuracy of the results obtained. Had such a review existed in 1982, it is likely that the inadequacy of Rudolph's procedures might have been detected.

In this letter, Burch did not criticize Whitehurst, but instead observed that he appeared sincerely concerned about the integrity of the judicial process.

Hicks responded to Burch on July 28, 1989, by writing, I share your concerns and as a result of this matter, I have instituted an internal audit of the protocols used in the identification of explosive residues.

## **B. Analysis of Rudolph's Conduct in Psinakis**

In reviewing Rudolph's laboratory work and testimony in Psinakis, we identified several significant problems. As noted later in this section, we found similar problems in his work on other cases.

### **1. Forming Opinions on a Non-Scientific Basis**

Rudolph acknowledged that his identification of PETN on the tools was based in part on the fact that stripped detonating cord was found in the defendant's garbage. In his interview with the OIG, Rudolph observed that given this information, he presumed the material on the knife was PETN and he used LC simply as a confirmatory test.

Rudolph's approach reflects a fundamental misunderstanding of the role of a forensic scientist. As an investigative matter, the FBI had good reason to suspect that the defendant had used the tools to strip the detonating cord found in his garbage. As a forensic scientist, however, Rudolph could not identify PETN based in whole or in part on the field agent's suspicions. Rather, his conclusions had to be based on a scientific examination.

Rudolph failed to distinguish between the separate and distinct roles of an investigator and a forensic scientist. With his academic training, Rudolph should have known not to state his scientific conclusions more strongly than could be supported by the underlying analytical results. Had he recognized this fact, he would have acknowledged in his Laboratory reports and testimony that

the LC tests he performed gave results consistent with, but did not necessarily identify, the presence of PETN on the tools.

## **2. Biasing Reports**

Whitehurst has generally alleged that FBI examiners in explosives-related cases have purposefully slanted reports to favor the prosecution. Although he did not make this complaint about Psinakis specifically, the case merits comment on this issue. At best, Rudolph's explanation for his opinion in Psinakis reflects incompetence. Given the tests that Rudolph described, he could only say the results of his 1982 examinations were consistent with the presence of PETN. By opining that PETN had been found on the tools, Rudolph overstated the significance of his analytical results in a way that supported the government's theory of the case. This overstatement partly reflected that Rudolph inappropriately relied on information from the field agent in reaching his forensic conclusions.

## **3. Inadequate File Documentation**

Rudolph failed to adequately document the work he claimed that he had done in Psinakis. At the trial, he testified that he prepared his notes for his own use and not for the defense or the prosecutor. These remarks reflect a basic misunderstanding of the purpose and importance of adequately documenting case files. The notes should allow someone to understand the analyses done and the basis for the conclusions reached by the examiner. The absence of such notes, as Psinakis illustrates, means that an examiner may not be able credibly to defend his or her conclusions at a later date. His supervisors should also be faulted for approving his AE dictation in the absence of adequately documented files.

## **4. Lack of Confirmatory Tests and Protocols**

Because it is well understood in the scientific community, Rudolph should have recognized the need to perform a confirmatory test in addition to the LC before concluding that PETN was found on the tools. His failure to do so reflects not only that he improperly based his opinion on the assumption that the defendant had stripped PETN from the detonating cord found in the garbage, but also that Rudolph did not follow any identified protocol in examining the evidence.

## **5. Conclusion**

We conclude that Rudolph's performance in Psinakis was wholly inadequate and unprofessional. We do not find a factual basis to conclude that he intentionally overstated or biased his conclusions.

### **III. The Laboratory's 1989 Reviews of Rudolph's Casework**

In August 1989, the Laboratory conducted two partial reviews of Rudolph's casework. Based on those reviews, Laboratory management concluded that further action was not required. As explained below, those reviews were not adequate to resolve concerns about Rudolph's work in Psinakis or in other cases.

#### **A. Factual Background**

After receiving Burch's letter complaining about Rudolph, Hicks gave it to SAS Chief Kenneth Nimmich and instructed him to review Rudolph's casework. Nimmich in turn asked MAU Chief Jerry Butler to review Rudolph's work in Psinakis and to also review a representative sample of Rudolph's cases to determine if appropriate analytical techniques were applied and properly



performed. Butler concluded that the analytical procedures used in Psinakis were weak but laboratory accepted practice in 1982.

Over a period of several weeks, Butler reviewed Rudolph's work in approximately 200 cases and prepared a memorandum dated August 2, 1989, which described the preliminary review. Butler found numerous administrative shortcomings in the files such as insufficient notes, missing charts and weak analytical procedures. In light of the itemized weaknesses found in Rudolph's work and the potential serious impact these types of weaknesses could have on the proper administration of justice, Butler recommended that an examiner from the CTU do an in-depth review of Rudolph's case work. Rudolph told the OIG that Butler also directed him to return to the files any notes and charts that Rudolph had retained himself.

Nimmich agreed with Butler's recommendation and orally asked CTU Chief Roger Martz to conduct the further review. Over approximately two weeks, Martz reviewed 95 cases in which Rudolph had worked as a principal or an auxiliary examiner. In an August 16, 1989, memorandum to Nimmich, Martz summarized his findings and stated:

In all of these cases, chemical, instrumental and or physical analyses were performed. These analyses were sufficient to base an expert opinion as to the results that were provided . . . In all cases reviewed, no technical errors were found in the final reports. Even though other techniques could have been employed, it is believed that no changes would be made in the reporting of the ninety-five cases that were reviewed.

Martz cross-referenced Butler's August 2, 1989, memorandum and recommended that no further technical reviews be performed on Rudolph's case work.

With regard to the Psinakis case, Martz noted that Rudolph had been criticized for not performing confirmatory analyses. Martz observed that while liquid chromatography (LC) would not be the instrument of choice to identify an unknown powder, it could be sufficient depending on other circumstances to identify an explosive. Martz also noted, It is not unusual for a defense attorney to deliberately ask why a technique, which he knows wasn't employed, wasn't used in the identification of a chemical.

During the OIG investigation, Nimmich and Martz gave conflicting accounts of what Martz was asked to do in his review of Rudolph's cases. Martz recalled that Nimmich asked him to determine if Rudolph had in fact done some analyses to support his reported conclusions. Martz said he did not attempt to determine whether the tests conducted by Rudolph were analytically sufficient to support the reported results, but instead whether there was some work in the file to support the conclusions drawn.

Martz told the OIG that he also informed Nimmich orally in 1989 that Rudolph did the very minimum work to come to a conclusion and he did a very poor job of documenting his work. Martz, however, did not mention these things in his August 16, 1989, memorandum to Nimmich. Martz also informed the OIG that in his 1989 review, he found that approximately 10% of Rudolph's files lacked any notes at all. This information also was not included in Martz's August 1989 memorandum.

Nimmich told the OIG that he expected Martz to review the technical sufficiency of Rudolph's work. Nimmich further said he understood that Martz had done such a review, because Martz stated in his memorandum that chemical, instrumental, or physical analyses were performed in all the cases and that [t]hese analyses were sufficient to base an expert opinion as to the results that were provided. Nimmich said he interpreted these remarks to mean that Martz was satisfied that a sufficient amount of work was done to reach the stated conclusions. Nimmich told the OIG that he relied upon Martz's conclusions in determining that no further review of Rudolph's work was warranted.

Rudolph, on his own initiative, prepared a letter dated August 25, 1989, to Laboratory Director John Hicks. In this letter, Rudolph attempted to respond to criticisms MAU Chief Butler had made in his August 2, 1989, memorandum. Rudolph defended at length his work in Psinakis. With regard to record keeping and note taking, Rudolph said that many files lacked notes because he had retained them himself because the FBI's filing system was unreliable. He stated that his unit chiefs knew of this practice and that in the past five years he had received one exceptional and four superior ratings for case management and control.

In his August 25, 1989, letter to Hicks, Rudolph also said that he had returned almost all the notes and serials to the FBI files and added detailed comments to files where such materials were missing. Rudolph also observed that the quantity of notes an examiner takes is a matter of personal preference. Although Rudolph asked that this letter be made part of the official record, Hicks said he refused to accept it because he thought the issues had been resolved through Butler's review.

## **B. Analysis of the 1989 Reviews**

Laboratory management failed to assure that concerns about Rudolph's casework were thoroughly investigated in 1989. First, neither Butler in his initial review nor Martz in his subsequent review addressed the concern raised by AUSA Burch that Rudolph in Psinakis had erroneously relied on information from a field agent instead of conducting sufficient confirmatory tests to identify PETN. On a related point, as part of the 1989 reviews of Rudolph's work, Laboratory management failed to obtain and review a transcript of Rudolph's trial testimony in Psinakis. In light of the prosecutor's complaints, the transcript should have been reviewed.

In light of the conclusions stated in Butler's preliminary review, Laboratory management also failed to take appropriate further steps. Butler noted numerous administrative shortcomings, such as insufficient notes, missing charts, and weak analytical procedures in his review of some 200 cases.

Rudolph says Butler directed him to return any notes or charts to the files. This directive was insufficient. First, it did not in any way sanction Rudolph for work habits that could, as the Psinakis case illustrates, undermine if not eliminate the value of the Laboratory's results at trial. Second, Rudolph had worked on several hundred cases other than the 200 Butler reviewed. At the least, in 1989 Laboratory management should have directed a more comprehensive review of Rudolph's casework.

We also find fault in the way Nimmich and Martz handled the follow-up review. Given Butler's findings, the Laboratory should have reviewed Rudolph's work to determine whether sufficient analyses were done to support the stated conclusions. Although Nimmich might reasonably have expected Martz, as an experienced examiner and unit chief, to understand the need for a thorough technical review, in retrospect Nimmich should have taken steps, preferably through written instructions, to assure that Martz understood this to be his task. It also would have been desirable for Martz to have clearly stated the object and methodology of his review in his memorandum.

Whatever he understood Nimmich's instructions to be, Martz stated the conclusions of his review in a misleading way. He observed that analyses had been performed that were sufficient, yet he told the OIG that he did not review the sufficiency of Rudolph's work to support the stated conclusions. Martz's August 16, 1989, memorandum shows that he knew of Butler's August 2, 1989, memorandum, which recommended an in depth review of Rudolph's cases. Martz in his memorandum indicated he conducted a technical review and recommended that there be no further review of Rudolph's cases. As a unit chief, Martz should have recognized that this misleadingly suggested that he had completed an in depth review and concluded that further review was not necessary.

Martz also failed to note in his memorandum that, in his review, he found that notes and other documentation were missing. These findings deserved comment even if Nimmich did not ask Martz to conduct an administrative review of the files. Finally, Martz stated in his August 16, 1989, memorandum that, while other tests could have been performed, no changes would be made in the reporting of the 95 cases reviewed. Martz lacked any basis to make this

statement if, as he told the OIG, he did not assess whether the analyses identified in the files were sufficient to support the stated conclusions.

Martz's review of the Psinakis case was inadequate to address the concerns raised by AUSA Burch. Martz commented that LC might be sufficient to identify explosives, depending on other circumstances. This begged the relevant question of whether LC was sufficient in Psinakis, which it clearly was not. Martz also noted that it was not uncommon for defense attorneys to question examiners about tests they knew had not been performed. The proclivities of defense counsel were not pertinent to the issues Martz should have been addressing. Martz's comments about Psinakis inappropriately tended to excuse Rudolph.

Nimmich told the OIG that he understood from Martz's memorandum that Martz had concluded that Rudolph had a sufficient basis for his conclusions in Psinakis. Martz confirmed in his interview with the OIG, however, that he did not review Rudolph's work in Psinakis and did not address AUSA Burch's concerns about the lack of confirmatory techniques. Given these facts, Martz should not have included his comments concerning the Psinakis case in his memorandum, because they misleadingly suggested that he had approved Rudolph's work.

Finally, we find that Hicks did not take sufficient steps in response to the concerns raised by AUSA Burch's letter. Given the specific allegations, Hicks should have assured that someone at least reviewed Rudolph's testimony in Psinakis. Hicks told the OIG that he did not remember reviewing the testimony and did not recall hearing that any one else reviewed it; Nimmich did not recall if it had been reviewed; and none of the documents provided to the OIG by the FBI suggests that the Laboratory reviewed Rudolph's testimony.

Moreover, Hicks advised Burch that based on his complaints about Rudolph, the Laboratory would conduct an internal audit of the protocols used in the identification of explosive residues. Hicks told the OIG that he understood that such an audit was done as part of whatever file reviews were ordered by

Nimmich. Nimmich, not surprisingly, said he did not consider such reviews to be an audit of the Laboratory's protocols for examining explosives residue. Our investigation did not identify any documents suggesting that a general audit of the protocols was ever done as a result of Burch's letter. If Hicks intended such an audit to occur, he failed to communicate his instructions clearly to others in the Laboratory.

In sum, the Laboratory's 1989 review of Rudolph was inadequate. The allegations that prompted the review came not from Whitehurst but from an Assistant United States Attorney with first-hand knowledge of the alleged deficiencies. The AUSA not only rendered his own low opinion of Rudolph's work, but repeated the similar view of the district court judge who almost excluded Rudolph's testimony. The AUSA further stated that Rudolph's inadequate work contributed to an acquittal. These were serious charges. That the Laboratory did so little in response to these allegations is deplorable. The Laboratory should have recognized Rudolph's incompetence in 1989 and initiated a complete file review and appropriate disciplinary measures. This was not only required by the proper administration of justice, but it also might have obviated the great time and effort expended in later reviews of Rudolph's files that were still continuing seven years later.

#### **IV. The FBI OPR Investigation in 1991-92**

In late 1990 and early 1991, Whitehurst again complained within the Laboratory about Rudolph's work habits and also made allegations of other misconduct, including that Rudolph was a racist, had abused annual leave, had perjured himself in a trial, and had lied to an AUSA. After an investigation by the FBI OPR, the FBI Administrative Services Division (ASD) advised Rudolph in June 1992 that the inquiry had not developed facts warranting any administrative action against him and it considered the matter closed. As explained below, we conclude that FBI OPR should have investigated certain of these allegations further, but we do not find facts indicating that FBI OPR or the ASD improperly sought to ignore or cover up the allegations made by Whitehurst.

In December 1990 Whitehurst prepared a draft memorandum detailing various allegations against Rudolph and recommending, among other things, that MAU Chief James Corby review all of Rudolph's cases. Whitehurst repeated his complaints that Rudolph was sloppy, had failed to conduct appropriate tests, and had not properly documented his work. He also alleged that Rudolph and his technician Edward Bender were racists, that Rudolph had perjured himself in a case in the Southwest, that Rudolph had lied to AUSA Burch by telling him the Laboratory lacked equipment in 1982 to do certain tests, and that Rudolph had abused annual leave.

Whitehurst discussed his memorandum with Corby. At Corby's recommendation, Nimmich forwarded the memorandum to FBI OPR in January 1991, and FBI OPR opened an investigation. In March 1991, Nimmich also directed Corby to review a number of Rudolph's cases. That review is discussed in the next section. The FBI OPR investigation was conducted primarily by Special Agent Robert O'Brien, who reported to Special Agent Ralph Regalbuto. During 1991, FBI OPR interviewed several witnesses, including Rudolph, Whitehurst, and others who worked with them in the Laboratory. FBI OPR concluded that the evidence did not support Whitehurst's allegations. Based on FBI OPR's investigation, the ASD advised Rudolph in a letter dated June 22, 1992, that the inquiry was considered closed.

Based on our review, we conclude that FBI OPR should have conducted a more thorough investigation with respect to three of Whitehurst's allegations.

Whitehurst alleged that both Rudolph and Bender were racists and that this affected their work product. None of the witnesses interviewed by FBI OPR substantiated the allegation that Rudolph made racist remarks at work or was a racist. Several witnesses did confirm, however, that Bender regularly made racial jokes or remarks in the Laboratory.

Given Whitehurst's allegations, FBI OPR should have pursued its investigation further by asking witnesses if they knew of any specific case in which Bender's racial remarks or any biases might have affected his work. In response to the

OIG investigation, O'Brien of FBI OPR said that a further investigation of Bender was not undertaken because there was no evidence that racial views had influenced his work and he was no longer an FBI employee. Similarly, Ralph Regalbuto, who supervised O'Brien at the time of the investigation, stated that FBI OPR would not have investigated the allegations against Bender because there was no indication of conduct that might be referred to a criminal investigative body and FBI OPR lacked authority to investigate non-FBI employees.

FBI OPR should have pursued its investigation to the point of asking witnesses if they knew of instances where Bender's views on race had affected his work. If the facts suggested they did, it is conceivable that some remedial action would have been appropriate with regard to cases he worked on while at the FBI. Moreover, if there were facts suggesting he slanted conclusions because of racial animus against a suspect, a criminal referral might have been appropriate.

In the course of our investigation, we contacted the individuals interviewed by FBI OPR in its earlier investigation and asked if they knew of any instances where Bender's racial views affected his casework. Several individuals again recalled him making racial comments in the Laboratory, but no one identified any specific instances where they thought his attitudes affected his work. These same persons stated that they did not think Bender would have altered reports or data based on the defendant's race.

The second allegation by Whitehurst that we think merited further investigation by FBI OPR is that of Rudolph's alleged perjury. Whitehurst claimed that in an unidentified case in the southwestern United States, Rudolph falsely testified that his initials were on a piece of evidence. According to Whitehurst, Rudolph told him about this incident to illustrate that [b]efore you embarrass the Bureau, you should be willing to perjure yourself.

In response to the FBI OPR investigation, Rudolph denied ever falsely stating that his initials were on evidence. Both O'Brien and Regalbuto of FBI OPR advised the OIG that because Whitehurst had not provided more specific



information about the case in which the alleged perjury occurred, it was not necessary to investigate the allegation further once Rudolph denied it. O'Brien also noted that Whitehurst may have misunderstood remarks that Rudolph intended as teasing or a joke.

We disagree. Whitehurst in his allegations noted that the testimony was in a southwestern court, that Rudolph had only testified six or seven times before this incident, and that form FD-126s used by the Laboratory would list trials in which Rudolph testified. In view of the serious nature of the accusation, and the information identified by Whitehurst, we think FBI OPR should have attempted to identify cases in the Southwest in which Rudolph had testified and to review transcripts of his testimony. If that review disclosed testimony similar to that described by Whitehurst, FBI OPR then could have investigated further by contacting the prosecutor and seeking to examine any evidence that remained available.

Whitehurst also accused Rudolph of falsely telling AUSA Burch in the Psinakis case that he could not have more thoroughly examined the evidence because Rudolph lacked the equipment in 1982 that he had in 1989. Rudolph, Whitehurst noted, had stated in a paper published in 1983 that he used mass spectrometry and infrared spectrophotometry in 1981 and 1982 and that he had used these techniques in hundreds of explosives cases. Rudolph denied ever providing false information to AUSA Burch.

O'Brien stated that FBI OPR did not investigate this allegation further because it did not seem to contain the elements of a lie or concern an important issue. O'Brien observed that Rudolph's published statements that he used certain equipment in 1982 did not mean it was available to him when he did the Psinakis examinations. O'Brien also noted that Rudolph's former unit chief Charles Calfee thought Rudolph would have been accurate in stating that certain equipment was unavailable because it was still in an experimental mode within the Laboratory.

FBI OPR did not interview AUSA Burch about this issue or review Rudolph's 1983 paper. Regalbuto of FBI OPR acknowledged that these might have been reasonable investigative steps, depending on the circumstances, but noted that the investigating agent has some latitude in determining if a sufficient investigation has been done. He also observed that if the investigation was insufficient, the FBI's Administrative Summary Unit (ASU), which makes recommendations based on the investigations, should have asked for more to be done.

Rudolph's alleged lying about the availability of equipment was a serious issue that merited further investigation by FBI OPR. Despite Rudolph's denial, O'Brien should have pursued this matter further by at least questioning Burch about it and reviewing Rudolph's paper.

After FBI OPR completed its investigation of the allegations against Rudolph, the ASU reviewed the matter and recommended it be closed. The ASU is part of the ASD, which later advised Rudolph that the inquiry was considered closed. In the ASU, the agent who reviewed the matter was John Dietz, who had been assigned to the ASU on temporary duty for three months. In an interview with the OIG, Dietz stated that he did not know either Rudolph or Whitehurst at the time of the investigation and he said that he had no reason to think the allegations were discounted because they were made by Whitehurst. Dietz acknowledged that, in hindsight, further investigation might have been helpful, but observed that he must have been convinced at the time that the FBI OPR investigation had been sufficient.

In sum, we conclude that FBI OPR should have investigated further the allegations concerning Bender's racial bias and Rudolph's alleged perjury and the alleged lie to AUSA Burch. Our review of the FBI OPR investigation and the ASU's resulting recommendation to close the matter did not disclose facts indicating that there was a deliberate effort to dismiss or ignore Whitehurst's allegations.

## **V. The 1992 Corby Review**

## **A. Factual Background**

Because the FBI OPR did not have the technical expertise to review Whitehurst's allegations concerning Rudolph's casework, the Laboratory itself conducted another case review. SAS Chief Kenneth Nimmich directed MAU Chief James Corby to review a representative sample of Rudolph's cases.

Corby reviewed approximately 200 cases and found many serious flaws in Rudolph's work. He described his findings in a handwritten draft memorandum that he gave to Nimmich in the spring of 1992. Corby noted that Rudolph had failed to follow his own explosives residue protocol, had formed conclusions and prepared dictation without a basis, had failed to run standards or confirmatory tests, had offered opinions to fit the case scenario or findings of other units whether or not supported by his own analyses, had failed to label charts properly, and, where data was present in the file, had sometimes made technical errors.

Based upon his review, Corby recommended that appropriate disciplinary measures immediately be administered to SSA Rudolph for unacceptable casework performance and that such disciplinary action include censorship, suspension and probation for a period of time. Corby also recommended that SSA Rudolph immediately be barred from participating in any explosive-related program or research being conducted by the FBI laboratory and that all files be thoroughly reviewed in those cases where SSA Rudolph testified before any judicial proceeding in order to determine if further action is warranted in this matter.

Nimmich returned the draft memorandum to Corby and told him it was not his place to recommend particular disciplinary measures. According to Nimmich, he also asked Roger Martz, then the CTU Chief, and CTU examiner Lynn Lasswell to participate with Corby in a panel review of Rudolph's cases. Nimmich told the OIG that he told the panel members to review the cases to

see if there were errors that we needed to address back to a prosecutor, to a defense attorney, or anything of that type in terms of bad casework, if you would, errors that would have been made, misrepresentations of what was actually there. He expected each panel member to review all of the files.

The panel review evidently was not implemented in the manner Nimmich contemplated. Corby believed that Lasswell and Martz became involved only after Corby had given his draft memorandum to Nimmich. Lasswell received 57 cases from Corby and reviewed them for technical and administrative errors. He took detailed notes of his findings and gave them to Corby. Among other things, Lasswell observed that certain of Rudolph's cases lacked sufficient tests to support the stated opinions, that notes and charts were missing for some evidence, and that confirmatory techniques had not been used. Lasswell thought these problems were very serious and could greatly affect the cases if they went to court.

Martz, when interviewed during the OIG investigation, could not recall participating in the 1992 panel review. While he remembered talking with Corby and Lasswell about their review, Martz said he did not remember reviewing 200 cases himself and he had no notes related to any such review. Lasswell and Corby, like Nimmich, each thought that Martz was also reviewing Rudolph's cases. Our investigation, however, did not identify any memorandum, notes, or other documents by Martz reflecting such a review.

Nimmich prepared a memorandum to Hicks dated April 30, 1992, reporting on the results of the panel review of Rudolph's cases. Nimmich's memorandum stated that 200 cases were reviewed by a panel consisting of Corby, Martz and Lasswell. The memorandum observed:

Over 100 of the 200 cases reviewed revealed marginally acceptable records (notes and charts) in the case files. Fifty-seven of these cases were found to have incomplete and or missing documentation. A list of these cases is attached. These cases reflected dictation which could not be totally supported by the

records and notes contained in the file jacket, failure to follow his own published guidelines, reporting on multiple samples having run only one chart and failing to confirm identification on multiple instrumentation.

The memorandum reported that [n]o instances of fraud or intentional misrepresentations were found during this review; however, it was evident that the quality of work was severely lacking.

The memorandum recommended that Rudolph receive a severe reprimand based on the lack of professionalism and attention to detail reflected in his casework. Nimmich also recommended that for the 57 files with unacceptable documentation, Rudolph should be asked to bring the working notes up to an acceptable level through the use of personal diaries, notes, or recollection and to prepare a memorandum reflecting the additional information for each file.

Nimmich's memorandum does not indicate that copies of it were sent to any of the panel members. Corby said he did not see the memorandum until several years after it was prepared; Martz and Lasswell said they had not seen it before it was shown to them during the OIG investigation. Nimmich recalled consulting with Corby in preparing the memorandum, but Corby did not remember such a discussion. Nimmich also recalled that he consulted with Corby and Hicks before recommending that Rudolph receive a severe reprimand.

On May 18, 1992, Hicks discussed the file review with Rudolph. Without consulting Nimmich, Hicks decided to verbally admonish Rudolph rather than reprimand him. Rudolph recalled that Hicks gave him a mild chewing out and told him he was not being reprimanded because his unit chiefs had approved his work. Rudolph said that in this meeting, Hicks also gave him a \$500 incentive award for something Rudolph had recently done, and Hicks said words to the effect that maybe this would help your day. The verbal admonishment was the only sanction imposed by the FBI on Rudolph for the poor quality of his work. During the OIG investigation, Rudolph said he was

surprised by this leniency, as he had expected and even thought he deserved a letter of censure.

Consistent with Nimmich's recommendation, Rudolph was directed to attempt to bring the files up to an acceptable level by adding information to them. In an August 18, 1992, memorandum to Hicks, Rudolph identified changes he made in 40 of the 57 files. Rudolph stated in his memorandum that [n]o attempt was made to alter or change any conclusion or report, only to improve the clarity and understanding of what was done.

Rudolph was directed to place a memorandum in each file documenting that changes were made. In his memorandum to Hicks, Rudolph resisted this action, stating that it would only serve as a red flag in any future defense subpoena and could draw unwarranted attention to the file. Rudolph stated that most of the additions and labeling that was done is something an examiner might do anyway in sprucing up the file' before a court testimony and did not need to be memorialized in the file.

Despite Rudolph's protest, Nimmich required him to prepare a memorandum for each file reflecting that changes had been made. Nimmich said he reviewed the memoranda himself and directed that they be placed in the files. Based on these actions, Nimmich wrote a memorandum to Hicks dated March 12, 1993, advising that the review of Rudolph's cases should be considered closed and no further action be taken.

## **B. Analysis of the 1992 Corby Review**

The 1992 review of Rudolph's cases and the Laboratory's response to that review were insufficient in several respects.

At the outset, Nimmich should have given clear, written directions to those participating in the review as to its objective and the procedures to be used. Had such directions been given, substantial problems of miscommunication or misunderstanding might have been avoided. Nimmich indicated in his April 30, 1992, memorandum to Hicks that a panel of Corby, Lasswell, and Martz had reviewed 200 of Rudolph's cases. In fact, Lasswell only reviewed 57 cases, and it is unclear whether Martz reviewed any at all as part of the 1992 review.

On a related point, Nimmich should have circulated to the panel members drafts of the sections of his April 30, 1992, memorandum which described the panel's findings. This would have assured that the memorandum that later went to Hicks accurately described what each panel member had done in the review and that they agreed with the description of their findings. Moreover, reactions to the drafts by Corby or Lasswell might have been significant to Nimmich as he considered his recommendations for sanctions against Rudolph for the condition of his files.

Given the problems identified in the 1992 case review, we also think that Laboratory management failed to take sufficient remedial steps or to impose adequate sanctions on Rudolph. The 1992 case review identified serious deficiencies in 57 of approximately 200 cases reviewed. But Rudolph had worked on hundreds of cases before leaving the Laboratory in 1988. Once Laboratory management learned that a case review identified deficiencies in more than 25% of the reviewed cases, a comprehensive review of all of Rudolph's case work should have been undertaken.

We do not fault Hicks and Nimmich for directing Rudolph to attempt to bring the 57 files to an acceptable level and to document his actions, but this directive was not followed appropriately by Rudolph or monitored adequately by management. During the OIG investigation, Rudolph stated that he did not recall documenting in the individual memoranda every change he made to the files. Rudolph also admitted that it was not uncommon for him to label charts or otherwise to change files before trial without documenting these actions. This echoes his earlier statements to Hicks in his August 18, 1992, memorandum when Rudolph argued he should not be required to place a

memorandum in each file reflecting any changes, because it was common for examiners to spruce up a file without documenting that action.

Rudolph's statements reflect a fundamental misunderstanding of the importance of accurate work notes and adequate case documentation. As noted earlier, the lack of such documentation may mean, as was demonstrated in Psinakis, that it is impossible to determine what was done in earlier analyses. Moreover, work notes are generally understood to have been prepared contemporaneously with the examinations or analyses they concern. Such notes can be misleading if they are created or spruced up at a later date without that fact being indicated in the notes themselves. Their preparation sometime after the work they describe obviously can be relevant to the weight or credibility of any testimony that is based on them. When Rudolph communicated to Hicks the view that it was common and appropriate for examiners to spruce up their files before trial without documenting such action, Laboratory management should have taken appropriate steps to advise Rudolph and others that such a practice is not acceptable for a forensic laboratory and would not be tolerated.

Despite the findings reported in Nimmich's April 30, 1992, memorandum, Rudolph received only an oral admonition, one of the most lenient punishments available. The 1992 file review revealed that Rudolph's cases had extensive problems with inadequate documentation, insufficient confirmatory tests, and conclusions that were not fully supported by the information in the files. Rudolph should have been seriously disciplined for his inadequate work and his failure to return documentation to the files in accord with directions he was given in 1989. We find unpersuasive the suggestion that Rudolph deserved no more than an admonishment because unit chiefs had approved his work. The case files do suggest that his unit chiefs, particularly Charles Calfee, did not adequately review his work to assure that it was appropriately documented and that the stated conclusions were reasonably supported. This fact does not excuse Rudolph's lack of professionalism. He should have recognized the shortcomings in his own work, particularly given his academic credentials in chemistry and experience in the Laboratory.

## **VI. The 1995 Corby Review**



## **A. Factual Background**

In the spring of 1993, Laboratory Director Hicks named James Kearney to replace Kenneth Nimmich as the chief of the SAS; Nimmich in turn took Kearney's former position as the chief of the FSRTC in Quantico. Shortly after Kearney took his new position, James Corby approached him to complain about Rudolph's work and to argue that a further review should be made because there were serious problems in the files.

After learning of Corby's concerns, Kearney asked Martz to review several of Rudolph's problem files to see if corrective action had been taken. Martz prepared a memorandum for Kearney that described the contents of particular files but did not state any findings or conclusions. During the OIG investigation, Martz explained that he had been unable to find certain notes and charts that Rudolph said had been returned to the files. Martz, however, did not recall discussing this point with Kearney, but remembered only giving him the memorandum.

Corby was so concerned about the condition of Rudolph's files that he asked Kearney to raise the issue with Hicks. That concern led to Corby meeting sometime in the spring of 1993 with Hicks, Martz, Kearney, and Wayne Taylor, who was then Hicks' deputy. Corby argued that technical problems with Rudolph's work merited a further review. According to Hicks, Martz disagreed and represented that Lasswell also disagreed with Corby. Martz denies saying Lasswell disagreed with Corby and told us he thinks Lasswell also found problems in Rudolph's work.

Hicks recalls concluding that the Rudolph matter should be closed in 1993 because he thought the allegations had been reasonably investigated and no technical deficiencies had been found in the several case reviews. During the OIG investigation, Hicks stated that his conclusion was significantly influenced by his belief that Lasswell had not found serious problems in Rudolph's cases,

and Hicks said he would have reacted differently had he known that Lasswell in fact thought there were serious errors that would affect Rudolph's ability to testify to the results.

In February 1994, Whitehurst's attorney Stephen Kohn wrote to the FBI describing various allegations regarding the Laboratory, including complaints about Rudolph. During the spring of 1994, the OGC conducted an investigation in response to Kohn's letter. In a May 26, 1994, memorandum describing the results of the investigation, the OGC concluded that Corby should undertake a final, more comprehensive review of all of Rudolph's cases. The FBI memorandum observed that such a review of the files would most likely reveal that they are sloppy and that his [Rudolph's] conclusions are not supported by appropriate documentation.

One of the OGC attorneys involved in the 1994 investigation, John Sylvester, recalls that the Laboratory Division was furious with the recommendation for another review. Kearney, however, said that by May 1994 he had independently concluded that such a review should be done. In any event, in June 1995, about a year after the OGC made its recommendation, Corby was directed to review all cases in which Rudolph had worked as a principal examiner or auxiliary examiner in the MAU.

Corby's instructions were outlined in a June 12, 1995, memorandum from Kearney to Milton Ahlerich, who had recently become the Laboratory Director after Hicks retired. The memorandum asked Corby to categorize his findings as follows:

Category one - Cases that are sufficiently complete and require no further review.

Category two - Cases that are administratively incomplete (lack proper marking of charts and notes) but contain enough documentation to support conclusions.

Category three - Cases that are administratively and technically incomplete, i.e., lack documentation (no notes, charts, or graphs) for conclusions reported.

Category four - Cases that contain omissions or technical errors.

In a memorandum dated November 30, 1995, Corby reported the results of his review. Corby noted that he characterized Rudolph's conclusions as correct if he found any basis for the reported results in his file review. Applying this standard, Corby found 20 files in category four, 137 in category three, 76 in category two, and 421 in category one. Corby concluded that 24% of Rudolph's cases were in categories 3 or 4 and did not meet the administrative or technical guidelines at the time the cases were worked. (Emphasis in original.) In Corby's opinion, they would not be acceptable under close judicial scrutiny, or past or present peer review. (Emphasis in original.)

Rudolph was allowed to review the cases Corby placed in categories 2, 3, and 4 and to respond in writing. On May 7, 1996, Rudolph submitted a nearly 200-page response in which he defended his work and strongly disputed many of Corby's criticisms. Rudolph made general responses to certain recurring issues

and also addressed individual cases. In an interview during the OIG investigation, Corby commented on Rudolph's responses.

## **B. Analysis of Corby's 1995 Review**

In this section, we assess Corby's findings and Rudolph's response. We begin by discussing several recurring problems identified by Corby.

Corby noted in his 1995 review that Rudolph seemed to report a disproportionately large number of examinations relative to the number of specimens. Rudolph responded that it was common for examiners to conduct multiple examinations of the same specimen. Unfortunately, Rudolph's files generally lacked work notes or other documents that would explain the number of examinations conducted.

In several cases, Corby found that Rudolph had failed to follow protocols. Rudolph argued that the FBI Laboratory did not have any official protocol during his tenure there. Even so, as Corby noted, Rudolph had described a protocol in the FBI's 1983 Symposium on Explosives Residue Analysis, and we do not understand why he would disregard that protocol in his own work.

Corby also found that charts or notes were missing in many cases. Rudolph offered several responses: the documents may have been lost during the multiple file reviews, he kept documents himself because of the FBI's inadequate filing system, and his unit chief's approval of his work indicates that adequate documentation was once there. Rudolph's responses are unpersuasive. He was directed by Butler in 1989 to return any notes or other documents to the files, so the files should not have been incomplete in 1995. Moreover, his former Unit Chief Charles Calfee observed that the commonly understood practice was that an examiner would make a notation in the file if he or she had removed or retained documents. No such notations appear in Rudolph's files. Rudolph's case files in general are much more incomplete than others we

reviewed, and therefore we find it implausible that the shortcomings in Rudolph's files are primarily due to deficiencies in the FBI's filing system.

One of the main criticisms made by Corby in his 1995 review was that Rudolph's files reflected sloppy note taking and other administrative deficiencies, such as insufficient documentation, charts that did not have specimen or file numbers, and charts without identified peaks. In his response, Rudolph again observed that his unit chiefs had approved his work and stated that he only recalled one, Roger Asbury, asking for more precise notes and that none had asked that charts be completely identified. In fact, in a 1987 Progress Review for Rudolph, Asbury observed that communications of results could improve with more comprehensive and detailed notes in preparing reports. Rudolph signed this Progress Review.

In his OIG interview, Rudolph also defended the condition of his files by stating that he dismissed identifying all of these notes and charts as not important because he would do it if it goes to trial. He said he would spruce up a file if a case went to trial; that is, he would identify peaks on charts, add additional notes if necessary, and clean up the notes already in the file. But Rudolph did not document in the file which material had been added at a later date. As we have noted earlier, Rudolph fails to recognize the importance of accurate, complete work notes and documentation, and his practice of sprucing up files is both unprofessional and unacceptable for any credible forensic laboratory.

Corby's 1995 review also criticized Rudolph for using ion chromatography (IC) as the only identification technique in some cases and for failing to identify all the peaks on charts from x-ray powder diffraction (XRD). Rudolph responded that IC has long been used as an identifying technique and that in some instances other techniques could not be employed. The files, however, generally lack information that would indicate why other techniques were or were not used. With regard to the XRD charts, Rudolph argued that labeling was not necessary because he could recognize what the peaks represented when he later reviewed the charts. He also maintained that once he identified the main component, he compared the remaining peaks against peaks for other known explosives. The lack of adequate documentation is inexcusable, despite

Rudolph's claim that he could later recognize the peaks, and makes it impossible to corroborate his assertion that he made comparisons with other unlabeled peaks.

Another recurring problem noted by Corby is that Rudolph failed to report results that might have been significant. In his response, Rudolph asserted that this is mostly a matter of experts differing about what constitutes a significant result. In an interview with the OIG, Corby observed, and we agree, that this is another manifestation of Rudolph's inadequate note-taking practices. If tests or analyses yield results that could affect the examiner's conclusions, those results should be recorded in the examiner's notes. This will assure that potentially useful information is not lost, and the examiner can document his reasons for not utilizing particular results in forming his conclusions.

In responding to Corby's 1995 review, Rudolph also addressed particular cases. As part of the OIG investigation, we reviewed a sample of the cases and concluded that Corby's criticisms were for the most part justified. Our ability to evaluate Corby's findings was limited, however, by the fact that Rudolph had made further changes in the files in responding to Corby's review. During a February 28, 1996, interview with the OIG, Rudolph admitted that he was still sprucing up files after the most recent review and was not documenting the changes. Accordingly, when we reviewed particular cases and could not validate Corby's criticisms, it was unclear whether this reflected particular additions made to the file after Corby's review.

Our limited review of case files convinced us that Corby's findings were generally correct. There is one issue that was not addressed in Corby's most recent review or the earlier reviews, and that is contamination. As illustrated by the Psinakis case, Whitehurst has complained for some time that Rudolph, because of his sloppy work habits, could have reached conclusions based on his own contamination of the evidence. During an OIG interview, Rudolph stated he had never contaminated evidence but admitted that he did not always wear gloves in the Laboratory, place paper down when doing examinations, or take control swabs of his work area. Rudolph also admitted that his work area was unkempt and that a messy laboratory was almost his and Bender's trademark. These remarks suggest that Rudolph did not appreciate the significant problems

of contamination in explosive examinations and therefore failed to take appropriate preventive measures.

## **VII. Conclusion**

### **A. Rudolph**

In a substantial number of his cases, Terry Rudolph did not perform his work as an examiner in a manner that would withstand peer review or judicial scrutiny. In Psinakis, he did not adequately document his case work, he failed to conduct required confirmatory tests, and his stated conclusions lacked a valid scientific basis. The reviews of Rudolph's work conducted by the Laboratory after Psinakis confirm that his lack of competence was not isolated to that case.

Rudolph displayed an attitude towards case documentation that is inconsistent with the presentation of credible scientific conclusions. His belief that notes are only for the examiner's own use and that files may be spruced up on the eve of trial is unacceptable. In our investigation we found no evidence that other examiners had made after-the-fact changes to case documentation without noting such actions in the file.

That Rudolph continued to spruce up his files without documenting the changes even after he had been directed by Nimmich to produce such documentation, and while his files were being reviewed, was insubordinate and constitutes willful misconduct.

Rudolph attempted to justify his conduct by noting that unit chiefs had approved his work. The condition of Rudolph's files suggests that his unit chiefs, particularly Charles Calfee who served as his unit chief from 1979 through 1986, did not sufficiently review his work. That fact, however, does not excuse Rudolph's failure to conduct confirmatory tests, to run appropriate

standards or controls, to follow protocols, or to document his work appropriately.

Our investigation did not identify facts suggesting that Rudolph made intentional misrepresentations in his files or attempted to slant his results to favor the prosecution. Indeed, our own review of Rudolph's cases, our interviews with him, and the 1995 review by Corby indicate that Rudolph indiscriminately disregarded appropriate scientific methods and failed to document his work without regard to whether the results favored the prosecution or the defense.

## **B. Management**

In the Rudolph matter, Laboratory management repeatedly failed to address serious concerns about the very integrity of the Laboratory's forensic results. A complete review of Rudolph's case work should have been conducted in 1989, after AUSA Burch complained about Rudolph's conduct in Psinakis and MAU Chief Butler identified numerous administrative shortcomings in 200 cases and the need for an in-depth review.

The 1989 review by Martz of 95 cases was not sufficient. Nimmich should have given written directions to assure that an in-depth review did occur. That review should have encompassed all of Rudolph's cases. Martz presented his conclusions in a misleading way that incorrectly suggested he had reviewed and approved the technical sufficiency of Rudolph's work and that Rudolph had done nothing wrong in Psinakis. We did not conclude that Martz intentionally sought to mislead in his memorandum, but, whatever he understood his instructions to be, Martz should have stated more clearly what he did to reach his conclusions.

We especially deplore the inadequacies of the Laboratory's 1989 review because (1) it was prompted by an AUSA who stated that Rudolph's



shortcomings contributed to an acquittal of a defendant in a federal prosecution, and (2) a proper review in 1989 could have obviated the need for later efforts to evaluate Rudolph's work. Hicks' inadequate response to the AUSA's letter and Martz's misleading memorandum contributed most to the failure of the 1989 review.

Laboratory management also failed adequately to respond to the results of the 1992 review. Again, Nimmich should have provided clear, written instructions concerning the objectives and methodology of that review. He also should have allowed Corby, Lasswell, and Martz to review relevant parts of his memorandum that purportedly described their conclusions. We think Laboratory Director Hicks erred in rejecting Nimmich's recommendation that Rudolph should be severely reprimanded and deciding instead to impose a mere verbal admonition. Moreover, the Laboratory failed to assure that Rudolph had returned materials to the identified files and fully documented any additions or changes he made. Given the findings in Corby's 1992 review, the Laboratory again should have directed a complete review of Rudolph's files, rather than determining that the matter should be closed.

Although we conclude that Laboratory management failed to assure that the allegations about Rudolph were adequately investigated and resolved, we cannot conclude that those allegations were deliberately ignored or that there was an effort to cover up Rudolph's deficiencies as an examiner.

The OGC appropriately recommended in 1994 that Corby undertake a comprehensive review of Rudolph's cases. As noted above, we generally agree with the conclusions reached by Corby when he completed the review in November 1995.

Based on the above findings, we recommend that a notation describing the conclusions of this Report should be included in each case file for which Rudolph prepared AE or PE dictation. Rudolph, as noted above, retired in June 1996. Accordingly, we do not recommend disciplinary action against him. We understand that after his retirement, he did some work for the FBI on a

contractual basis. Based on our investigation, we recommend that the FBI not employ him in the future.

Finally, we note that the Rudolph matter illustrates several respects in which the Laboratory policies or procedures could have been improved. During Rudolph's tenure in the Laboratory, there was no formal quality assurance program. The problems exhibited in Rudolph's case work might have been prevented if such a program had been implemented and had provided guidelines for case documentation, adequate case review, and the use of properly validated protocols. We comment on these issues further in Part Six of this Report, which discusses general recommendations to enhance the quality of the Laboratory's forensic work.

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## **SECTION B: THE VANPAC CASE**

### **I. Introduction**

This case concerns four mail bombs sent in December 1989 to different locations in the southeastern United States. One killed federal judge Robert Vance in Alabama, a second killed a civil rights attorney in Georgia, and two others were discovered before they exploded. A massive investigation ensued involving the FBI and several other law enforcement agencies. The FBI referred to the case as VANPAC because it involved the assassination of Judge Vance with a bomb sent in a mail package. In June 1991, a federal jury convicted Walter LeRoy Moody, Jr. on charges related to the bombings.

In this case, Whitehurst has made numerous allegations of wrongdoing by J. Thomas Thurman of the Explosives Unit (EU) and by Roger Martz of the Chemistry-Toxicology Unit (CTU). Whitehurst complains that Thurman and Martz circumvented the procedures of the FBI Laboratory because Thurman, as the principal examiner, asked Martz to analyze material in the mail bombs even though the Materials Analysis Unit (MAU) was responsible for analyzing explosives residue. He also alleges that because Martz did not follow the protocol for residue analysis developed by the MAU, Martz reached a flawed opinion in concluding that the mail bombs contained a particular smokeless powder.

Whitehurst alleges that Thurman improperly based his opinions on the flawed residue analysis performed by Martz; that Thurman improperly testified outside his field of expertise on various matters; and that Thurman lacked a factual basis for certain testimony about the explosives used in the bombs. Whitehurst has accused both Thurman and Martz of fabricating evidence, perjuring themselves, and obstructing justice in the VANPAC case. He also has suggested that prosecutors Louis J. Freeh and Howard Shapiro, who were then

Assistant United States Attorneys and who tried the VANPAC case, may have committed misconduct by offering the testimony of Martz and Thurman.

To investigate Whitehurst's claims regarding this case, we reviewed the pertinent reports prepared by the FBI Laboratory and, where available, the underlying work papers and test results. We reviewed transcripts of the testimony given by certain witnesses and the closing arguments in Moody's trial for the bombings. We also questioned agents Thurman, Martz, and Whitehurst about the case in interviews in which their answers were given under oath and transcribed. We also interviewed others involved in the case, including Director Freeh, FBI General Counsel Shapiro, and current or former Laboratory personnel James Corby, James Kearney, Roger Peele, Charles Peters, and Robert Webb.

We find no factual basis to conclude that Thurman or Martz perjured themselves, fabricated evidence, obstructed justice, or violated any FBI policies or procedures in this case. Nor do we find any evidence to support Whitehurst's claims of prosecutorial misconduct. Whitehurst did not make allegations against MAU examiner Robert Webb. Based on the documents provided by the FBI, however, we did conclude that Webb stated conclusions about the common origin of certain tape, paint, sealant, and glue more strongly than was justified by the results of his examinations and the background data. In our view, Webb did not intentionally attempt to fabricate evidence or to present biased conclusions. Our investigation of the VANPAC case also reveals several areas in which Laboratory practices or procedures should be improved. These matters are discussed further in the following sections.

## **II. Factual Background**

In December 1989, four mail bombs were received at different addresses in the southeastern United States. One bomb killed Eleventh Circuit Court of Appeals Judge Robert Vance in Birmingham, Alabama; another killed attorney Robert Robinson in Savannah, Georgia; the third was discovered before exploding at a federal courthouse in Atlanta, Georgia; and the fourth was discovered before

exploding at the Jacksonville, Florida office of the National Association for the Advancement of Colored People (NAACP).

The mail bombs had numerous similarities, which included: they were delivered in packages wrapped in brown paper, tied with string, addressed with typed red-and-white labels, and posted with stamps depicting an American flag over Yosemite National Park; they were placed in cardboard boxes that had been painted black in the inside; and each bomb included a steel pipe filled with smokeless powder, finishing nails secured to the outside of the pipe, and a detonator fashioned from a flashbulb filament with distinctive wiring and a ballpoint pen casing. The detonators from the two bombs that did not explode contained a green powder identified as high explosive primer. Three of the bombs also had welded end plates that were joined together by a steel rod through the center of the pipe.

The bombings were followed by a large-scale investigation involving the FBI, the Bureau of Alcohol, Tobacco and Firearms (ATF), the U.S. Postal Inspection Service, the Georgia Bureau of Investigation, and other law enforcement agencies. The unexploded devices found in Atlanta and Jacksonville were sent to the FBI Laboratory for analysis in December 1989, as was debris from the mail bombs from Savannah and Birmingham. J. Thomas Thurman of the EU was assigned as the principal examiner.

Thurman enlisted various auxiliary examiners in other units of the Laboratory to examine evidence. The other examiners included Roger Martz, who was then chief of the CTU. In January 1990, Martz determined that each mail bomb contained Red Dot double base smokeless powder. He also determined that a green powder found inside the detonators of the two unexploded mail bombs was a small arms primer manufactured by CCI Industries.

Walter LeRoy Moody, Jr. was identified as a suspect after ATF forensic chemist Lloyd Erwin recalled that Moody had been convicted in a 1972 case involving a pipe bomb with a design similar to that of the 1989 bombs. In February 1990, federal investigators searched a storage area rented by Moody

in Chamblee, Georgia, and found a device constructed from a metal pipe that was similar in some respects to the construction of the mail bombs. Several searches of Moody's house, however, failed to reveal evidence of Red Dot smokeless powder or the type of CCI primer identified by Martz in the explosive devices.

In April 1990, a witness named Paul Sartain told ATF agents that while he was working at the Shootin' Iron gun store in December 1989, he had sold someone a four pound can of Red Dot smokeless powder and a quantity of CCI primers. Sartain later identified Moody as the person who had purchased these items.

In July 1990, Moody was indicted on charges that he had suborned perjury by a witness in connection with a 1988 hearing on a coram nobis petition he had filed related to his 1972 conviction. A jury convicted Moody of these charges after a trial in Brunswick, Georgia, in December 1990.

In November 1990, Moody was charged with various federal crimes related to the bombings. Venue for trial was transferred to St. Paul, Minnesota and the case was assigned to Senior Judge Edward J. Devitt. After a trial in June 1991, a jury convicted Moody on 71 separate counts. The judge sentenced Moody to seven life terms plus four hundred years.

During the trial, Lloyd Erwin, Frank Lee, and Terry Byer of the ATF testified about the construction of the four mail bombs, the 1972 bomb, and the Chamblee device. They opined that all had been made by the same person. Moody's former wife Susan McBride Moody testified that she had purchased various items at Moody's direction. The items she purchased were consistent with components used in the mail bombs. A former cellmate of Moody's, Ted Banks, testified that at Moody's request he had welded end plates onto three metal pipes that were similar to those used in three of the bombs. Paul Sartain testified that in December 1989, he had sold Moody a four-pound keg of Red Dot smokeless powder and 4,000 CCI small pistol primers.

During the third week of trial, the government presented testimony by Thurman and Martz from the FBI's Laboratory Division. Thurman testified about the construction of the mail bombs and opined that they had been made by the same person who made the 1972 bomb. Martz testified that the mail bombs contained Red Dot double base smokeless powder and that he identified CCI small arms primer in detonators from the two unexploded devices.

### **III. Analysis of the Whitehurst Allegations**

Whitehurst did not do any work himself on the VANPAC case. In a September 5, 1994, letter to the OIG, Whitehurst detailed numerous criticisms of the testimony by Martz and Thurman in Moody's 1991 trial. Whitehurst made similar criticisms in a 26-page memorandum to James Kearney that was prepared near the time of Kearney's retirement as chief of the Scientific Analysis Section in June 1995.

In making his criticisms, Whitehurst relied on the transcripts of the trial testimony of Thurman and Martz and the closing arguments by Freeh and Shapiro. He did not review the trial exhibits or other evidence. Nor did he review any of the Laboratory reports or analytical data related to the testimony by Martz and Thurman.

For purposes of our report, we have summarized the various criticisms under the following identified headings.

#### **A. The Alleged Violation of Protocols**

Whitehurst claims that Thurman and Martz circumvented the FBI's protocols for the analysis of explosives residue when Martz analyzed the contents of the explosive devices.

Contrary to Whitehurst's position, at the time of the VANPAC case, there was no Laboratory protocol or policy requiring that all analysis of explosives be conducted by the MAU. That unit did generally perform the analysis of explosives residue and certain bulk explosives. The CTU, however, had been analyzing smokeless powders since the 1980s. This apparently occurred because Roger Martz had, within the CTU, developed techniques, including the use of the mass spectrometer, to confirm the presence of smokeless powder and to attempt to identify the manufacturer. At the time, there were no written policies describing the respective roles of the CTU and the MAU in analyzing explosives.

Martz stated in his sworn interview that the CTU became responsible for the analysis of smokeless powders sometime in the early 1980s after the CTU and MAU completed proficiency tests. We were unable to locate any FBI documents describing the results of such tests or a decision that the CTU would analyze smokeless powder. Former MAU Chief Charles Calfee, although not recalling the proficiency tests, confirmed that responsibility for the analysis of smokeless powder was transferred from the MAU to the CTU after the latter unit developed identification techniques with the mass spectrometer. James Corby, MAU chief from June 1990 through October 1995, also confirmed that the CTU was conducting smokeless powder analyses during his tenure. Others also acknowledged in interviews that the CTU was analyzing smokeless powders when the Laboratory received the VANPAC case.

Thurman stated in his sworn interview that he had not made any effort to avoid or circumvent the MAU in connection with the VANPAC case. Thurman explained that he identified what appeared to be smokeless powder particles in the evidence, and he therefore sent it on for analysis by Martz because the CTU analyzed smokeless powders. Martz gave a similar account of his initial involvement in the case. Martz also stated in his sworn interview that Whitehurst knew in December 1989 that Martz was working on the VANPAC case to analyze possible smokeless powders and Whitehurst did not at that time express any concern. Whether or not Whitehurst knew in 1989 or 1990 that the CTU was analyzing the powder, we find no factual basis to conclude that Thurman and Martz attempted to circumvent Laboratory protocols or bypass the MAU.



## **B. The Identification of Red Dot Smokeless Powder**

After receiving the evidence, Martz determined that each device contained Red Dot double base smokeless powder made by the Hercules Corporation. Martz reached this conclusion after visually examining and measuring particles that appeared to be smokeless powder and then analyzing the substances with a mass spectrometer. The results confirmed that Red Dot double base smokeless powder was present in each device. Martz also had Fourier Transform Infrared Spectroscopy (FTIR) performed on one sample to confirm the presence of nitrocellulose, a component of smokeless powder.

In analyzing the samples, Martz followed a protocol for the identification of smokeless powder that had been used in the CTU for several years. The basic procedure was outlined in an article published by Martz and FBI examiner Lynn Lasswell in 1983. Before Moody's trial, at least one defense expert reviewed the physical evidence and the FBI Laboratory reports and agreed with the conclusion that each device contained Red Dot smokeless powder as its main charge.

Whitehurst alleges that Martz improperly analyzed the evidence because he did not follow the protocol for analysis of explosives residue developed in the MAU. The MAU protocol would have involved additional analytical tests that might have detected certain inorganic explosives or fillers that cannot be identified by the mass spectrometer. Because these tests were not performed, Whitehurst asserts that Martz, and subsequently Thurman, could not conclude that smokeless powder constituted the explosive in the mail bombs.

Whitehurst is correct that the analytical tests performed by Martz may not have detected certain substances. Martz, in his interview with us, acknowledged that if trace amounts of certain inorganic materials were present, they conceivably would not have been identified by the tests he performed. Martz noted, however, that he physically examined the evidence, including debris from the

bombs, and did not observe traces of other possible explosive components. In retrospect, we think a more comprehensive analysis might have been desirable, particularly given the scope of investigative efforts otherwise made in the case. The possibility that one or more of the devices may have contained other explosives or fillers, which were not identified by visual or microscopic examination, does not mean that the conclusions by Martz or Thurman about smokeless powder lacked a factual or scientific basis.

Although we do not believe that Thurman or Martz perjured themselves or fabricated evidence with regard to the presence of smokeless powder in the mail bombs, this case does illustrate an area in which the Laboratory's procedures should be improved. As noted above, during this time, both the CTU and the MAU were analyzing explosives. There was no clear delineation of the respective responsibilities of each unit. Moreover, because the units did not share a common protocol, the tests might vary depending on which unit received the evidence.

### **C. Thurman's Testimony About the Explosives**

Whitehurst complains about several aspects of Thurman's testimony concerning the explosives used in each of the mail bombs.

Early in his testimony, Thurman discussed factors that affect the strength of a pipe bomb. With respect to the particular explosive used, Thurman noted, within the smokeless powder family there's two types of low explosives that we deal with more than anything else, and that's single base low explosive, and a double base low explosive. Thurman then said that a single base low explosive does not have nitroglycerin, while a double base explosive does. Whitehurst complains that [t]here are no such things as double and single base explosives, and that if Thurman was referring to smokeless powders, his remark is inaccurate, because those are not the explosives the FBI deals with most. Thurman apparently misspoke in using the term explosives rather than smokeless powder in this context. Thurman would have been accurate in saying

that within the smokeless powder family, single and double base powders are the ones we deal with more than anything else.

Discussing the Birmingham device, Thurman testified that the main charge was double base smokeless powder and that the detonator contained a high explosive. These statements, Whitehurst asserts, rest on conjecture. We disagree. As noted above, Martz found Red Dot double base smokeless powder in debris from the Birmingham bomb. Thurman relied on this fact and the observable characteristics of the bomb debris to conclude that double base smokeless powder was the main charge.

With regard to the detonators, Martz did not identify primer in the debris from either the exploded Birmingham or Savannah devices. The FBI Laboratory reports, which were produced to the defense at trial, reflect this fact. Thurman's conclusion that these bombs also utilized a detonator containing a high explosive rested primarily on similarities in the debris indicating that the bombs had detonators constructed from pen casings, a distinctive wiring system, and an initiator devised from a flashbulb. Thurman also noted that a mockup device, which included a high explosive detonator, had been detonated by the FBI and the resulting fragmentation was similar to that observed in the exploded bombs.

Thurman did not, in our view, fabricate evidence in opining that the Birmingham and Savannah detonators contained a high explosive. He did have a reasoned basis for that opinion. Thurman did not in his testimony or reports state that analytical tests had confirmed the presence of primer in the exploded mail bombs. The defense attorney could have explored the basis for Thurman's opinion on cross-examination. Instead, the defense did not dispute that each device contained double base smokeless powder and a high explosive detonator. This may have reflected a tactical decision, since the defense attorney attempted to raise doubt in the mind of the jurors not by arguing that the 1989 bombs were different from each other, but by arguing that Moody could not be connected to these bombs because Red Dot smokeless powder was not found in Moody's house and the 1989 bombs were different from the 1972 device.

Whitehurst is correct insofar as he suggests that the type of explosives residue analysis performed by the MAU might have confirmed the presence of primer in the exploded devices. Martz acknowledged in his interview with us that, in retrospect, it would have been desirable to have examined the exploded devices for traces of primer residues. This again shows that the Laboratory should have clearly delineated which unit would analyze explosives residue and what tests would be performed.

Another complaint by Whitehurst is that Thurman lacked a basis to testify that the characteristics of the metal fragments from the Birmingham and Savannah bombs indicated there was a low-explosive main charge initiated with a high explosive detonator. Such testimony, Whitehurst says, is fabricated evidence and has no basis in fact. Whitehurst maintains that the observable characteristics of the metal pieces could have been caused by [a]ny number of other energetic materials. We find that Thurman had some basis for his statements. They reflected his personal experience observing exploded devices and the results of the FBI's detonation of the mock-up device modeled on the bombs sent to Savannah, Atlanta, and Jacksonville.

Whitehurst further asserts that Thurman incorrectly stated that the cut-off between high explosives and low explosives is where the shock wave travels at more than 3,000 feet per second. Thurman's statement is technically incorrect. See Attachment C, *infra*. We note, however, that it is not uncommon for bomb technicians or persons working in the field of explosives ordnance to distinguish high from low explosives by the explosive's velocity. The technical error here was inconsequential.

With respect to the Birmingham device, Thurman was asked on direct examination whether he had been able to reconstruct the bomb. Thurman said he had, and then agreed that he had been able to do so to a high degree of scientific certainty. Whitehurst asserts that Thurman perjured himself because he lacked scientific training and he knowingly and purposely had circumvented the FBI's protocol for the analysis of explosives residue. We do not agree with these accusations. Thurman's comments about being able to reconstruct the

Birmingham device were preceded by fifteen pages of testimony about that device. When the prosecutor subsequently asked Thurman if he had been able to reconstruct the device to a high degree of scientific certainty, no objection was made to the possibly ambiguous nature of the question or to Thurman's qualifications to respond. By answering affirmatively, Thurman did not in our opinion perjure himself or intentionally misrepresent his background. As explained above, Thurman did not circumvent an FBI protocol in the analysis of the mail bombs.

Whitehurst also alleges that Thurman relied on conjecture in testifying that the location of a metal rod in the debris of the Savannah bombing indicated that the pipe had been full of powder. At the trial, Thurman stated that in photographs of the crime scene, he saw the metal rod on a desk at the scene of the explosion. He observed that the rod's essentially intact condition suggested that the rod was at the center of the bomb and had dropped straight down after the explosion. He further opined that the rod's location indicated that the pipe in which it was contained had been totally full of powder, so that you have got equal pressure all the way around this threaded rod.

Thurman did not base his opinion that the Savannah device was full of powder on any analytical test results. We do not agree, however, that his opinion was therefore merely conjecture. Thurman reasoned that if the rod connected the plates through the middle of the pipe, and the rod was found at the center of the explosion, the pipe must have been filled with powder so that the rod was at the center of the explosive force. According to Thurman, when the FBI detonated its mock-up bomb in a model of Robinson's office, the connecting rod was again found at the center of a desk. There was a reasonable basis for Thurman's opinion, and the defense attorney could have explored the basis for that opinion on cross-examination.

With regard to the Atlanta device, Whitehurst asserts that Thurman fabricated evidence on the witness stand when he testified that black particles on the recovered detonator were Red Dot smokeless powder. This accusation lacks any factual basis. The analysis done by the CTU identified Red Dot smokeless powder on the Atlanta detonator, as was noted in the Laboratory's March 3, 1990, report. Thurman relied on these results in his testimony.

#### **D. Claims That Thurman Testified Outside His Expertise**

Whitehurst makes several claims that Thurman testified about matters beyond his training or qualifications. Such testimony, Whitehurst maintains, violated FBI Laboratory policy. Related arguments made by Whitehurst are that Thurman testified about certain matters without supporting scientific tests or he improperly testified about results reached by other examiners.

To evaluate these arguments, several background points must be kept in mind. The FBI Laboratory did not at this time have any expressly stated policy concerning the permissible scope of an examiner's testimony. The common understanding within the Laboratory was that examiners should be careful not to stray outside their expertise, a point that reportedly was emphasized in the moot courts that were part of the examiner qualification process. During our investigation, many examiners told us that in testifying they had sometimes been asked to read into the record conclusions reached by other, non-testifying examiners. This generally was viewed as acceptable so long as the testifying examiner was careful not to comment further as to matters on which he or she lacked personal knowledge.

In the VANPAC case, Thurman, as the principal examiner, received dictation from other auxiliary examiners which he in turn incorporated into the Laboratory reports. He presumably was the examiner with the best overview of the work done by the Laboratory in the case. The defense received copies of Thurman's reports, which set forth the findings made by different units within the Laboratory. The attorney who led Moody's defense agreed before trial that Thurman could testify as a summary witness about the results of work done by certain auxiliary examiners. Thurman similarly understood from the prosecutors that he would testify about results reached by certain other examiners. Moreover, we note that an expert may properly draw on personal experience or common sense in forming opinions, and a conclusion is not necessarily improper because it is not based on a scientific test.

Whitehurst complains that Thurman testified outside his expertise in stating that a white sealant material or RTV was rubbery and spongy at room temperature and that nails found in the debris were bent by the explosion. The comment about the RTV appears to have been properly based on Thurman's own personal knowledge. In stating that the nails had been bent from the explosion, Thurman drew a common sense inference from the presence of bent nails among the debris. Similarly bent nails were found in the debris from the mock-up device detonated by the FBI. We do not think Thurman's statements about the RTV or nails were improper.

Thurman also testified that the use of welded end plates in the devices would create more pressure within the bomb and that the detonator would have been placed inside at least hours after the welding was done. We think the first statement is unobjectionable and was properly based on Thurman's experience. Thurman noted in our interview that it is not uncommon for pipe bombs to explode by simply blowing off their end caps, leaving the pipe itself intact. One could reasonably conclude that the use of welded end plates would cause more pressure to build up before the pipe exploded. Thurman's statement that the detonator would have been placed inside the pipe at least hours after the welding reflected his view, which seems merely common sense, that no one would place the high-explosive primer into a hot metal pipe.

Thurman testified that certain testing had been done by the Serology and DNA units, and that the results were negative in that no traces of saliva were found. These statements were consistent with the underlying Laboratory reports. We do not agree with Whitehurst's contention that Thurman violated Laboratory policy by testifying on these matters.

Similarly, Thurman testified about paint and tape found in the devices. During that testimony, Thurman noted that the Laboratory had determined that 2-inch wide, tan plastic tape and black paint found in the devices were from the same source or manufacturer. In this regard, Whitehurst asserts that Thurman was simply fabricating evidence to suit his hypothesis that all the bombs were made from the same source.

Thurman in fact was testifying based on the analytical work and dictation of MAU examiner Robert Webb. Webb, an experienced examiner in the MAU, examined several items of evidence during the VANPAC investigation. In examining packaging tape, black paint, RTV, and glue found in the devices, Webb followed an unwritten protocol that included microscopic examination, so-called wet chemical analyses, analysis with Fourier Transform Infrared Spectroscopy (FTIR), and Pyrolysis Gas Chromatography (PGC). Based on these techniques, Webb concluded that packaging tape in each device came from the same manufacturer and the same batch or lot, that black paint in each device had physical and chemical characteristics indicating it came from the same manufacturer, that RTV sealant in each device had physical and chemical characteristics indicating it was from the same manufacturer and originated from the same batch or lot, and that glue in three of the devices had physical and chemical characteristics indicating it came from the same manufacturer.

Thurman did not fabricate evidence or otherwise testify improperly about the paint and tape analysis insofar as it was based on Webb's dictation. Webb had described his conclusions about the comparison of samples of paints, adhesives, and tape in auxiliary examiner dictation dated March 19, 1990. Thurman incorporated this dictation verbatim into the FBI Laboratory report dated April 2, 1990. As part of our investigation, Webb reviewed Thurman's testimony about the paint and tape and observed that it was consistent with Webb's dictation.

Whitehurst also has maintained that the conclusion that the black paint came from the same manufacturer is flawed because data do not exist to allow one to say that two samples with a similar chemical composition necessarily came from the same source. A similar criticism could be made concerning the conclusions that the 2-inch wide tape and the RTV sealant came from the same batch or lot. When asked in our investigation about his conclusions, Webb maintained that in his experience, the battery of tests he employed would reveal some differences if paint samples did not come from the same manufacturer or if the tape had been made in different batches or lots.

We find that Webb's conclusions about the tape, paint, RTV, and glue were stated more strongly than was justified by the results of his examinations and



the background data. As a general matter, we question the validity of Webb's working proposition that the examinations he performed would have necessarily revealed some differences if the materials had come from different manufacturers (or different batches or lots for the tape and RTV). At the time of the VANPAC case, neither Webb nor the FBI had a data base to confirm that black latex paints, RTV, glue, and tapes like those involved in the samples did in fact differ among manufacturers in terms of their chemical composition and physical characteristics. Moreover, the tests that Webb performed had not been validated by the FBI or, to our knowledge, any other laboratory, with regard to their ability to successfully determine if samples actually came from the same source. In these circumstances, the methods employed by Webb would allow an examiner to conclude that samples could have come from the same source or manufacturer, but not to opine that they necessarily did.

Webb's conclusions about the common origin of the different samples also seem overstated in light of differences in the results from certain analyses he performed. More specifically, the PGC chart for the black paint from the Jacksonville device contains a peak not observed on the PGC charts for samples from Atlanta and Birmingham; the FTIR chart for a sample of glue from the Atlanta device contains a peak that is absent from the FTIR results for glue from the Jacksonville device; the PGC chart for a clear glue sample from Atlanta has a peak absent from the PGC charts for another sample from Atlanta and a sample from Jacksonville; the FTIR chart for a sample of RTV from the Savannah device has a different pattern than the FTIR charts for samples from Atlanta, Jacksonville and Birmingham; and the PGC chart for a sample of RTV from Birmingham has a peak absent from the PGC charts for samples from Atlanta and Jacksonville.

With regard to the comparison of the 2-inch wide tapes, charts could not be located for analyses done on samples from Atlanta and Jacksonville. The FTIR charts for the tape adhesive from the Birmingham and Savannah devices exhibit several differences. The notes that we reviewed do not explain how Webb reconciled these differences with his ultimate conclusion that tape found in each of the four devices had come from the same batch or lot. When we interviewed Webb about these differences, he said that they may reflect contamination, variations due to sample preparation, the fact that tests were run on different dates, or calibration. Webb acknowledged that certain differences in the test results for the tape and other items he examined are significant

enough to require further explanation, but he did not retract the conclusions he reached in 1990 about the common origin of the identified samples.

The differences noted above do not in themselves establish that samples of a particular substance, such as paint or tape, did not have a common origin. Such differences, however, appear to preclude the firm conclusion that the samples came from the same source or manufacturer (or batch or lot). Our questions about the differences in the test results remain unresolved, in part because the case files do not include all the pertinent charts or complete notes explaining the basis for the ultimate conclusions.

We conclude that Webb did not intentionally attempt to fabricate evidence or to present biased conclusions in his work on VANPAC. It appears that Webb's unit chief reviewed and approved his conclusions about the intercomparison of paint, adhesives, and tape. More significantly, Webb also did analytical work and prepared dictation that identified differences between certain samples. For example, he concluded that the white glue found in the Birmingham device did not match samples from the other devices. He also concluded, as was stated in the FBI reports, that certain glues and tape seized from Moody's residence and storage area did not match samples from the explosive devices. Such a match would, of course, have been very incriminating.

The comparison of tapes, paints, and adhesives in VANPAC does illustrate several areas in which we think the ASCLD/LAB accreditation process should improve the quality and consistency of the Laboratory's work. To become accredited, the Laboratory will have to assure that there are written, validated procedures for standard analytical techniques and examinations. Such protocols did not exist within the Laboratory for the types of analyses done by Webb during the VANPAC case. Accreditation will also require the Laboratory to provide for the review of reports to confirm that examiners' conclusions are reasonable and within the constraints of scientific knowledge. In order to become accredited, the Laboratory will also be required to maintain a case record that includes all the notes, worksheets, charts, and other data that support the examiner's conclusions. Such complete information was not included in the files we reviewed for the VANPAC case and several other matters that were the subject of our investigation.

Whitehurst also complains that Thurman improperly testified outside his expertise with respect to metallurgical matters. Thurman testified that a rod found in the debris from the Savannah device had been stretched as a result of the explosion. On cross-examination, he admitted that the metal people in the Laboratory could sometimes identify metal filing residues from files or grinding wheels and compare them to other metals. Defense counsel then elicited Thurman's acknowledgment that no metal residue was found in grinding wheels or files seized from the defendant that could be compared to debris in the bombs.

Thurman's testimony about the effects of the explosion on the rod was based on his visual inspection of the rod. The Laboratory reports did not indicate that any analytical test had been performed to confirm that the explosion caused the stretching of the rod. We do not believe that Thurman testified improperly in opining that the rod had stretched as result of the explosion. If the defense attorney had wished to explore the basis for Thurman's comments, he could have done so on cross-examination.

We also think Thurman responded properly to the questions that were posed on cross-examination concerning metallurgy. If he in fact believed that the tests he was asked about could be performed, and if to his knowledge no metal debris was found on wheels and files for comparison purposes, we think he was obliged to respond as he did. Notably, in responding to these issues, Thurman was conceding points the defense wished to develop, which further belies the allegation that Thurman was determined to perjure himself or fabricate evidence to secure a conviction.

Whitehurst also asserts that during the cross-examination, Thurman improperly testified outside his expertise concerning paints, tool marks, DNA analysis, smokeless powder, and the analysis of primers. With respect to paints, Thurman was asked whether you would have the capability of matching the paints, if black paint had been found at the defendant's properties. Thurman responded, I would expect so, yes, sir. Given the reports Thurman had received

in the case from examiner Robert Webb, we see no basis to criticize Thurman's response.

The defense counsel later asked Thurman to explain what a useful gripping tool mark would be. Thurman noted he was not a tool mark examiner, but said he would try his best. He then explained how some tools will leave identifying marks that allow a particular tool to be matched with a marked object. Thurman then acknowledged that no identification had been made in the case with respect to certain tools seized from Moody.

Regarding DNA analysis, Thurman acknowledged that this was a new scientific technique and the defense attorney himself noted that Thurman was not a DNA expert. Thurman agreed that an enzyme called amylase that is in saliva can be used for DNA analysis. In response to further questioning, Thurman admitted that DNA testing could not be done on certain envelopes because no amylase was recovered from them. Defense counsel then had Thurman concede that there was no DNA match to Moody based on the envelopes.

With respect to smokeless powders and primer, Thurman admitted Moody's house had been vacuumed in virtually every conceivable area to identify minute microscopic grains of gunpowder, but none had been found. He was also asked if he recalled that the CCI primer had a unique two percent aluminum component. Thurman noted that the question concerned examinations done by Martz, and that he thought Martz would be testifying during the trial. When asked if the primer material could be obtained not only from primers but also from small arms ammunition, Thurman told the defense attorney he would have to pose the question to Martz. When asked if powders could be matched to determine if they were from the same batch, Thurman said, sometimes yes, sometimes no, and again referred the question to Martz. The defense attorney noted that primer had not been recovered from all four devices, and Thurman then agreed that the Laboratory had not been able to determine that the primer recovered from the devices and the primer sold by Sartain to Moody had come from the same lot.

On cross-examination, Thurman further admitted that the Laboratory had not been able to match a keg of Red Dot smokeless double base gunpowder obtained from the Shootin' Iron Gun Shop with the gunpowder found in the four bombs. On re-direct, Thurman noted that although batches could not be matched, the powder was of the same type and the same manufacturer. Thurman also said the CCI primer that Sartain said he sold to Moody was of the same type and manufacturer as that used in the bombs.

Thurman did not improperly testify outside his expertise or contrary to FBI policy with respect to the matters raised in his cross-examination. As noted above, Thurman as principal examiner had assembled the Laboratory reports after reviewing the dictation of the various auxiliary examiners, and defense counsel had agreed that he could testify as a summary witness. In an apparent effort to raise doubt about the connection between Moody and the mail bombs, the defense counsel sought Thurman's acknowledgment that the Laboratory had not made certain findings. If anything, Thurman might have been fairly subject to criticism if he had refused to concede the points he did.

In testifying about the DNA tests, Thurman correctly stated that there had been no DNA match to Moody, but his testimony was inaccurate in a relatively minor respect. Thurman erred in agreeing with the defense attorney that the DNA testing was based on amylase recovered from saliva. Amylase is an enzyme present in saliva, but it is not the basis for DNA analysis. Such analysis can be based on epithelial cells taken from saliva. The FBI Laboratory reports noted in separate sections that serological tests for amylase were negative and that DNA test results could not be obtained. Thurman's imprecision regarding the DNA tests illustrates that examiners must be very cautious in testifying, even as summary witnesses, outside their area of expertise.

We also think Thurman testified appropriately on re-direct in stating that the smokeless powder and primers that Sartain said he sold to Moody were of the same type and by the same manufacturer as the materials used in the bomb. Whitehurst asserts that Thurman could not have known that the smokeless powder was of the same type because Hercules manufactures Red Dot powders for sale in products other than the canister powder identified by Sartain. Whitehurst evidently believes that Thurman, by saying the powder was of the

same type, misleadingly indicated it could only have come from one kind of container. We disagree with this interpretation of Thurman's testimony. With respect to the primer material, Thurman had earlier acknowledged that it was not found in all four devices. When Thurman agreed on re-direct that the CCI primer that Sartain said he sold to Moody was the same type as that used in the bomb, Thurman would have been more precise if he had said the same type as was identified in the two unexploded bombs.

Whitehurst makes two criticisms about Thurman's testimony on cross-examination which we think are best characterized as disagreements over the choice of words. Thurman agreed when the defense lawyer asked if he had, as the supervisory scientist, received all the reports of scientific examinations in the case. Whitehurst claims that this is misleading and a fraud upon the court because Thurman is not a scientist. We do not agree. Earlier in his testimony, Thurman had explained both his experience and the fact that as principal examiner he had coordinated the work done by various laboratory units on the case. Thurman could have spoken more precisely by stating again that he was the principal examiner rather than accepting the defense counsel's phrase supervisory scientist.

Whitehurst also states that Thurman incorrectly agreed with the defense attorney that smokeless powder has a dusty residue. The defense attorney phrased in everyday language how many people would describe the feel of such powders, but to be technically accurate, Thurman should have noted that they do not actually leave a residue of dust. Before Thurman testified, ATF Agent Frank Lee had agreed on cross-examination that, double base smokeless gun powder is like a dust and will adhere to walls, floors, clothing, [and] vacuum cleaner brushes. The defense attorney apparently sought to compare smokeless powder to a dust as background to his emphasizing that no traces of smokeless powder were found in the searches of Moody's house or the storage unit he rented. Both Lee and Thurman acknowledged that no smokeless powder was found in the searches.

### **E. Claims That Martz Misled the Jury About His Qualifications**

Whitehurst contends that Martz testified in a misleading way about his education and qualifications and the role of the CTU. Martz testified that he received a bachelor's degree from the University in Cincinnati and had worked as a chemist for several years both before and after he had joined the FBI. Whitehurst complains that Martz failed to disclose that his bachelor's degree was in biology rather than chemistry and that he had never been qualified by the FBI to examine explosives residue.

Martz was not asked on either direct or cross-examination to identify his undergraduate major. Since 1980, Martz has been qualified as a forensic chemist examiner within the FBI Laboratory. Martz has stated he had 40 quarter credit hours in chemistry during college, and he worked as a chemistry technician in the CTU before becoming an examiner. With regard to the analysis of explosives, Whitehurst is correct that Martz never completed the MAU's program to become qualified by that unit as an explosives residue examiner. As noted above, however, the CTU had analyzed smokeless powders since the early 1980s. We do not think that Martz testified improperly with respect to his background or qualifications.

Martz testified that in the CTU, [w]e do chemical analyses on . . . evidence. In some cases, it may be drugs, in other cases it may be arson, or the identification of an accelerant, the identification of explosives. We do a wide range of identification of unknown chemicals. Whitehurst asserts that Martz led the trier of fact astray because the CTU never was entrusted with the analysis of explosives. This allegation again reflects Whitehurst's view that the MAU was solely responsible within the Laboratory for the analysis of explosives. The CTU, however, was at least analyzing smokeless powders, as several witnesses confirmed during our investigation.

#### **F. Claims That Martz Improperly Testified About Smokeless Powders Found in the Devices**

Apart from the allegations previously discussed that the analysis by Martz was flawed because he did not follow the MAU protocol, Whitehurst also criticizes other aspects of Martz's testimony concerning smokeless powders.

On direct examination, Martz agreed that Red Dot smokeless powder came in the types of canisters represented by three exhibits. Whitehurst suggests Martz should have volunteered that the powder also comes in other types of products and containers. Similarly, Whitehurst states that Red Dot smokeless powder might be removed from manufactured ammunition. These points, if relevant, could have been developed by the defense attorney on cross-examination. Given the questions posed, Martz's responses were not improper.

Whitehurst also asserts that Martz lacked knowledge to testify about the degradation of smokeless powders and that he gave misleading testimony about his inability to match smokeless powders found in the devices with powder later obtained from the Shootin' Iron Gun Shop. Our interview with Martz left us persuaded that his remarks concerning degradation of smokeless powder had a basis in his prior work in the Laboratory, but his testimony about his attempts to compare powders was unnecessarily ambiguous.

With regard to determining whether different powder samples came from the same lot, Martz received a can of Red Dot smokeless powder that had been obtained from the Shootin' Iron Gun Shop sometime after Moody had bought powder there from Sartain. In our interview, Martz said he initially opposed attempting to determine if powder samples had come from the same lot, because he knew that smokeless powder's chemical composition changes with exposure to air and he anticipated that samples would yield different results. Martz performed liquid chromatography and gas chromatograph/mass spectrometer analysis of a sample from the can obtained from the Shootin' Iron, a sample from the Jacksonville device, and other lots of Red Dot smokeless powder from the Laboratory. Martz observed similarities and differences in his test results. This caused him to conclude, as stated in the Laboratory report dated June 6, 1990, that he could not determine whether the smokeless powder obtained from the Shootin' Iron came from the same lot as smokeless powder recovered from the bombs.



In his direct testimony, Martz stated that he examined four exhibits consisting of powder from each of the four devices and that the powder was Hercules Red Dot smokeless powder. Martz then acknowledged that he had also received a four-pound can of Hercules Red Dot smokeless powder. He then testified as follows:

Q: Were you asked to compare the four specimens in front of you with the off-the-shelf can?

A: Yes, I was.

Q: Did you do that?

A: Yes, I did.

Q: Could you determine anything at that point?

A: No, I was not able to determine it. Even the smokeless powder, as I mentioned, will break down over time. And I was not able to successfully compare this particular smokeless powder with that because of the different environments that the powders were in. That was a can that was sealed when I got it. These particular powders were placed into pipe bombs, some of them exploded, some of them didn't. And I was not able to make that comparison.

Q: Hypothetically, from a chemical point of view, is it possible for you to take shell (sic) powder and powder from an exploded device and tell whether or not it is from the same batch?

A: Not after the -- in my opinion, not after the bomb has gone off you can not make that comparison.

Later on cross examination, Martz again stated that he had tried to compare the powders but was unable to do so. The defense attorney asked, [t]hey were both Red Dot but you could not determine from your comparisons if they came from the same batch? Martz responded that he could not make that determination.

Martz was ambiguous in stating on direct examination that he had been unable to successfully compare the powders. In fact, he did compare a sample from the Jacksonville device, a sample from the four-pound can, and some known samples from the Laboratory. He should have stated more directly that he found differences and similarities when he compared certain samples. The differences, however, were insufficient to draw a meaningful conclusion as to whether the powders originated from different lots. As Martz stated in his interview with us, he found nothing in his comparison work suggesting that the samples had come from different lots. Accordingly, we conclude that Martz did not suppress exculpatory information regarding his comparison of the powder samples.

### **G. Claims That Martz Improperly Analyzed Primers**

Whitehurst asserts that Martz should not have testified about the identification of primers in the detonators because examiner Roger Peele in the Elemental Analysis Unit (EAU) was responsible for primer residue analysis.

The green powder found in the detonators was sent initially to the CTU for analysis because its chemical composition was unknown. Based on analyses with infrared spectroscopy and a scanning electron microscope, Martz determined that the green powder was similar to primer materials that he had recently been analyzing. Through contacts with industry representatives, Martz learned that small arms primers made by CCI Industries were unique in having a 2% aluminum content.

In order to have the composition of the green powder analyzed further, Martz recalled that he asked Charles Peters, who then was an EAU technician, to perform inductively coupled plasma (ICP) atomic emission spectroscopy analysis of the samples. A logbook maintained by Peters indicates that he performed primer analysis for Martz in January 1990. Peters told us he could not specifically recall his work on the VANPAC case, and said he would have forwarded all his analytical results to Martz. Results of the ICP analysis have not been located, but Martz recalls that they confirmed a 2% aluminum content in the primers.

Roger Peele told us that he thought there was nothing improper in Martz's having analyzed the primer material in the VANPAC case. The EAU, Peele explained, at that time attempted to confirm the presence of gunshot primer residues on persons suspected of firing a gun by locating antimony and barium, components of primers. This analysis did not attempt to identify the particular primer or its manufacturer based on the overall composition of the primer. Peele believed that some interaction of units would have been necessary even if the unidentified green powder had first gone to the EAU, and he thought Martz properly involved the EAU by having Peters perform the ICP analysis.

## **H. Testimony by Martz About the Search at Moody's House**

On direct examination, Martz said that he had participated in a search of Moody's house in January 1991. He described his assignment as looking for residues of primer material and also smokeless powder. Martz explained that he and other agents had vacuumed the house and even pulled up a floor that

Moody had replaced. Martz acknowledged on cross-examination that they had searched throughout the house, including the bags and brushes of vacuum cleaners that were there, and found no evidence of Red Dot smokeless powder.

Whitehurst complains that Martz was not qualified to search for residues. He also asserts that Martz lacked any basis to say that what was found in the search could have been affected if someone had vacuumed the area previously. We do not believe Martz lacked qualifications to conduct the search he described. Martz's statement that the results of his search might have been affected if someone had already vacuumed the scene strikes us as unobjectionable common sense.

Finally, Whitehurst complains that Martz lacked a basis to state on cross-examination that if any chemical tests had been done under the house, there would likely be detectable residue remaining on the pipes. Martz's observation was based on his experience as an agent and chemist, and we do not think it was improper because it was not supported by specific data or analytical results. In response to further defense questions, Martz said he had taken swabbings of pipes and other areas of the house looking for gunshot residues. He then acknowledged that no evidence of primers was found. The defense clearly pursued this line of testimony to underscore that although the FBI had conducted an extensive search, certain evidence was never found at Moody's house.

## **I. The Conduct of the Prosecutors**

Whitehurst has suggested that prosecutors Howard Shapiro and Louis J. Freeh may have engaged in misconduct through their presentation of testimony by Martz and Thurman or their arguments in the VANPAC case.

We find no basis to conclude that either Shapiro or Freeh knowingly presented any improper evidence in the case. Both Freeh and Shapiro said that while they

worked on the case they had never heard any suggestion that there was any impropriety in how the evidence had been analyzed within the Laboratory. Nor did they ever hear any suggestion that Thurman or anyone else had attempted to circumvent the Laboratory's procedures for the analysis of explosives or that the MAU should have done certain work rather than the CTU.

With respect to the closing argument, Whitehurst notes that Freeh reminded the jury of testimony by Paul Sartain, who said he had sold Moody four pounds of gunpowder and 4000 primers in December 1989. Whitehurst asserts that Freeh did not know what kind of explosive was used in the bombs, so this evidence was not probative in tying Moody to the bombs. For reasons noted earlier, we think that the FBI examiners could reasonably conclude that Red Dot smokeless powder and a high explosive detonator were components of each bomb. Sartain's testimony noted by Freeh in closing was both relevant and, in our view, highly probative.

Whitehurst also questions the basis for Freeh's remark to the jury that some eighty nails were traveling at 13,000 feet per second in the Birmingham bomb that killed Judge Vance. When interviewed in our investigation, Director Freeh could not recall the specific basis for his remark. The comment about 13,000 feet per second may reflect that Freeh misspoke or that the court reporter misheard him. Thurman testified that the cutoff between high and low explosives was 3,000 feet per second, and Freeh may have had in mind that number in his remarks. Both Thurman's testimony and the relevant Laboratory report indicated that eighty nails were attached to the Birmingham bomb.

Whitehurst also notes that Freeh in his closing commented about black paint being sprayed inside the devices to cover up fingerprints and also asked why every color of paint was found at Moody's house other than black. The statement that paint was sprayed was incorrect, as the Laboratory reports indicated the paint was brush-applied, and Thurman testified that the Laboratory had determined that the paint was hand-applied. We have no reason to think this was anything other than an honest mistake by Freeh. Whitehurst's other complaint here is that an FBI paint examiner, and not Thurman, should have testified about the significance of the paint. As noted above, Thurman

understood and Moody's lawyer confirmed that Thurman could testify as a summary witness.

Freeh also stated in his closing that Thurman had been very conservative in his testimony. Freeh noted that Thurman did not conclude that the partially constructed Chamblee device was made by the same person who built the 1972 and 1989 devices. Whitehurst asserts that the jury may have been misled by these remarks because Thurman testified incorrectly, outside his expertise, or without a basis on various matters. We have addressed the allegations about Thurman's testimony above, and we find no basis to conclude that Freeh misled or attempted to mislead the jury in his comments about Thurman.

Whitehurst also notes that Howard Shapiro referred in the government's rebuttal argument to a survey conducted by the FBI that involved some 16,000 devices in a computer data bank and 217 crime laboratories around the country. Shapiro stated that the survey had not found any other device with certain features present in both Moody's 1972 bomb and three of the 1989 bombs. Whitehurst states that [t]his evidence should be thoroughly reviewed in detail because an EU technician named Mike Fanning had told Whitehurst that the FBI's Express computer data base had been built because the EU lacked such a data base at the time of the VANPAC case.

Shapiro's remarks in closing were based on Thurman's testimony. With regard to data bases, Thurman testified that the FBI had access to essentially three data bases: the EU's collection of previous Laboratory reports; the information on bombing incidents collected by the FBI's Bomb Data Center; and the data base maintained by the ATF. Thurman later described a review the FBI had conducted to determine if there had been other bombing incidents with devices with features similar to those of the bombs involved in VANPAC. He noted that the FBI had examined its own data base as well as the data bases maintained by ATF and the U.S. Postal Service and also had sent a survey to 217 forensic laboratories. Subsequently, Thurman testified that the survey and data bases had involved more than 16,000 devices, and that no devices were identified other than those involved in VANPAC that had certain design features and were designed to be sent in the mail.

The statements by Thurman and Shapiro concerning the review of some 16,000 devices had a factual basis. We interviewed Steve Schied, an Intelligence Research Specialist with the ATF, who has overseen the Exis data base since 1975 and who reviewed the data base for the VANPAC case. Schied said that at the time of the VANPAC case, the ATF Exis data base alone included 15,921 entries. He observed that it would have been accurate to say that the FBI survey involved approximately 16,000 devices based only on the ATF data base. Insofar as the FBI also examined other data bases and surveyed other forensic laboratories, we find Thurman could properly testify that the FBI's review involved more than 16,000 devices.

#### **IV. Conclusion**

We find no basis for the allegations made by Whitehurst that Thurman and Martz obstructed justice, circumvented Laboratory protocols and procedures, perjured themselves, or fabricated evidence in the VANPAC case. We also find no support for Whitehurst's suggestion that Freeh or Shapiro engaged in prosecutorial misconduct. As explained above, there were certain areas in which we believe that agents Thurman or Martz testified ambiguously or, in relatively minor ways, inaccurately. We do not find any basis to conclude that this testimony involved knowing or deliberate misconduct.

Given the documentation we were provided by the FBI, we also conclude that the conclusions made by examiner Robert Webb concerning the origin of black paint, glue, RTV, and 2-inch wide tape were stated more strongly than was justified by the methods employed and the analytical results. We find that Webb did not intentionally attempt to fabricate evidence or to present biased conclusions.

The case does highlight several areas in which we believe the Laboratory's procedures should be improved. The Laboratory would benefit from: (1) expressly stated and agreed upon guidelines concerning the respective

responsibilities of different units with regard to explosives analysis; (2) clearer guidance as to the proper scope of principal examiner testimony concerning work done by auxiliary examiners; (3) an improved record retention and retrieval system; (4) written and validated protocols for standardized procedures; and (5) file review to ensure that conclusions are supported by appropriate analysis and data.

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## **SECTION C: WORLD TRADE CENTER BOMBING**

### **I. Introduction**

On February 26, 1993, an explosion occurred at the World Trade Center, in New York City, New York, resulting in six deaths, numerous injuries, and substantial property damage. An investigation was undertaken by the FBI, as lead agency, with the assistance of other agencies including the ATF and the New York City Police Department. Several defendants were indicted, tried, and convicted in a case dealing primarily with the Trade Center bombing--United States v. Salameh, which was tried from September 1993 to March 1994 in the Southern District of New York. A broader case, which included evidence of the Trade Center bombing (United States v. Omar Ahmed Ali Abdel Rahman a/k/a Sheik Omar), was tried in 1995 in the Southern District of New York, resulting in the conviction of the defendants.

Prior to the Salameh trial, Whitehurst complained about several matters, all of which were resolved to his satisfaction prior to trial. On January 8, 1996, Whitehurst submitted to the OIG an 80-page critique of the Salameh testimony of SSA David Williams, an examiner in the Explosives Unit. Whitehurst covered a multitude of topics and concluded that Williams misrepresented the truth, testified outside his area of expertise, and presented testimony biased in favor of guilt.

To investigate Whitehurst's allegations, we interviewed Whitehurst, Williams, EU Chief J. Thomas Thurman, Special Agent Steven Burmeister (an examiner who worked on the case), former MAU Chief James Corby, CTU Chief Roger Martz, other examiners and employees at the FBI Laboratory, a chemist at the Eglin Air Force Base, persons who allegedly discussed the case with Williams prior to the Salameh trial, other FBI and ATF personnel (some of whom worked at the scene of the blast), and other persons associated with the case. The interviews of Whitehurst, Williams, Thurman, and Martz were sworn and

transcribed. Additionally, we considered relevant trial transcripts, pertinent FBI documents, and applicable literature in the field of explosives.

As explained below, we conclude that in the Salameh trial Williams gave inaccurate and incomplete testimony and testified to invalid opinions that appear tailored to the most incriminating result. Regarding most of Whitehurst's many other allegations, we either find them meritless or conclude that any error was insignificant. We first address the allegations relating to Williams' Salameh testimony (Section II), then the pre-trial issues (Section III), followed by our conclusion (Section IV).

## **II. Testimony of SSA David Williams in the Salameh Trial**

David Williams testified at length on direct examination in the Salameh case regarding several areas, including the following: his manufacture of urea nitrate pursuant to formulas found in manuals seized in the case; his calculation of the amount of urea nitrate that could have been produced based on certain chemical purchases; and the possible explosives used at the bombing and their weight, based on the damage at the scene. On cross-examination Williams elaborated on some of these subjects and opined specifically that the main explosive used in the bombing was urea nitrate. The principal allegations relate to these areas of Williams' testimony. We address first the FBI's manufacture of urea nitrate (Section A), then Williams' opinions on defendants' capacity to make urea nitrate and on the explosive used in the bombing (Section B), then Williams' testimony regarding an attempt to modify Whitehurst's dictation (Section C), and finally the other allegations concerning Williams' testimony (Section D).

### **A. FBI's Manufacture of Urea Nitrate**

Whitehurst asserts that Williams falsely testified that Williams manufactured urea nitrate pursuant to formulas in certain blue manuals that were seized in the case and were linked to the defendants. Whitehurst maintains that Williams in

fact did not manufacture any urea nitrate and that the explosive was made by other Laboratory personnel who did not use the formulas in the manuals. First we will summarize Williams' testimony; then we will present the facts found in our investigation and our analysis of the issues.

## **1. Williams' Testimony**

Williams testified that he had experience in manufacturing or putting together urea nitrate. He further testified that in manufacturing the urea nitrate I actually used two formulas that were removed from one of the blue manuals. (The blue manuals were manuals in Arabic and English for home-made bomb-making.) Williams further testified that the formula recommends that you mix the urea to the nitric acid in a one-to-one range; . . .[i]t suggests that you mix by amount 60 parts of urea to 63 parts nitric acid. He further testified, When I made a large quantity of urea nitrate in the large plastic tubs, it was very heavy. On both direct and cross examination, Williams used both the first person, singular pronoun I and the first person, plural pronoun we to describe who made the urea nitrate.

On cross-examination he testified:

Q. You reproduced an explosion using the same chemicals and the formulas that was in the book?

A. Yes, I did.

Q. When did you do that?

A. In the early part of the spring and summer, we started by making small batches of urea nitrate. And then in August, I made approximately 1,300 pounds of urea nitrate in Florida.

When asked whether he concocted a bomb with some of the urea seized in the searches, Williams responded: I did. In the early tests in the summer, I used some of the urea from Mallory [the location of one of the searches] and made small one-pound bombs of urea nitrate and detonated it.

Williams further testified to the production of urea nitrate at the Eglin Air Force Base in Florida in August 1993. When asked why he used an outdoor laboratory there, he stated, I didn't want to have any of the fumes bother myself or any of my workers. Williams testified that we started with smaller batches of 20 pounds of urea and 20 pounds of nitric acid. On cross-examination, Williams listed the persons who worked on the project with him including Whitehurst, Steven Burmeister, agents from the Jacksonville office of the FBI, technicians in the Explosives Unit, and personnel from the Air Force Base. He then testified:

Q. Okay. Anyone else you can remember?

A. I believe they were all that were immediately involved in the mixing process.

Q. Okay. And of course you were involved as well?

A. That's correct.

Q. You were supervising this?

A. That's correct.

Williams further testified:

The first batch of urea nitrate that I made I relied on instructions. After making it one time, you didn't need instructions any longer. . . . The first bit of instructions came out of the blue manuals that I saw the other day.

Williams testified that he used two formulas from the blue books to make the urea nitrate. The first (G.Ex. 2781, p.172) was in Arabic and English. The second formula (G.Ex. 2783T, p.2) was entirely in Arabic.

## **2. Facts**

Personnel in the FBI Laboratory made several batches of urea nitrate prior to the Salameh trial. Several small batches were made in the spring and summer of 1993, and approximately 1200 pounds were made at Eglin Air Force Base in August 1993.

### **a. Early Batches**

The first two batches were made in test tubes by Chemist James Molnar on March 8 and 9, 1993. He followed the procedures set forth in Davis, The Chemistry of Powder & Explosives 372-73 (1943) ( Davis book ). For the second batch, he calculated a synthesis yield of 97%. He wrote up his findings.

The next batch was made by Chemist Mary Tungol. She also followed the procedures set forth in the Davis book. She also prepared a formula for the synthesis of urea nitrate in a four or five gallon quantity. In summary, she calculated the amount of water (2 gallons), urea (20 pounds), and nitric acid (8.7 liters) needed to produce a theoretical (100%) yield of 42.5 pounds of urea nitrate. Tungol made smaller batches (5 to 10 pounds of urea nitrate) using a percentage of the quantities in the formula. These batches were taken to the FBI range at Quantico, Virginia, and detonated.

Another batch was prepared by Whitehurst and Burmeister at Quantico pursuant to the Tungol formula. It would not detonate because it had not been properly dried.

### **b. Eglin**

In August 1993, Williams, Whitehurst, Burmeister, and other FBI personnel manufactured approximately 1200 pounds of urea nitrate at the Eglin Air Force Base in Florida. Williams and Whitehurst jointly decided to undertake this project, and both helped set it up, including the acquisition of the necessary personnel, equipment, and materials. The mixing occurred outdoors. Reagent grade (99% pure) or technical grade (about 97%) urea and reagent grade (70.4%) or technical grade (67%) nitric acid were used, as well as distilled water. Whitehurst and Burmeister did the mixing in plastic trash cans surrounded by ice water to cool the solution. Although the evidence is conflicting, the recipe they followed was apparently based on the one developed by Tungol. First, the urea was weighed and dissolved in the distilled water. Then the nitric acid was put in. Several batches were mixed at the same time. Whitehurst and Burmeister wore protective clothing during the mixing. After a precipitate (the urea nitrate) formed, the liquid was filtered through a funnel. The urea nitrate was then put on drying trays, which were put in drying ovens provided by Eglin. The urea nitrate was allowed to dry overnight. Personnel from Eglin then weighed and bagged the urea nitrate. It took about three or four days to produce the 1200 pounds of urea nitrate.

### **3. Analysis**

We conclude that the basic point of Williams' testimony--that Williams personally manufactured urea nitrate pursuant to formulas found in the blue manuals--was inaccurate in two respects. First, no one in the FBI used the formulas from the blue manuals to manufacture urea nitrate. Second, Williams' role in the manufacture of the urea nitrate by the FBI was much more limited than his testimony described. We reach these conclusions for the following reasons.

#### **a. Use of Formula**

In his testimony Williams indicated that he personally took the formulas from the blue books, followed them, and was able to produce the explosive urea nitrate. Neither Williams nor anyone else in the FBI actually did this. The first (test tube) batch, by Molnar, was made pursuant to the information in the Davis book. From then on, the Tungol formula (also based on the Davis book) was used. All of the formulas (Molnar's, Tungol's, and the Arabic) used the same essential ingredients (urea and nitric acid). The weights and concentrations in the FBI's formulas, however, were different from the weights and concentrations in both of the Arabic formulas referred to in Williams' testimony.

The first formula from the blue books (G.Ex. 2781) sets out the chemical equation for the reaction and states that urea and diluted nitric acid (34%) should be mixed. The formula does not prescribe dissolving the urea in water before adding the diluted nitric acid (34%). Williams testified that the numbers 60 and 63 on the exhibit meant that the formula suggests that you mix by amount 60 parts of urea to 63 parts nitric acid. The numbers 60 and 63 are the molecular weights of urea and nitric acid and were noted underneath the chemical equation. A 60 to 63 ratio by weight is theoretically the correct ratio for the reaction, but only if both substances are in the same concentration. Here, the manual prescribes that the nitric acid be diluted to 34%, which would require a ratio of 60 parts urea to about 189 parts nitric acid (63 divided by .34) if the urea was 100% pure, or some other ratio if the urea was less pure.

The second formula (G.Ex.2783T) is closer to, but is not exactly, what the FBI followed. This formula indicates that 200 grams of urea should be dissolved in water, and then 200 grams of diluted nitric acid should be put in. No mention is made of reagent or technical grade products or distilled water. The manual's translated discussion of how to dilute nitric acid is difficult to understand. In a 1997 interview Burmeister told us he construes the discussion to mean that the nitric acid should be diluted to 35% purity. Thus, the weights and concentrations of G.Ex.2783 differed from those in the formulas used by the FBI, and, as explained in note 41, infra, it is unclear whether G.Ex. 2783 could effectively produce urea nitrate. In any event, prior to the Salameh trial no one in the FBI attempted to decipher the dilution procedure and actually dilute nitric acid pursuant to it; nor did anyone in the FBI otherwise attempt to make urea nitrate pursuant to this formula.

In his OIG interview Williams did not say that he or anyone else in the FBI actually manufactured urea nitrate by literally following the formulas in the manuals. Despite Williams' trial testimony that the early (pre-Eglin) batches were made using the formulas in the manuals, he testified in the OIG interview that he did not know what formulas were used in the only two pre-Eglin batches he was aware of.

As for Eglin, Williams testified at the interview as follows: He did not see the written formula Whitehurst and the other members of the team were following and did not know whether it was the formula from the manuals. However, based on Whitehurst's verbal instruction to the team, Williams thought that the formula from the manuals appeared to be the formula that we were also using. Williams further testified that on the first day of mixing at Eglin he received a fax of one of the translated Arabic formulas; he showed it to Whitehurst and the Eglin chemists and asked how it compared to what they were doing; and they said it was the same.

Whitehurst, Burmeister, and the Eglin chemist at the scene of the mixing (Paul Bolduc) told the OIG that they could not recall telling Williams that a formula in the fax was the same as the formula the FBI was using at Eglin. Two bomb



technicians present at Eglin, however, recall the conversation. FBI Comments at 10.

After Williams' OIG interview, we obtained a copy of the fax Williams received at Eglin. The fax includes two Arabic formulas and their translations. The first formula (First Fax Formula) is one of the two formulas Williams testified in Salameh he used to make urea nitrate and became G.Ex. 2781. The second formula in the fax (Second Fax Formula) is different from the two Arabic formulas Williams testified he relied on to make the urea nitrate.

As noted above, the First Fax Formula (G.Ex. 2781) differs from the formula used at Eglin in that the fax formula fails to prescribe that the urea should be dissolved in water prior to the addition of the nitric acid and further states that the nitric acid itself should be diluted to a 34% concentration. As indicated above, at Eglin the urea was first dissolved in distilled water, and then reagent grade (70.4%) or technical grade (67%) nitric acid was added. The fax formula, moreover, is essentially a chemical equation with molecular weights. It does not include a specific amount of 34% nitric acid to be added to a specific amount of urea.

The Second Fax Formula is quite different from the Eglin formula. The Second Fax Formula uses human or animal urine as an ingredient. The formula sets forth a procedure for evaporating and filtering the urine; then 90% nitric acid is added to the urine filtrate at a ratio by volume of one part acid to three parts urine.

Thus, the fax formulas were different from the formula the FBI used to manufacture urea nitrate at Eglin, and no one in the FBI at Eglin attempted to manufacture urea nitrate from the fax formulas.

Because he was not a chemist, Williams lacked the expertise to determine on his own whether a fax formula was the same as the formula Whitehurst was

following. When Williams testified at the OIG interview that the formulas seemed to be the same because both used a 60 to 63 ratio by weight of urea to nitric acid, it is clear he did not understand that the ratio of the weights must take into account the concentrations of the ingredients. Because the concentrations of the ingredients at Eglin were different from the concentrations in the Arabic formula, the ratios of weights would have to be different as well. Additionally, the formulas were different with respect to the form of the urea (solid versus water solution) and the absence in the Arabic formula of specific amounts (in pounds or liters) for the ingredients.

As we have noted, the Eglin and fax formulas utilized the same basic ingredients but were different as to the weights, concentrations, and the form of the urea. Nevertheless, Williams and the bomb technicians maintain that Williams was told by a chemist that the Eglin formula and the Arabic formula were the same. In his trial testimony Williams should have made the source of his information clear. Instead of testifying that I made the urea nitrate at Eglin and in the pre-Eglin batches pursuant to the Arabic formula, he should have said that he had no personal knowledge of what formulas were used, that comparing chemical formulas is a matter beyond his expertise, but that, when Williams asked, a chemist told him that the Arabic and Eglin formulas were the same.

We conclude that Williams' trial testimony that the formulas from the manuals were the source from which the FBI manufactured urea nitrate was incorrect. The source of the formulas used by the FBI was the Davis book. Moreover, Williams told us that he did not know or did not have a clue as to what formulas were used before Eglin and that he had no idea as to the source of the Eglin formula. Williams' testimony concerning the use of the Arabic formulas was seriously flawed.

## **b. Williams' Role**

Williams also gave inaccurate testimony about his role in the FBI's manufacture of urea nitrate. Regarding the batches before Eglin, he had no role

other than attempting to dry some of the product and was not even aware of all the batches. Thus, his testimony that I made the early batches of urea nitrate was apparently false. Williams responded at the OIG interview:

Well, in a lot of this testimony, when you see me saying, Yes, I did, I'm the FBI Explosives Unit and laboratory representative; so I'm using that term I as the laboratory. So when I say, Yes, I did, that meant the laboratory.

Williams acknowledged that [p]erhaps they were a bad choice of words. We are troubled by the choice of words. Williams' testimony that I performed some Laboratory procedure implied that he was in a position to know something about that procedure--when in fact he was not. Thus, instead of saying I made the pre-Eglin batches of urea nitrate pursuant to the Arabic formulas, Williams should have testified to the truth--that he was not involved in those batches and did not know what formulas were used.

As for Eglin, Williams' testimony on direct that I made approximately 1300 pounds of urea nitrate in Florida, and his testimony on cross that he supervis[ed] the mixing process, was inaccurate.

According to Williams' OIG interview, the decision to manufacture the large quantity of urea nitrate in Florida, and the planning for the project, were jointly undertaken by him and Whitehurst, but Whitehurst decided how to make the explosive and what formula to use. Special Agent Burmeister stated in his OIG interview:

It was a team effort. Everybody had their own function, but the responsibilities were on certain individuals to do certain things. The logistics on getting personnel out to the scene and buckets, and stuff like that, that was in Dave's [Williams'] court.

The mixing and knowing how much to mix, that was in Fred [Whitehurst] and myself, that was our responsibility, to mix and prepare this stuff. And we were brought down there to prepare this material, period. . . . [I]t was our [Whitehurst's and Burmeister's] responsibility to control and organize the actual manufacturing of this material . . . .

[Question by OIG:] Would you say that, in a sense, Dave Williams was supervising the FBI people there [at Eglin]?

AGENT BURMEISTER: No. I don't think, I don't think he was supervising. It wasn't that Dave would tell us -- would come over and say, I think you're adding too much nitric acid. No, no, Dave wasn't doing that.

If Dave was supervising, Dave was supervising the fact of telling the guys from Eglin, you know, we're going to be here tomorrow at 9:00, telling the bomb techs from the FBI office, I want you guys to be down here at a certain hour.

That kind of logistics, yes, he was supervising that. But when it came to the people mixing and preparing, he wasn't supervising that activity.

OIG: . . . At any time did he [Williams] tell you or Fred how much of a certain chemical to use?

AGENT BURMEISTER: No, never. . . . I know that because he wasn't involved in the mixing process. Dave would not know how

much to add, if we didn't tell him how much to add. He could not derive that just on the site.

In his OIG interview, Paul Bolduc, the Eglin Air Force Base chemist present for the mixing operation, characterized Williams' role in the mixing process as that of a gofer.

We find that Williams' role in the mixing operation was to provide manual assistance under the direction of Whitehurst and Burmeister.

Accordingly, we conclude that Williams' trial testimony on direct examination that I made the urea nitrate at Eglin, and his testimony on cross-examination that he supervis[ed] the mixing process, was incorrect. The reference in his trial testimony to the other FBI personnel at Eglin as my workers could be interpreted to manifest an intent to downplay the role of the others and to aggrandize his own. Williams' exaggeration of his role erroneously suggested that Williams was an expert in the manufacture of urea nitrate, that he was in a position to know how the FBI made its urea nitrate, and that therefore he could say authoritatively that it was manufactured pursuant to the formulas in the blue books. Williams' flawed testimony about the manufacture of urea nitrate was the first of numerous errors he committed in the Salameh trial.

### **B. Williams' Opinions on Defendants' Capacity to Manufacture Urea Nitrate and on the Explosive Used in the Bombing**

An important part of Williams' Salameh testimony consisted of his opinions concerning (1) the capability of the defendants to manufacture urea nitrate and (2) the main explosive ( main charge ) used in the World Trade Center bombing. We conclude that Williams' testimony about these subjects was deeply flawed.

As noted above, urea nitrate is made by combining urea with nitric acid. Regarding the defendants' capacity to make urea nitrate, Williams subtracted the amounts of urea and nitric acid recovered in the searches from the amounts the defendants ordered from chemical companies. From the amounts of urea and nitric acid missing, he calculated that the defendants could have produced approximately 1200 pounds of urea nitrate.

Williams then rendered opinions concerning the main explosive used in the World Trade Center bombing. On direct examination, based on the damage at the scene, he opined that the main charge consisted of about 1200 pounds of a category of explosives that included urea nitrate. On cross-examination, he went further and rendered a specific opinion that the bulk of the main charge was urea nitrate.

Taken together, the opinions concerning the defendants' capacity to make urea nitrate, and the likelihood that urea nitrate was used in the bombing, were incriminating in view of the uniqueness of the criminal use of urea nitrate. Williams testified that his research revealed only one prior use of urea nitrate as an improvised explosive charge--in a pipe bomb in 1988. If such an unusual explosive was indeed used at the World Trade Center, the defendants' link to a bomb factory and storage facility capable of making the precise amount of urea nitrate allegedly used at the Trade Center would substantially contribute to the proof of guilt.

Williams' opinions were important for another reason. Normally, the way a crime laboratory determines the main charge of an exploded bomb is by finding unconsumed particles or distinctive byproducts of the explosive among the residue. The search for such particles is made by a forensic chemist. In the FBI at the time of the World Trade Center case, the chemists specializing in the examination of explosives residue were Whitehurst and Burmeister, who were assigned to the MAU. One problem for the prosecution in the World Trade Center case was that the MAU chemists did not find any residue identifying the explosive. Thus, the normal way of scientifically determining the main charge was unavailable. Williams' purported identification of the explosive filled that void.

## 1. Defendants' Capacity to Make 1200 Pounds of Urea Nitrate

### a. The Science

Williams calculated the amount of urea nitrate the defendants could have produced from the amounts of urea and nitric acid that were missing--i.e., from the amounts ordered minus the amounts recovered in searches of premises associated with the defendants. To make such a calculation, the area of chemistry known as stoichiometry must be applied. Stoichiometry concerns molecular weight relationships in chemical reactions. In this instance, the chemical reaction was: one molecule of urea plus one molecule of nitric acid produces one molecule of urea nitrate. As previously noted, each of these molecules has a different mass or weight. The molecular weight of urea is 60; that of nitric acid is 63; and that of urea nitrate is 123. Thus theoretically (100% yield), 60 grams of urea plus 63 grams of nitric acid produces 123 grams of urea nitrate. For every 60 grams of urea, 63 grams of nitric acid is required. (Similarly, for every 60 pounds of urea, 63 pounds of nitric acid is needed.)

Determining the potential amount of urea nitrate that could have been produced requires a determination, first, of the limiting reagent because it is the chemical that will run out first. For example, with only 63 grams of nitric acid, one could only produce 123 grams of urea nitrate even with an unlimited amount of urea. In this example, the nitric acid would be the limiting reagent.

Once the limiting reagent is determined, the potential amount of urea nitrate can be determined with a simple calculation: If urea was the limiting reagent, for every 60 grams (60 pounds) of urea that was missing, the perpetrators potentially could have produced 123 grams (123 pounds) of urea nitrate. If nitric acid was the limiting reagent, for every 63 grams (63 pounds) of nitric acid that was missing, the perpetrators potentially could have produced 123 grams (123 pounds) of urea nitrate.

One additional factor must be taken into consideration: the purity of the components. The calculations above assumed that the components were 100% pure. If, for example, the urea was only 50% pure, you would need twice as many grams (or pounds) of urea as indicated above: 120 grams (or 120 pounds) would be needed for every 63 grams (63 pounds) of 100% pure nitric acid. Similarly, if both components were less than 100% pure, appropriate adjustments would have to be made.

## **b. Factual Background: Jourdan's Calculations**

On March 7 or 8, 1993, Williams provided a list of the missing components to a forensic chemist in the CTU (Thomas Jourdan) and asked him to calculate the potential amount of urea nitrate that could have been produced. Jourdan made the calculations and reported back to Williams, Agent Richard Hahn, and possibly EU Chief J. Christopher Ronay. It appeared to Jourdan that they did not understand his explanation of how nitric acid was the limiting reagent, so Jourdan prepared a memorandum explaining his calculations and gave it to Ronay and Williams and probably to Hahn.

Based on the figures Jourdan had, he determined that the nitric acid was the limiting reagent, and determined that the upper limit was the production of 1821 pounds of urea nitrate. Jourdan used a 97% yield instead of 100% because a staff member (this was James Molnar, see p.85, supra) had achieved such a yield in the Laboratory. Jourdan also noted that [r]ecovered empty bottles of HNO<sub>3</sub> [nitric acid] indicated usage of about equal portions of 70.4% (reagent grade) nitric acid and 67% (technical grade) nitric acid. He defined limiting reagent as stoichiometrically you run out of it first, and stated that ordinarily, urea is the limiting reagent to make sure the urea nitrate is not adulterated with unreacted urea, which would inhibit the explosive's effectiveness.

At the time Williams testified at the Salameh trial, his figures regarding the missing components were different (presumably updated) from the ones given to Jourdan. At the time of the trial it was determined that 1200 pounds of urea and 1694 pounds of nitric acid were missing. See G.Ex. 862. Using these



figures and Jourdan's basic methodology, a proper stoichiometric calculation would be as follows: Jourdan assumed, as we will do here, that the concentration of the urea was 100% and the average concentration of the nitric acid was 68.7%. A quantity of 1694 pounds of 68.7% nitric acid is the equivalent of 1164 ( $1694 \times .687$ ) pounds of 100% nitric acid. Since, as noted above, 63 pounds of nitric acid is needed for every 60 pounds of urea, 1164 pounds of 100% nitric acid is inadequate to achieve a complete reaction of 1200 pounds of 100% urea. Accordingly, the nitric acid was the limiting reagent.

For every 63 pounds of completely reacted nitric acid, 123 pounds of urea nitrate is theoretically (100% yield) produced. Therefore, with a 100% yield, 1164 pounds of nitric acid would produce 2273 pounds of urea nitrate. A 97% yield, as obtained by Molnar, would produce 2205 pounds of urea nitrate.

### c. Williams' Salameh Testimony

In his testimony in the Salameh trial, Williams was asked to calculate how much urea nitrate could be produced from the missing urea and nitric acid. Williams first addressed the concept of a limiting reagent:

Whenever you have a reaction like this, there is a limiting reagent when you mix two things together. You can only go so far because one of the components limits the quantities that you're going to have.

In the case of manufacturing urea nitrate, urea is the limiting factor. So, you'd always want to add a little bit more nitric acid than the recipe calls for to make sure that you've reacted all the urea.

Next, Williams addressed the issue of yield. He testified that in a laboratory type environment the [b]est case scenario would be in the neighborhood of 90 percent. He then testified:

Q. And if you're not working in a scientific laboratory, what effect would that have on the yield?

A. It's drastically reduced. You're going to have a lot of spillage because you're going to be cautious. It will splash out. You will lose some of the mixture on the ground. You're going to lose some because it's getting held up in your filter paper and that's a pretty good amount. So, in reality, in a non-laboratory environment, I would expect that and, as a matter of fact, you would get somewhere around a 60- to 70-percent yield.

Williams then testified:

With 1,500 pounds ordered and delivered of urea to the storage area, and finding 300 pounds left in that shed, mixing it with the quantities of nitric acid, the urea and nitric acid would form ideally about 90 percent of the gross weight.

So, if we have 1,200 pounds of urea used unaccounted for, if it was used, we could make a mixture of somewhere around 2,100 pounds, give or take, on ideal conditions of urea nitrate. If the urea nitrate was mixed in a less than ideal environment, not laboratory techniques, and using something as simple as newspaper for filter paper, I would expect that we would get in the neighborhood of somewhere between 1,200 and 16, 1,800 pounds of urea nitrate and then depending on how it was packaged, how sloppy the individual or individuals were that were packing it, you might lose a few more pounds.

So, in essence, you could have an explosive charge of urea nitrate perhaps between 1,200 and 16, 1,800 pounds.

Later in his testimony Williams referred to the amount of urea nitrate that could have been made as about 1,200 pounds.

#### **d. Analysis**

We have reached several conclusions regarding Williams' testimony.

First, Williams lacked the requisite scientific knowledge to testify competently in this area. When Jourdan initially discussed the calculation of potential urea nitrate, Williams appeared to Jourdan not to understand the concept of a limiting reagent. His testimony makes clear that he never learned the concept. Urea is not always the limiting reagent and was apparently not the limiting reagent here. Moreover, in his memorandum Jourdan explicitly defines limiting reagent as stoichiometrically you run out of it first and finds nitric acid to be the limiting reagent based on the information he was given. Accordingly, Williams' testimony was inconsistent with the Jourdan memorandum.

Moreover, assuming that urea was the limiting reagent in this case, Williams' numbers do not add up. Because, as earlier noted, 60 pounds of fully reacted urea will produce 123 pounds of urea nitrate, 1200 pounds of urea will produce a theoretical (100% yield) of 2460 pounds of urea nitrate. A 90% yield would produce 2214 pounds (not 2100 pounds), and a 60% to 70% yield would produce 1476 to 1722 pounds (not 1200 to 1800 pounds). The errors in Williams' calculations conveniently produced a range that included the exact amount of urea nitrate--1200 pounds--that he later testified was used in the Trade Center bombing.

Second, Williams' discussion of laboratory yield was problematic. Williams testified that in a laboratory type environment the [b]est case scenario would be a yield in the neighborhood of 90 percent. In his OIG interview Williams said he got the 90% figure from Whitehurst or Burmeister, although they do not confirm this. Assuming they said it, we nevertheless question Williams' choice of words, which implied that his testimony about laboratory yield was based on his own expertise. A laboratory yield for a chemical reaction is obviously outside Williams' area of expertise. He told us in his OIG interview that he had no way of knowing, independent of the chemists, the accuracy of the 90% number, but believed he could rely on the opinion of other experts in his testimony. An expert may rely on opinions of other experts if this is the normal practice in the field. See Fed. R. Evid. 703. Accordingly, Williams would have been fully justified, in rendering his own opinions, in relying on the chemist's statement about yield. For example, he could have testified, My opinion is based in part on the statement of Chemist W, who told me 90% is the best yield. But if he had so testified (with an attribution for the yield statement), the court would have known on whose expertise the 90% number rested. But that is not what Williams did. He did not attribute the 90% number to anyone else, but rather continued to give the impression that he was speaking from his own expertise, which was misleading.

The failure to attribute the 90% figure was particularly inappropriate here because at this point in Williams' testimony he was apparently testifying about the manufacture of urea nitrate based on his personal experience in making it. Because the 90% figure was not based on that experience, Williams should have revealed the source of the yield number.

Third, Williams' trial testimony about non-laboratory yield was unscientific and speculative, was based on improper grounds, and appears tailored to correspond with his estimate of the amount of explosive used in the bombing. Williams testified that in reality, in a non-laboratory environment, I would expect that and, as a matter of fact, you would get somewhere around a 60- to 70-percent yield.

When asked in his OIG interview the basis for this testimony, he explained that it was based on three factors. The first factor was the yield at Eglin. He said the yield there was 1158 pounds of urea nitrate from 1600 pounds, or 1500 pounds, give or take, of ingredients (urea and nitric acid). A yield of 1158 pounds from 1600 pounds would be 72%; a yield from 1500 pounds would be 77%. Williams described the Eglin operation as a pseudo-laboratory environment.

The second factor was Williams' observations during the searches of the defendants' alleged bomb factory and storage facility. During these searches he observed evidence of a lot of spillage of urea nitrate, which was more than at Eglin.

When asked whether the evidence of spillage suggested a yield much lower than 60-70%, Williams identified the third factor he considered to determine non-laboratory yield :

Along with the investigation that I had results from, from the purchase of chemicals, the known purchase of chemicals, there was a quantity that was purchased, we found no other places where they had purchased urea or nitric acid. But we did find where they did purchase a quantity. We have knowledge of a quantity of chemicals they had purchased. And I had knowledge of how much chemical was left in the Space Station Storage [the defendants' alleged storage facility] unused.

I also used that to base on what potential percentage of yield was.

We are deeply troubled by Williams' rationale. The first factor used--the yield at Eglin--is problematic. To use Williams' words, Eglin was a pseudo-laboratory environment, in which chemists did the mixing. It is impossible to say whether the typical non-laboratory environment --if there is one--would be better or worse than Eglin. Assuming it would be worse because of an absence of chemists, one could only speculate about how much worse. Further,

improvised (i.e., homemade ) explosives are sometimes produced by chemists; so an assumption that non-chemists made the explosive would be invalid.

The second factor was also inappropriate. Williams' trial testimony about a non-laboratory yield was offered as an expert opinion based on his experience making urea nitrate. He was asked what the yield typically would be in a non-laboratory setting. By basing that opinion on residues found at the defendants' storage facility and bomb factory, Williams really offered an opinion on the yield he thought the defendants would have had, but masked it in the guise of a general opinion. Moreover, it is pure speculation to say what the defendants' yield would have been from the discovery of some urea nitrate crystals evidencing spillage.

The third factor, however, is the most problematic. There is a degree of ambiguity as to what exactly Williams meant. In essence, he said he based his testimony about non-laboratory yield in part on the amount of chemicals missing (amounts purchased minus amounts recovered at the storage facility). Our interpretation of the passage is this: Williams apparently assumed the Trade Center bomb was made from the chemicals missing from defendants' storage facility. He estimated, as he later testified, that the main charge at the Trade Center weighed 1200 pounds. He then divided 1200 by the weight of the applicable amount of missing urea and nitric acid to give him an estimate of defendants' yield. He then considered defendants' yield to help him determine non-laboratory yield generally.

Based on the amount of urea and nitric acid missing from the defendants' facility, they had the capacity to produce urea nitrate in an amount in excess of 2000 pounds if the yield was high (over 90%) and in an amount less than 1200 pounds if the yield was low (below 50%). Williams testified at trial that the amount of the explosive used in the Trade Center bombing was about 1200 pounds. If the defendants' yield was substantially below 90% but not below 50%, a good match could be obtained between the amount the defendants could have produced and the amount supposedly used in the bombing. By setting the non-laboratory yield at 60 to 70 percent, Williams obtained a good match.

The purpose of a criminal trial, of course, is to determine guilt. The issue of guilt is the ultimate question to which all others are directed. In contrast, Williams began with a presumption of guilt as a foundation on which to build inferences. (As we shall see below, this is not the only time in the Salameh trial that Williams so utilized a presumption of guilt.) The agent simply assumed that the perpetrators produced a 1200 pound bomb at the Trade Center using the urea and nitric acid missing from the defendants' facility, and that yield (the amount used at the bombing divided by the amount missing) informed his testimony about non-laboratory yield, which was presented to the jury as a general number applicable to all non-laboratory environments.

It appears Williams may have worked backwards --that is, he may have first determined the result he wanted (here, that the defendants could have produced 1200 pounds of urea nitrate, the amount he estimated was used in the bombing) and then tailored his testimony about yield to reach that result. We are deeply troubled by this possibility.

We conclude that a competent expert cannot give a narrow range for the yield in a non-laboratory environment. A commercial production facility or a meticulous chemist in a garage can potentially achieve a yield as high as that produced in a laboratory. On the other extreme, careless persons without knowledge or skill may be unable to produce the explosive at all (0% yield) or may achieve only a very low yield. Accordingly, we find that Williams' testimony about non-laboratory yield was invalid and beyond his area of expertise.

Fourth, had Williams or another witness performed the stoichiometric calculation correctly, the result--a 100% yield of about 2273 pounds of urea nitrate with a real possibility of a much lower figure in a non-laboratory setting--would have been perfectly acceptable to the prosecution's theory of the case. Williams seemed to have pushed the envelope to get to 1200 pounds--his estimate of the weight of the explosive used in the bombing. Such exacting symmetry was unnecessary.

In sum, we conclude that Williams' testimony about the potential production of urea nitrate was outside his area of expertise and deeply flawed, and his excesses were unnecessary to an effective presentation of the prosecution's case.

## **2. Williams' Opinion Regarding the Explosive Used in the Trade Center Bombing**

Having established the defendants' capacity to manufacture 1200 pounds of urea nitrate, Williams went on to render an opinion in the Salameh trial that the main explosive charge in the Trade Center bombing was 1200 pounds of urea nitrate. This testimony was also seriously flawed.

### **a. Velocity of Detonation**

An important part of Williams' opinion concerning the explosive used at the Trade Center was his determination of the velocity of detonation (VOD) of that explosive based on his assessment of the damage at the scene. Attachment C: A Primer on Explosives and Velocity of Detonation, infra, defines VOD and is a necessary foundation for the discussion that follows. The significance of the VOD determination was that it provided a basis for Williams' opinion concerning the type of explosive used in the bombing.

#### **(1) The VOD of Urea Nitrate**

##### **(a) Background**

Williams testified at the Salameh trial to the VOD of urea nitrate:



Urea nitrate in smaller quantities detonates at a velocity of about 14,000 feet per second. The larger quantity that you get of urea nitrate it compacts on top of itself and may approach 15,500 feet per second.

When asked at his OIG interview the basis for these figures, Williams stated that they were a rough estimate from information I had obtained from different sources. The information was allegedly received orally from persons Williams regarded as knowledgeable sources within the field of explosives. These sources told him, [I]t's approximate. These fellows had not worked with it. And wherever they got the information from, this is what I had received from them. Williams told us there was very little literature on the subject. He continued:

And the actual written material that I found was -- it was a very broad definition. It didn't seem that two people agreed on the same thing. . . .

[Question by OIG:] That literature indicated that it was unclear as to what the velocity of detonation was?

AGENT WILLIAMS: Not unclear. There was just such a wide parameter of detonations and pressure. Very little research had been done and written about that I was able to locate.

OIG: And it was wider than 14,000 to 15,500 feet per second; is that correct?

AGENT WILLIAMS: I don't recall.

OIG: You don't recall that -- I mean, the literature did not reflect 14,000 to 15,500 feet per second; is that right?

AGENT WILLIAMS: I don't recall. . . . I do recall seeing these figures visually. . . . And I don't recall if it was after I prepared it from the verbal information or if it's information that I received by looking at some type of research document.

After the OIG interview we obtained Williams' notes for the World Trade Center case. There is nothing in the notes indicating that the VOD of urea nitrate is 14,000-15,500 feet per second.

The notes, however, do contain two copies of page U103 of the Encyclopedia of Explosives and Related Items (U.S. Armament Research and Development Command 1983) ( Encyclopedia ), a standard text in the field. Page U103 contains the following:

urea nitrate has a deflagration pt of 186 [degrees]; a deton rate of 3400m/sec (at d 0.85g/cc in a 30mm diam paper tube when driven by 1.5g of MF), and 4700m/sec (at d 1.20g/cc in a 30mm diam steel tube when driven by 1.5g of MF)

(Abbreviations in original.) A VOD of 3400-4700 meters per second converts to about 11,155 to 15,420 feet per second. In the OIG interview, Williams stated that he reviewed the Encyclopedia regarding the VOD of urea nitrate before he testified in Salameh.

Also among the case notes is a notation of 12-15,500 FPS, without further elaboration, on a sheet from Williams' notepad. In a letter in August 1996 Williams commented on this notation:

I do not specifically recall why I had written down 12-15,500, nor where I had found it. I did in fact write it and it suggests to me that either I or someone to whom I had conversation with had rounded off the possible VOD of what most likely would have been urea nitrate.

In his OIG interview and correspondence, Williams named only three knowledgeable sources within the field of explosives who he allegedly consulted prior to his testimony--Tom Dowling and Fred Smith of the Institute of Makers of Explosives and Paul Cooper of Sandia National Laboratories. In his OIG interview Dowling stated that he did not recall talking to Williams or talking to anyone from the FBI about the VOD of urea nitrate after the Trade Center blast, but said he was reasonably sure he talked to FBI employees on the telephone about other aspects of urea nitrate. Dowling said that if he had been asked about the VOD of urea nitrate, he would have consulted his reference material and given the caller the information he had. Dowling had only one reference book that contained the VOD of urea nitrate--the Encyclopedia. Smith stated in his OIG interview that he did not recall that anyone ever asked him about the VOD of urea nitrate, that he would not have known the VOD, and that to answer the inquiry he would have consulted the Encyclopedia. Cooper stated in his OIG interview that he was pretty sure no one from the FBI called him to ask about the VOD of urea nitrate and that if someone had called he would have had to perform research or calculations to determine the VOD.

In addition to the Encyclopedia, our own literature search found only one text setting forth the VOD of urea nitrate (Urbanski, Chemistry and Technology of Explosives 469-70 (1965)), and it contained the same VOD as the Encyclopedia--3400 to 4700 meters per second.

Williams testified at his OIG interview that after the Salameh trial (and before the Rahman trial) [w]e detonated the explosives [the urea nitrate] we made at Eglin and measured the VOD to be 12,100 feet per second. Williams characterized this measured VOD as substantially less than 14,000.

## **(b) Analysis**

Williams' Salameh testimony about the VOD of urea nitrate was, at best, incomplete and, at worst, knowingly incorrect. The Encyclopedia, a standard text in the field of explosives, indicated that urea nitrate has a VOD of about 11,155 to 15,420 feet per second. Although the applicable page of this text was in Williams' notes and although prior to his testimony he had consulted it, he nevertheless testified, without qualification, that the VOD is 14,000-15,500 feet per second.

Williams claimed in his OIG interview that he based his testimony about the 14,000-15,500 feet per second VOD of urea nitrate on oral statements from persons outside the FBI. The interviews of Dowling, Smith, and Cooper, and the absence of supporting documentation in the case notes, leave us with grave doubts about the veracity of this claim. In any event, these oral opinions allegedly came from persons who had not worked with urea nitrate, and Williams did not know the basis of their opinions. Assuming Williams received such opinions, we conclude that it was inappropriate for him to blindly rely on them and ignore the Encyclopedia. At a minimum, Williams should have told the court he was relying on outside opinions, and he should have supplemented those opinions in court with the information from the Encyclopedia.

Finally, in his August 1996 letter, Williams came up with a completely new reason for his testimony about the VOD of urea nitrate:

One or more of the individuals from Eglin, at the time of our manufacturing of urea nitrate at Eglin, had conducted tests to

determine the density of urea nitrate as it was manufactured. If you notice, in the highlighted area from the Encyclopedia of Explosives<sup>1</sup> the density for the different VOD tests are 0.85g/cc and 1.20g/cc. This allows for the extreme variance of VODs as listed in the Encyclopedia. The resulting examination indicated that the density of the urea nitrate that was manufactured in Eglin was near the upper end of that density. I do not specifically recall what those figures were, however, in my conversations with the Eglin folks, they agreed that due to the higher density, not tamped or packed tightly, the VOD would be higher or faster than the low end scale. It was also my opinion at the time of testimony in the trial, that the urea nitrate manufactured for the bombing was homemade, allowed to rest for a period of time and then transported while packaged in the Ryder truck, from New Jersey to New York City. The density of the urea nitrate in this device, in my opinion, was higher thus suggesting that the VOD was faster than the lower end of the 11,155 estimate.

This new explanation for Williams' trial testimony is not helpful to Williams' position. First, we do not find it credible. It is inconsistent with both his trial and OIG testimony, and we think that if this were the real reason for his trial testimony he would have mentioned it at the OIG interview. At the OIG interview Williams mentioned the Encyclopedia but limited his remarks to: I know I definitely looked at the Encyclopedia of Explosives, and I don't recall specifically what it had said at that point. The August 1996 explanation came after we confronted Williams with page U103 from the Encyclopedia, and the new explanation appears contrived to accommodate that text. Second, Williams' trial testimony did not purport to be an estimate of the VOD of the urea nitrate made either at Eglin or by the perpetrators. Rather, it was put forth as the general range for the VOD of urea nitrate. The 14,000 feet per second figure was explicitly limited at the trial to smaller quantities, which would be inapplicable to both Eglin and the perpetrators. Third, density was not the only variable mentioned in the Encyclopedia; the confinement also varied (paper versus steel tube) and may have had as significant an impact on VOD as the density. Thus, Williams' new explanation is based on a misconstruction of the Encyclopedia. Fourth, Williams' statement in the new explanation that he thought the urea nitrate used in the bombing had a high density is speculative. If, as seems unlikely, the new explanation is the true explanation, Williams should have given the same information in court as he did in his letter--namely,

that the VOD for urea nitrate is about 11,155-15,420 feet per second, but that he thought the VOD of the main explosive was at the high end of that range for certain specific reasons. The new explanation reflects adversely on Williams' credibility and competence.

We conclude that the 14,000-15,500 VOD range for urea nitrate that Williams gave at the Salameh trial was clearly too narrow, and appears tailored to correspond to the estimates in his report (14,000 feet per second) and in his testimony (14,000-15,500 feet per second) of the VOD of the main explosive used at the Trade Center. In his trial testimony about the VOD of urea nitrate, Williams failed in his responsibility to provide the court with complete and accurate information.

**(2) The  
VOD of the  
Main  
Explosive**

Having told the jury that the VOD of urea nitrate was about 14,000 to 15,500 feet per second, Williams went on to testify as follows to the VOD of the main explosive at the Trade Center:

On the brief two and a half hour walk-through [at the scene of the bombing] I had the opportunity to inspect a lot of [damaged materials]. . . . By putting all of these things together and looking at the size of the hole I estimated that the velocity of detonation was somewhere between 14,000 and about 15,500 feet per second, with a little bit of give on each side of that. □

We conclude that Williams' VOD opinion lacked a sufficient scientific and empirical foundation.

**(a) Inconsistencies**

At the outset we note that Williams has been inconsistent as to his estimate of the VOD of the main charge at the World Trade Center. In his report dated July 1, 1993, he stated that the explosive main charge was a high explosive having a velocity of detonation (VOD) of approximately 14,000 feet per second. In his Salameh testimony in February 1994, he gave a VOD of somewhere between 14,000 and about 15,500 feet per second, with a little bit of give on each side of that. Later, in the Rahman trial in April 1995, Williams testified:

From this walk-around [at the scene of the bombing] I was able to look at the damage and conclude that I was looking at the damage from a[n] explosive that had a velocity of detonation around 14,000 feet per second.

Obviously, without being in there when the bomb went off or seeing what kind of explosive it was, I have to give a bracket on both sides of a couple thousand feet.

In his OIG interviews in February and March 1996 he also stated that his VOD estimate included a 2000 feet per second tolerance on either side of the 14,000-foot-per-second estimate--i.e., a range of 12,000 to 16,000 feet per second. Finally, in a letter to the OIG in August 1996, Williams stated: The other reason that I testified as to the VOD damage in the Trade Center, is that from the damage I witnessed, it appeared to me that the improvised explosive device was faster than 11,000 and slower than 16,000.

Thus, Williams has given four estimates of the VOD for the main charge: approximately 14,000 feet per second (his report), 14,000 to about 15,500 feet per second with a little give on each side of that (Salameh trial), around 14,000 feet per second with a bracket on both sides of a couple thousand feet (Rahman

trial, OIG interviews), and between 11,000 and 16,000 feet per second (letter to the OIG).

We observe that Williams' adjustment from 14,000 (report) to 14,000-15,500 feet per second (Salameh trial) coincided with his Salameh testimony that the VOD of urea nitrate was 14,000-15,500 feet per second. His change from 14,000-15,500 (Salameh trial) to 12,000-16,000 feet per second (Rahman trial) occurred after Williams discovered that the VOD of the urea nitrate made at Eglin was 12,100 feet per second. His change to 11,000-16,000 feet per second (August 1996 letter) occurred after we pointed out to him that the Encyclopedia gave the VOD range of urea nitrate as about 11,155 to 15,420 feet per second. The circumstances of the four estimates imply that Williams changed his VOD opinion for the main charge in order to maintain a match with the VOD of urea nitrate.

We conclude that Williams' inconsistencies severely undercut the credibility of his VOD opinion for the main charge.

## **(b) Justification for Opinion**

### **(I) World Trade Center**

Williams testified in the Salameh trial that he considered several observations to determine the VOD of the Trade Center bomb:

On the brief two and a half hour walk-through I had the opportunity to inspect a lot of witness vehicles<sup>□</sup>, concrete, steel-reinforcing rod, steel beams, and other fragments of material in and around the seat of the explosion.



By looking at some of the pieces of steel, for example, that very large piece of steel that was thrown back into the tower room, and where it broke off, recognizing that that part was actually about 12 feet or so away from the seat of the blast, the specific unique breaking of the steel particle and different distances away from the seat of the explosion, I witnessed different types of explosive damage.

By putting all of these things together and looking at the size of the hole I estimated that the velocity of detonation was somewhere between 14,000 and about 15,500 feet per second, with a little bit of give on each side of that.

.....

For example, if we had C4 [a military ordnance] in that World Trade Center basement, a quantity of it, of course the quantity doesn't matter, over a hundred pounds, because the velocity of detonation of the C4 is somewhere around 24,000 feet per second, give or take, that explosive is very brisan[t], brisance meaning that that shock wave comes out real quick. When that shock -- and it doesn't last as long as a slower velocity explosive. So when that brisance hit the target material like steel -- if you recall in the one photograph where it looked like that steel was torn -- we would see a lot more of that tearing, really tremendous tearing damage in some of the heavier materials like the steel.

If, for example, we go to a slower velocity explosive, let's say something around 14,000 feet per second, when that detonates we're going to get more of a pushing, a heaving effect. It's not going to crack it hard. It's going to gradually build up, but still very rapidly take hold of that witness material and give it a push or a shove, and it's not going to crack that material as rapidly.

Q. Is that in fact the type of explosive damage that you saw?

A. The pushing and heaving is exactly what I saw in the World Trade Center.

The problem with this testimony is that Williams never explains how the observations compute to 14,000-15,500 feet per second. That he observed evidence of heaving as opposed to brisance --i.e., the damaged materials appeared to have been pushed rather than shattered --only necessarily excludes military explosives such as C4 with VODs in excess of 18,000 feet per second. Nowhere in his testimony does Williams explain how he narrowed the broad heaving range of high explosives (about 3000 to 18,000 feet per second) to 14,000-15,500 feet per second.

In his OIG testimony Williams elaborated further on his rationale. He stated he considered the damage to the component parts of the suspect vehicle and other witness materials around there, the concrete, the steel, the vehicles, the people. He stated that because he found pitting and cratering within four feet, and evidence of heaving and no tearing within eight and a half feet, of the seat of the explosion, [t]hat put me into an area of somewhere between 12,000 and 16,000 feet per second . . . I didn't find any pitting or cratering eight feet away; but four feet away, I did. He continued:

So by looking at all of these different things, the way the concrete was broken into large pieces as compared to limestone dust within the near proximity as you gradually went away from it, looking at autopsy reports and photographs of victims, by the burning on their bodies or the scorching of the surrounding area, I can roughly get a feel that it was a very hot explosive or a not so hot explosive, a lot of fire ball balls produced, that sort of thing. . . .

By putting all of this together and looking at what I saw in the Trade Center, I was able to say that the velocity of detonation of the explosive main charge was about 14,000 feet per second.

Williams stated he considered a host of other things, including [t]he bodies, the burning. He elaborated:

OIG: Okay. So getting back to your testimony of between 14,000 and 15,500 feet per second, what you viewed on the body, how did that help you determine that the velocity of detonation was between 14,000 and 15,500 feet per second?

That's my question, sir.

AGENT WILLIAMS: Okay. And I cannot answer that a single body could tell me the velocity of detonation. The body along with all of the other environment that I looked at.

OIG: What was it about the body that helped you to get to the conclusion that it was between 14,000 and 15,500 feet per second?

AGENT WILLIAMS: That allowed me to say, well, by looking at one individual body -- they were eating lunch at the time. He had food in his mouth that was still partially chewed.

Another body had fragmentation damage in the eyeball and not in the eyelid, suggesting he didn't have time to blink by the time he got hit with fragmentation.

I looked at a body that had a mangled arm that was caused by some surrounding area, part of the wall, a cinder block, perhaps, that had ripped the arm off.

OIG: And that couldn't have been done at 18,000 feet per second, you're saying?

AGENT WILLIAMS: Absolutely not.

OIG: And it couldn't --

AGENT WILLIAMS: Not the damage that I saw.

OIG: The damage to the body?

AGENT WILLIAMS: That's correct. I would have expected --

OIG: And you say that based on what, sir?

AGENT WILLIAMS: I know where the bodies were found. I know the damage to the body. I know the debris that was found all around the body. I know where that debris originated before the blast.

Concrete blocks for a cinder block wall, something of that nature; an unopened box of photocopy paper; these items were removed from their original position less than 10 feet away from the seat of the blast and thrown to an area where they finally rested near the body.

The damage to those objects suggested to me that if it was 18,000 feet per second, they would be smaller, they would be torn or ripped like the pipe that's shredded like paper, and the bodies would have had slightly different damage.

OIG: What kind of damage?

AGENT WILLIAMS: They would have been hit with smaller flying objects.

OIG: Would the arm have been ripped off in a different way?

AGENT WILLIAMS: Yes. Their bodies would have shown different physical damage.

If, for example, I had two bombs, one was smokeless powder, and one was C-4; and I had individuals the same distance away, I would expect totally different damage to those bodies.

OIG: Okay. And where did you learn all this from? I mean, is there some literature out there, sir, that tells --

AGENT WILLIAMS: There's a good bit of literature.

OIG: Okay. And that literature would support your statement about the damage to the bodies?

AGENT WILLIAMS: Yes, it would.

OIG: I see. Is there literature out there that supports your ability to estimate a velocity of detonation of between 14,000, 15,500 feet per second based on the explosive damage? Is there literature that indicates that a qualified expert can do that?

AGENT WILLIAMS: I don't know.

The thrust of Williams' OIG testimony is that he considered numerous factors bearing on VOD, which he then filtered through his experience to produce his VOD estimate. We find Williams' application of his methodology flawed, because it is essentially an unscientific, unverifiable process of intuition. This is apparent from some of the language Williams used to describe his method of determining the VOD and weight of the explosive: I can roughly get a feel that it was a very hot explosive or not (emphasis added); [w]hat caused me to guess a velocity of detonation (emphasis added); [t]hese things produced an impression on me (emphasis added).

The application of the methodology is one of rough[] . . . feel[ings], guess[es], and impression[s]. There was a complete absence of empirical data to support any of the inferences Williams made from the various factors he identified. For example, Williams emphasized that the pitting and cratering within a radius of 4 feet from the seat of the explosion, when combined with only heaving without pitting and cratering within 8.5 feet, showed a velocity of detonation of 12,000-16,000 feet per second. But neither Williams nor the FBI has data to support that thesis. Moreover, in the Oklahoma City case (see Part Three, Section G, infra) Williams found pitting and cratering 12 feet from the seat but nevertheless estimated the VOD to be 13,000 feet per second in that case,

effectively undercutting the primary basis he claimed for his VOD opinion in the World Trade Center case.

The same could be said for the conclusions he drew from observing certain victims' bodies--e.g., the way in which an arm was severed, an eye injury. Williams and the FBI have no data or other basis for concluding that the nature of those injuries meant the VOD was 14,000-15,500 feet per second.

## **(ii) Oklahoma City**

Williams' attempt to justify a specific VOD estimate in the Oklahoma City case is similarly unpersuasive and supports our view of the inappropriateness of attempting to fix a narrow VOD range from an assessment of the blast damage. In his Oklahoma City report, Williams estimated the VOD of the main charge to be 13,000 feet per second. Williams explained in his OIG interview that he reached his VOD opinion by considering the explosive damage at the crime scene in light of his experience. He cited approximately fifteen different factors that contributed to his opinion--such as, the damage to the vehicle containing the bomb, the size of the crater, the lip of the crater, evidence of heaving, the damage to the concrete, the size of the vehicle fragments, pitting and cratering, the movement of parked cars, and the damage to parking signs. As in the World Trade Center case, however, the difficulty arose when Williams attempted to explain how he got from the observed damage to the specific VOD. For example, he contended that the size of the fragments contributed to his opinion. But neither Williams nor the FBI can cite any empirical studies linking specific sized fragments to specific VODs. Williams stated in his Oklahoma City interview that he had no documentation or experimentation to support his premises regarding the various factors and that he relied solely on his memory of explosive experiences spanning 10 to 15 years. We conclude that this is an inadequate basis for rendering a specific VOD opinion from observations of blast damage.

## **(iii) General Discussion**

Agent Thurman, the current EU Unit Chief, stated in his OIG interview that normally an EU examiner will only determine from the damage whether the explosive was high or low, heaving or brisant. With the exception of differentiating between a high explosive and a low explosive, the arbitrary, we do not, as a rule, go in the reports and state that it's 'X' number of feet per second. Indeed, Thurman, who has been in the EU for about 14 years, has never himself opined a specific VOD from a damage assessment, but has limited himself to opinions about high versus low, brisant versus heaving, explosives. In fact, Williams is the only examiner Thurman is aware of who has attempted to find a specific VOD from a damage assessment, and attempting to make such findings is not part of the EU training. Williams also believes he is the only EU examiner to have rendered a specific VOD opinion from the explosive damage. Furthermore, as noted above, Williams is unaware of any literature stating that an explosives expert properly may render such a VOD opinion. We also are unaware of any such literature. It thus appears that Williams may be unique, both within the FBI and within the community of explosives experts generally, in his willingness to render such specific VOD opinions.

We have no doubt that an experienced explosives examiner may properly draw certain inferences from observations at a crime scene. For example, an experienced expert will be able to discern the difference between the damage left by a high versus a low explosive, and can differentiate the damage caused by a heaving high explosive (like most commercial products) versus a brisant (like most military explosives) high explosive. Similarly, an observation of pitting and cratering will tell an experienced expert that the explosive used was a high explosive with a VOD typically in excess of about 10,000 feet per second. All of this involves the use of experience to recognize certain distinctive characteristics of explosive damage.

Going further, however, and attempting to infer from the damage a specific VOD is a process that appears to have no precedent either in the literature or at the FBI. We believe it is unprecedented and unjustifiable because the differences in damage caused by explosives with different specific VODs are insufficiently distinctive to allow an experienced expert to say that certain damage will only result from an explosive with a particular VOD.



No database exists at the FBI that correlates specific VODs with particular damage or with the many other variables identified by Williams. We conclude that Williams in fact has no objective basis for estimating a specific VOD from an inspection of the crime scene.

Accordingly, we conclude that Williams' specific VOD opinion of 14,000-15,500 feet per second for the main charge at the World Trade Center lacked an adequate scientific and empirical basis.

## **b. Identification of the Main Charge**

Having testified that the VOD of the Trade Center explosive was 14,000 to 15,500 feet per second, Williams went on to testify about the type of explosives that fit that range. We will first summarize that testimony and then analyze it.

### **(1) Williams' Testimony**

On direct examination, Williams testified as follows:

Q. Based on the damage and your estimated velocity of detonation, did you form a conclusion as to what type of explosive was used?

A. Yes. Immediately because of that type of damage without doing any type or having any knowledge of chemical residue analysis, the type of explosives that fit in that bracket are very limited. . . .

So within that parameter of 14,000 to 15,500 feet per second we're limited to the fertilizer-based explosive such as ammonium nitrate, and also, certain dynamites, the ammonium-nitrate type dynamites. Perhaps on one end of the spectrum or the other end of the spectrum we may find something like water gels, a slurry or an emulsion. Each of these kind of explosives are commercially available and do specific damage, but their velocity of detonation are just a tad on either side of that parameter of detonation.

Williams further testified that he was able to rule out quite a bit of the slurries, water gels and emulsions because of the failure to find microballoons or tipper ties among the debris at the scene. Williams testified that microballoons are tiny glass balloons that are included in some emulsions to add air space, and tipper ties are the wire ends of water gels. He testified that he would have expected to find microballoons if the explosive at the Trade Center had been an emulsion and find tipper ties if it had been a water gel. He then concluded by identifying urea nitrate as within the category of a fertilizer-based explosive that would have that velocity of detonation consistent with the damage that [he] saw.

On cross-examination, one of the defense counsel (Mr. Campriello) attempted to recapitulate Williams' earlier testimony but misstated it, leading to the following:

Q. . . . In other words, you said that this was basically a bomb, if I understand, made of urea nitrate and this substance and that substance.

MR. ABDELLAH [another defense counsel]: Objection. That's not what he said.

THE COURT: I think he's -- I don't think you're limiting yourself. Is that what you're saying? You think?

MR. CAMPRIELLO: That's all I'm saying.

THE COURT: Go ahead.

A. Yes I do. I believe urea nitrate was the bulk of the constituent in that bomb with other explosive materials; yes.

Q. And have you concluded that that is the only possible bomb that could have caused this kind of damage based on everything you know or are there other possibilities as well?

A. Within the World Trade Center?

Q. Yes.

A. There was only one bomb in the World Trade Center.

Q. No, no. That, I understand to be your testimony.

What I'm saying is was whatever caused it just this one possibility or were there other possible bombs as well, not two bombs or three bombs, but you described a bomb?

A. Yes, okay.

Q. Could it have been another kind of bomb or no?

A. Not likely. As I said, the bulk of the explosive material could have been urea nitrate with other things such as ammonium nitrate dynamite and certainly there was some type of initiator, but the bulk of the explosive was, in my opinion, urea nitrate.

Q. I guess it's the could have been part that gives me pause.

THE COURT: Could it be ANFO [ammonium nitrate and fuel oil]?

MR. CAMPRIELLO: I didn't hear you, Judge.

THE COURT: Could it be ANFO?

THE WITNESS: Yes, it could be.

THE COURT: In other words, there could have been an ANFO bomb sitting there, and if that exploded, it would have caused the same kind of damage?

THE WITNESS: That's correct.

## **(2) Analysis**

### **(a) Direct Examination**

First, Williams testified on direct examination that because of that type of damage . . . the type of explosives that fit in that bracket are very limited. Assuming the VOD testified to at the Salameh trial--14,000-15,500 feet per second--there are many different explosives that fit in that bracket. Using the VOD testified to in the Rahman trial--12,000-16,000 feet per second--there are even more that qualify. Williams testified in his OIG interview that a lot of different explosives meet the 14,000-15,500 feet per second VOD range. For example, the 1980 Dupont Blasters' Handbook ( Dupont ) lists six prill products, four water gels, and two dynamites with a VOD within the 14,000-15,500 feet per second range, and more within the 12,000-16,000 feet per second range. The 1968 Canadian Industries Limited Blasters' Handbook lists three products with velocities in the 14,000-15,500 feet per second range. The 1995 Dyno Nobel Inc. Explosives Engineers Guide ( Dyno ) lists twenty-seven products with velocities in the 14,000-15,500 range.

Williams' testimony about the very limited type of explosives that fit in the 14,000-15,500 feet per second bracket was literally correct, because the many commercial products within that range fall into certain categories or types--namely, dynamites, water gels, emulsions, and fertilizer (e.g., ANFO) products. We are concerned, however, that the court may not have understood that within each type there are numerous commercial products meeting the 14,000-15,500 feet per second range.

Second, Williams testified that the VOD of water gels and emulsions are just a tad on either side of that parameter of detonation [14,000-15,500 feet per second]. This testimony was incorrect. There are several commercially available water gels and emulsions with VODs within the 14,000-15,500 feet per second bracket. See Dupont at 71; Dyno at 1-2.

Third, Williams testified at trial that he could rule out some of the explosives that met the range--namely, the emulsions and the water gels because of a failure to find microballoons and tipper ties in the debris. Williams contradicted this testimony at his OIG interview.

As for the microballoons, if used they may have been made of resin and likely consumed in the blast. More fundamentally, however, any microballoons used would have constituted only about five percent of the total explosive mixture. No residue of the main explosive was recovered at the Trade Center. If residue of the component constituting ninety-five percent of the charge was not recovered, it should be no surprise that remains of the five percent component were not found. Williams conceded at his OIG interview that the failure to find the microballoons meant only that it's possible that they were not there. Williams added, I couldn't eliminate them, because we didn't find anything.

Similarly, the failure to find tipper ties did not rule out water gels. Williams testified at his OIG interview as follows:

OIG: Just because you didn't find tipper ties does not really rule out those explosives, did it?

AGENT WILLIAMS: No, it does not. It would not rule it out.

If the explosives were shucked of all of their wrappers, completely shucked of the wrappers, I would not have found anything.<sup>1</sup>

In his OIG interview, Williams told us: Because I did not find any evidence of any of the other commercial explosives does not necessarily mean that they

were not used. Accordingly, we conclude that Williams should not have testified at trial that he could rule out the slurries, water gels, and emulsions.

Fourth, in his OIG interview Williams stated that, based on his assessment of the damage at the scene, he really could not make any type of identification of the explosive used at the Trade Center:

OIG: And I take it from your answer, that based on your assessment of the explosive damage that you observed and was made known to you, you could not have rendered an opinion that the bulk of the explosives in this case was urea nitrate; is that correct?

AGENT WILLIAMS: . . . If I just had to work with that crime scene, there's no way I could have called any kind of explosive.

OIG: Because it could have been ANFO?

AGENT WILLIAMS: It could have been emulsions.

OIG: Could have been emulsions.

AGENT WILLIAMS: It could have been anything.

(Emphasis added). Williams' acknowledgment at the OIG interview that, based on the crime scene, the main explosive could have been anything differs significantly from the opinions he rendered at the Salameh trial. At the trial

Williams testified that his observations at the scene enabled him to help the court determine the explosive that may have been used in the blast. Now he has admitted that there's no way I could have called any kind of explosive. In light of Williams' OIG testimony, we are deeply troubled that his testimony on direct examination may have misled the court.

In sum, we conclude that Williams' direct examination was inaccurate and misleading, and suggested too strongly that a fertilizer-based explosive like ammonium nitrate or urea nitrate was used in the Trade Center bomb.

### **(b) Cross-Examination**

Even more troubling than Williams' direct examination was a part of his cross-examination in which he rendered an incriminating opinion based on speculation beyond his scientific expertise. On direct, Williams identified a category of explosives that fit the VOD and damage that he observed at the post-blast scene. This category included but was not limited to urea nitrate. At his OIG interview (as discussed above), Williams was emphatic that he could not identify a specific explosive based on his observations at the crime scene.

Nevertheless, Williams testified on cross-examination that the bulk of the explosive was, in my opinion, urea nitrate. See also on the same page of cross-examination: I believe urea nitrate was the bulk of the constituent in that bomb with other explosive materials. At his interview we asked Williams how he could render such an opinion, and he answered: the reason I was able to do that in testimony was because I had the benefit of the search sites, the storage sites, the bomb factory and, of course, viewing the evidence from the crime scene. Williams continued:

OIG: And I take it from your answer, that based on your assessment of the explosive damage that you observed and was made known to you, you could not have rendered an opinion that the bulk of the explosives in this case was urea nitrate; is that correct?



AGENT WILLIAMS: If I had no benefit of auxiliary searches and materials, that's absolutely correct. If I just had to work with that crime scene, there's no way I could have called any kind of explosive.<sup>1</sup>

Williams' use of the auxiliary searches to render an opinion that the bulk of the main charge was urea nitrate was improper for two independent reasons.

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First, Williams improperly based his expert opinion that urea nitrate was the main charge on the fact that urea nitrate and other materials had been associated with the defendants. This error is analogous to the one Rudolph made in Psinakis when he relied on the fact that stripped detonating cord had been found outside the defendant's house as a basis for his identification of PETN on a knife. See Part Three, Section A, supra. By basing his opinion on the collateral evidence associated with the defendants, Williams improperly engaged in speculation beyond his scientific expertise.

Williams portrayed himself as a scientist and rendered opinions as an explosives expert. As such, he should have limited himself to conclusions that logically followed from the underlying data and the scientific analyses performed. Here, Williams' scientific analysis of the cause of the explosion rested on an examination of the damage at the post-blast scene. He should not have based his opinions, in whole or in part, on evidence that was collateral to his scientific examinations, even if that evidence was somehow connected to the defendants. For Williams to identify the main charge as urea nitrate based on evidence that the defendants had or could make that compound is comparable to a firearms expert identifying the caliber of a spent bullet based on the mere fact that a suspect had a handgun of a particular caliber.

Earlier in the cross-examination Williams rejected defense counsel's suggestion that Williams was trying to infer that the items seized at the locations associated with the defendants must have been the items that were used in the World Trade Center (emphasis added). Williams testified then that he was only saying that the items seized could have been used in the Trade Center explosion. This was a valid scientific assessment of the defendants' capability and an appropriate rejection of the suggestion that the cause of the explosion

could be determined scientifically from the evidence associated with the defendants. Williams should have maintained this approach throughout his cross-examination.

Evidence associated with the defendants is logically relevant to the blast's cause only under the following chain of reasoning:

(1) Urea nitrate crystals and ingredients were found at locations associated with the defendants.

(2) Defendants committed the World Trade Center bombing.

(3) When defendants committed the crime, they must have used what was available to them, which was urea nitrate.

(4) Hence, urea nitrate must have been used at the Trade Center.

This chain of reasoning is objectionable because it is not scientific and because it uses a presumption or inference of guilt (point two) as a building block in the analysis. The question of the defendants' guilt is the ultimate issue. It should not be presumed as a foundation for further analysis. By basing his urea nitrate opinion on the collateral evidence, Williams implicitly accepted as a premise the prosecution's theory of guilt. This was improper.

Moreover, even assuming defendants committed the bombing and had the capacity to make a urea nitrate bomb, that did not necessarily mean urea nitrate

was used at the Trade Center: the defendants, for example, may have disposed of the urea nitrate elsewhere and used another explosive in the bomb, or they may have converted the urea nitrate to nitro urea and used that explosive. Williams' opinion based on the collateral evidence was thus not only unscientific but also speculative, and it therefore fell well below the minimum standards required of competent forensic scientists.

Finally, because Williams failed to reveal that his urea nitrate opinion was based not on his independent scientific examination but on speculation from the mere fact that defendants could have made urea nitrate, the court was unable to put the opinion in its proper perspective, and a danger arose that the opinion would be given undue weight in support of the prosecution's case.

Second, the context of the questioning that led to Williams' identification of urea nitrate appears limited to an opinion based only on Williams' assessment of the damage at the crime scene. On direct examination Williams' opinion regarding the type of explosive used was explicitly [b]ased on the damage and [his] estimated velocity of detonation. It is obvious that the applicable cross-examination was an attempt to get Williams to repeat what he said on direct examination, which defense counsel misunderstood. See, e.g.: Correct me if I'm wrong. If I understood you correctly, you indicated . . . . Moreover, defense counsel, in the applicable cross-examination, explicitly asked about the possible bomb that could have caused this kind of damage. . . . [W]as whatever caused it [the damage] just this one possibility or were there other possible bombs as well . . . ? The court's questions about ANFO, moreover, make clear that the court believed the applicable examination related to Williams' assessment of the damage at the scene. Further, Williams' ready affirmative answer to the court's question Could it be ANFO? suggests Williams understood that the inquiry related to the damage at the scene.

It must be remembered that establishing that the explosive used at the World Trade Center was urea nitrate was extremely damaging to the defendants' case. Evidence linked the defendants to a bomb factory and storage facility containing evidence of urea nitrate or the ingredients for urea nitrate, an explosive rarely used in a criminal device. Williams' testimony on cross-

examination, therefore, that the bulk of the explosive was, in my opinion, urea nitrate was very incriminating.

In this context, it was unprofessional and misleading for Williams, without explanation, to base such an incriminating opinion on a factor (the auxiliary searches) so different from the factors previously relied on (VOD and damage at the scene).

In sum, when Mr. Campriello asked Williams, Could it have been another kind of bomb or no? , the question, reasonably interpreted, meant: Could it have been another kind of bomb or no, based on your expert analysis of the damage at the crime scene? In any event, even if the questioning was inept, Williams had an obligation to restrict his opinions to his scientific analysis and to refrain from speculating about what the main charge must have been based on the defendants' capacity to manufacture a particular explosive. Williams' answer to Campriello's question should have been compatible with the answer he gave us: [The main explosive] could have been anything. We conclude that by answering instead, [T]he bulk of the explosive was, in my opinion, urea nitrate, Williams failed in his responsibility to provide the court with an objective, unbiased expert opinion.

### **c. Weight of the Explosive**

Williams testified at the Salameh trial as follows concerning the weight of the explosive used in the Trade Center bomb:

Q. And based on your conclusion concerning the type of explosive did you estimate the quantity of explosive that was necessary to do the damage that you saw at the World Trade Center?

A. Yes, I did. And that kind of an analysis, once you recognize the velocity of detonation of the explosive, and you recognize the amount of damage that was created, you're able to kind of estimate how much explosive it would cause in a given environment to create that kind of damage. My initial estimate was somewhere between a thousand and 1500 pounds. That was within a day or two after. And that's about what I estimated, somewhere within that range. As a ballpark figure, about 1200 pounds.

If you recall, one of the variables, and why I'm such a large bracket, if you recall last Thursday I showed you some of the charts that showed configuration of explosives with the arrows going off at right angles and the Monroe effect with the shaped charge. The Monroe effect is how the shaped charges work and cut the steel with opposing angles. Without knowing the configuration of the explosive that's why we have such a tremendous variation.

In his OIG interview he explained further:

OIG: . . . [W]hat is it that gets you to between 1,000 and 1,500? What is it about the damage that leads [you to] that conclusion?

AGENT WILLIAMS: Well, after looking at the -- and estimating a velocity of detonation, I'm able to estimate the type of explosives that could have been used.

And in looking at the same or similar type properties of what caused me to guess a velocity of detonation -- the size of the crater, damage to surrounding vehicles, the distance from the scene of the explosion where different materials were damaged and how they were damaged at those areas -- these things caused me to come up with that conclusion.

. . . .

These things produced an impression on me that, where the charge was and how it came apart and comparing it with other tests that I have done with somewhat smaller charges and what I could assume I would find with something with about 1,000-pound charge.

Some of the same considerations that apply to Williams' testimony about VOD apply here. First, his analysis is intuitive, unscientific, and imprecise: you're able to kind of estimate how much explosive (emphasis added); Williams testified on cross-examination that he was speculating about the weight of the explosive; [t]hese things produced an impression on me. Second, the weight estimate was dependent on the VOD estimate ( If you vary one, of course, you have to vary the other ), and as discussed above the VOD estimate was itself speculative.

Third, EU examiners normally do not estimate the quantity of explosives because the placement and confinement of the explosive has such a significant effect on the amount of damage. As EU Chief Thurman told us:

We do not, on a routine basis, say that the damage in the area, with the exception of, you know, of the components, now, with the exception of the components, that the area has been destroyed with a particular type of explosive, or, more importantly, the quantity of explosives, because the placement of the device, the physical confines or lack of confines that the device is exploded in and around, was significantly impede -- or go into the determination of how much explosives were used and, in some cases, what type of explosive was used.

And we try to show this actually during our training in that you can't say that, as example, three cartridges of dynamite were used in this explosion in the ground because we can put three cartridges

of dynamite on top of the ground, shoot that, take three cartridges of dynamite and dig a hole and put them in a hole and then we can take three cartridges and put them in a hole and cover it up, and you'll have vastly differing damages there.

On the other hand, Williams' estimate of the quantity of explosives was quite broad: 1000-1500 pounds, with 1200 pounds as a ballpark figure. The thrust of his trial testimony about quantity was that it was a rough estimate: you're able to kind of estimate how much explosive. Viewing agent Williams' estimate of weight in that light, we conclude that it was within his expertise to render such an opinion.

### **C. Williams' Testimony Regarding the Attempt to Modify Whitehurst's Dictation**

Whitehurst alleges that Williams gave inaccurate testimony regarding an attempt by Williams to modify a report (dictation) written by Whitehurst. The evidence supports Whitehurst's claim.

On June 15, 1993, Whitehurst submitted dictation to Williams for inclusion in the official reports of the case. The dictation included the following language:

Solid probe mass spectrometry was also utilized to analyze specimen Q15 for the presence of residues of urea nitrate. The results of this analysis were consistent with the presence of urea and nitric acid. *However these materials are also found from this analytical method following analysis of other materials such as extracts of urine and fertilizer. Therefore without a confirmation of the presence of trace amounts of urea nitrate, a conclusion can not be rendered concerning the presence of this material on the evidence. Such a confirmation technique is not known to this examiner at this time. . . .*

Specimen Q23 was also analyzed with solid probe mass spectrometry to determine the presence of residues of urea nitrate. The results of this analysis were consistent with the presence of urea and nitric acid. *However, these materials are also found from this analytical method following analysis of other materials such as extracts of urine and fertilizer. Therefore without a confirmation of the presence of trace amounts of urea nitrate, a conclusion can not be rendered concerning the presence of this material on the evidence. Such a confirmation technique is not known to this examiner at this time.*

(Italics added.)

After receiving Whitehurst's dictation, Williams asked James Corby, Whitehurst's Unit Chief, whether the sections of the dictation that are italicized above could be removed. According to Corby, Williams wanted those things deleted. Corby refused to alter the dictation. A meeting was held with James Kearney, the chief of the SAS, Alan Robillard, the Assistant SAS Chief, Corby, and Williams. Kearney and Robillard decided to leave the dictation substantially unchanged, and Williams agreed to this decision.

Regarding the passages Williams wanted taken out, Williams told us at the OIG interview:

I felt that was fluff, that wasn't necessary. . . . And the fact that he's putting in any possibility of where this material could have come from was bullshit.

The only thing -- if he was going to go into where these chemicals could have originated from, why didn't he make an opinion that



this Trade Center could have been damaged by an act of God or lightning?

At the Salameh trial, Williams testified as follows:

Q. Now, early on in this investigation, because you're the case agent, you reviewed many of the reports that were written by the other chemists. Am I correct?

A. That's right.

Q. And you were dissatisfied with some of those reports because you didn't like the phraseology of the language. Am I correct?

A. Not the phraseology, the format.

Q. The format.

And when we talk about format, the specific part of the format that you didn't like is when those opinions gave alternate reasons for finding some residue. Am I correct?

A. That's not correct.

Q. Well, when they said that, say like for urea nitrate, in those reports when it said, urea nitrate could have come from sewage, you were dissatisfied with those kinds of conclusions; weren't you?

A. No, I was not.

Williams went on to testify about making some innocuous changes in the format of a report other than Whitehurst's June 15, 1993, dictation quoted above.

Although defense counsel's questions lack precision, we think a fair construction of them implicated Williams' attempt to modify Whitehurst's June 15, 1993, dictation. The sections Williams wanted deleted from that dictation provided innocent explanations for the residue results as alternatives to a more incriminating explanation--e.g., urine and fertilizer as alternatives to urea nitrate. Accordingly, when counsel asked Williams, And when we talk about format, the specific part of the format that you didn't like is when those opinions gave alternate reasons for finding some residue. Am I correct? , Williams erred when he answered, That's not correct. Similarly, when counsel asked, Well, when they said that, say like for urea nitrate, in those reports when it said, urea nitrate could have come from sewage, you were dissatisfied with those kinds of conclusions; weren't you? , Williams again erred when he answered, No, I was not. We conclude that Williams' answers to these questions were, at a minimum, misleading.

#### **D. Other Allegations**

In his January 8, 1996, letter to the OIG, Whitehurst made numerous other allegations concerning Williams' testimony in Salameh.

**1.** In his testimony Williams attempted to distinguish high from low explosives by saying that the velocity of high explosives is above, and the velocity of low explosives below, 3000 feet per second. This is technically incorrect (see Attachment C, infra), but a common error, which was harmless here.

**2.** Whitehurst criticizes Williams' general testimony about dynamite. We find Williams' testimony substantially accurate and within his area of expertise. Any technical errors (e.g., what is or is not carbonaceous ) were harmless and insignificant.

**3.** Williams was technically incorrect when he testified urea nitrate which is urea and nitric acid, or nitro urea, urea with sulfuric acid. Urea nitrate does not consist of urea and nitric acid; urea and nitric acid when mixed form a new substance, urea nitrate. Nitrourea is made by mixing urea nitrate with sulfuric acid. Although these errors are inconsequential, it may have been preferable for a chemist to testify to these matters.

**4.** Williams' attempts to explain how nitroglycerin will precipitate from a methanol solution and how nitroglycerine decomposes were poor. A knowledgeable chemist could have provided better explanations. Nevertheless, Williams was asked the questions, and he no doubt did his best to answer them accurately. Williams should have told the prosecutor ahead of time that these matters would be best left to another witness.

**5.** Williams was asked what the components of urea nitrate are, and he said, urea and nitric acid. We think the answer was a fair response to the question. Urea and nitric acid are the ingredients, which when mixed form a new substance, urea nitrate. One definition of component is ingredient. Webster's Ninth New Collegiate Dictionary 270 (1990).

**6.** Whitehurst claims that Williams testified falsely that he (Williams) researched the use of urea nitrate in the United States. This claim is apparently based on the fact that Whitehurst did research on the subject. That Whitehurst did some research does not mean Williams did not. Williams insists that he did some research. Accordingly, we conclude that Whitehurst's claim is unfounded.

**7.** Whitehurst criticizes Williams' testimony about the possible explosive uses of certain materials. Generally, we have no problem with Williams' testimony on this subject, and believe it was within his area of expertise. Williams can be second-guessed on certain matters (e.g., the discussion of phenol ), but any errors were harmless and insignificant.

**8.** Whitehurst's claim that Williams cannot consider the results of a chemist's analysis in rendering Williams' own opinion is frivolous.

**9.** Whitehurst criticizes Williams' description of nitrocellulose. We think that Williams' description was accurate for one form or type of nitrocellulose, but was not a good generic description.

**10.** Despite Whitehurst's criticism, we find that Williams' testimony about the use of smokeless powder and lead azide as initiators is substantially correct.

**11.** Despite Whitehurst's criticism, we are not concerned with Williams' testimony that when he arrives at a blast scene he look[s] for structural damage to see what repairs have to be done. Obviously, an EU examiner will not himself direct the repairs, which will be handled by appropriate experts.

**12.** Contrary to Whitehurst's claim, it is within an explosives examiner's expertise to identify explosive damage on metal.

**13.** Whitehurst complains that Williams testified outside his area of expertise when he discussed the matching of two pieces of tape. Williams has only been qualified in the FBI Laboratory in the areas of explosives and toolmarks. In the testimony challenged by Whitehurst, however, all Williams did was describe the measurements and observations he made, which was merely a factual

description. This testimony was given without objection. We think it was permissible for Williams to answer the questions asked.

**14.** Whitehurst criticizes Williams' testimony about blast damage to portions of a truck. Although Williams is not a metallurgist, we think it was within his area of expertise to testify that he observed blast damage to the truck.

**15.** Whitehurst criticizes Williams' testimony about freezing and frozen nitroglycerine. We, however, find no contradiction in saying that the process of freezing nitroglycerine is dangerous, but that frozen nitroglycerine is stable.

**16.** We disagree with Whitehurst's assertion that because some of the pieces of debris were the size of toothpicks the main charge at the Trade Center could not have been a heaving explosive.

**17.** Finally, Whitehurst complains that some of Williams' testimony did not meet the test of Daubert v. Merrell Dow, 113 S. Ct. 2786 (1993), because Williams did not use the scientific method, which involves the testing of hypotheses. Although evidentiary questions are beyond the scope of this Report, we note that the discussion of expert testimony in Daubert was limited to scientific . . . knowledge and not technical, or other specialized knowledge. 113 S. Ct. at 2795 & n.8. Much of Williams' testimony could be viewed as based on technical or other specialized knowledge within the meaning of Daubert.

### **III. Pre-Trial Issues**

Several controversies occurred, and were resolved to Whitehurst's satisfaction, before the trials in the World Trade Center case.

## A. Specimen Q23

Immediately after the Trade Center bombing, the chemists in the FBI Laboratory specializing in explosives residue analysis (MAU chemists Whitehurst and Burmeister), went to New York City to conduct examinations at the blast scene. That left no chemists specializing in explosives residue analysis at the laboratory in Washington. When specimens were sent back to the laboratory for examination, the examinations were conducted by chemists in the CTU, Unit Chief Roger Martz and Lynn Lasswell.

Specimen Q23 was a tire fragment recovered from the crime scene. Lasswell analyzed it with solid probe mass spectrometry and concluded that urea nitrate was detected on the specimen. Martz as unit chief approved Lasswell's conclusion, which was incorporated in an official report and distributed April 12, 1993. This conclusion would have been extremely helpful to the prosecution because it would have tended to establish that urea nitrate was used in the Trade Center bomb.

Whitehurst and Burmeister disagreed with Lasswell's conclusion on the ground that the instrumental results only really showed the presence of urea and nitric acid, which could have originated from substances other than urea nitrate--e.g., urine, fertilizer, car exhausts, or ice melter. Whitehurst's and Burmeister's objections, however, were overruled.

Whitehurst and Burmeister then prepared a blind test for Martz by submitting to him specimens they claimed were from the Trade Center evidence. In reality, Whitehurst and Burmeister prepared one sample from Whitehurst's urine and another by mixing ammonium nitrate fertilizer and urea. According to Burmeister, the results were close enough that you wouldn't be able to tell the difference from running a sample of urea nitrate. (Martz insists he never rendered an opinion that these samples were urea nitrate, but said only that the instrument detected urea and nitric acid.) With the blind test results, Whitehurst and Burmeister went to Assistant Section Chief Robillard, who scolded them for making the blind test.

Eventually, Corby directed Whitehurst to make a review of Lasswell's results and to write a new dictation. Whitehurst made the review and wrote the dictation. Whitehurst's dictation was incorporated into a new official report amending the April 12, 1993, report. The new report is dated July 1, 1993. At the Salameh trial, Burmeister testified in accordance with Whitehurst's dictation. Martz told the OIG in 1996 that he no longer agrees with Lasswell's original dictation because the results could have been produced by urea and nitrates rather than urea nitrate.

Ultimately, the FBI Laboratory correctly resolved the controversy concerning Q23, although the resolution procedure ( blind tests, etc.) was flawed. Moreover, the chemist who examined Q23 should have been trained in the explosives residue protocol.

## **B. Specimen Q65**

The Barringer Ion Mobility Spectrometer (IMS) tests for the presence of particular molecules. When a sample is introduced, a graph is produced with peaks. Certain substances have distinctive graphs or peaks. If a distinctive peak is produced, an inference can be drawn that a particular substance is present. The manufacturer programs the memory of the instrument to identify common explosives such as nitroglycerine. The user of the instrument can also program the memory to identify certain peaks.

Lasswell introduced a urea nitrate sample in the IMS and produced a particular peak. He then programmed the memory of the instrument to indicate the presence of urea nitrate whenever that peak reappeared. When specimen Q65 was submitted to the IMS, a graph was produced, and the machine automatically identified one of the peaks as urea nitrate.

When Whitehurst reviewed Lasswell's instrumental results to prepare the dictation that went into the July 1, 1993, official report, he examined the IMS graph for Q65. Whitehurst took the position that the peak was not for urea nitrate specifically, but was just a nitrate peak that would be produced by certain nitrates, including but not limited to urea nitrate. Based on this, Whitehurst took issue with Lasswell's decision to program the memory of the IMS to identify the particular peak as urea nitrate. He wrote the OIG (in one of his first submissions to us) as follows:

We [Whitehurst and Burmeister] pointed out that Mr. Lasswell had altered the output of one instrument to reflect information that would have, if presented in its altered manner, been scientific fraud, unethical, wrong and very damning to the defense position in this matter.

Whitehurst stated in a letter to the OIG that the analytical output was purposely altered to read '<urea nitrate' in order to deceive the innocent reader of the computer printout. This claim is grossly overstated and without merit.

Both Lasswell and Martz insist that the IMS was used only as a screening mechanism to determine whether urea nitrate was possibly in the specimen. Lasswell asserted that when he identified the presence of urea nitrate in Q65 in his original dictation, he relied on instruments other than the IMS.

Whitehurst acknowledged in his OIG interview that the IMS could properly be used as a screening device for urea nitrate. Moreover, in his own dictation for Q65, Whitehurst stated as follows:

White crystalline material adhering to specimen Q65 was analyzed with Fourier transform infrared spectrophotometry, IMS and sol[i]d probe/triple quadrapole mass spectrometry. These analyses identified the presence of urea nitrate.



(Emphasis added). When Whitehurst was asked at his OIG interview whether he was saying that Lasswell intentionally tried to create false information, Whitehurst stated, No, no.

We conclude that the implication in Whitehurst's assertion--that Lasswell engaged in something like scientific fraud, [which was] unethical, wrong and very damning to the defense position in this matter --is unfounded. Although labeling the peak on the IMS graph as a urea nitrate peak was potentially misleading (because the peak could be caused by other nitrates), the IMS could properly be used as a screening device for urea nitrate. Accordingly, we find that Lasswell engaged in no misconduct in his work with the IMS.

### **C. Other Matters Involving Williams**

At one point in the Trade Center investigation the government was preparing affidavits for search warrants and wanted to use an examination by Whitehurst that found nitroglycerine on a specimen. Although Whitehurst found nitroglycerine, he refused to make a positive identification because of the possibility of contamination by a bomb technician. Instead, he was only prepared to say that the results were consistent with the presence of nitroglycerine on the specimen. Williams argued strongly for Whitehurst to make a definite assessment. Whitehurst considered this argument to constitute undue pressure to get me to change the wording in my report.

Although we do not know the exact words Williams used, we find no impropriety in Williams discussing the matter with Whitehurst to determine whether a more definite conclusion could be reached. Ultimately, the report was not changed.

Additionally, Williams changed the format of one of Whitehurst's dictations when Williams issued one of the official reports. With a series of specimens, Whitehurst set forth each instrument he used to examine each specimen.

Williams made a list of all the instruments and said one or more was used with each specimen, and then just set forth the results with respect to each specimen. Williams also replaced the language None of these explosives were detected on the specimens with Analysis was conducted with negative results. Whitehurst protested the changes, and a new report was issued containing his dictation verbatim.

We consider the changes in format innocuous. One of the reasons Williams gave for the changes, however, is troubling. In referring to Whitehurst's habit of always setting forth, at length, the technical examinations made, Williams stated: [I]f I've got to retype this there's always the possibility of a typographical error and it's a pain in my neck to do it everytime.

A principal examiner (PE) is supposed to include verbatim in the official report the dictation of an auxiliary examiner (AE) unless the AE and the AE's Unit Chief agree to the change. In the Trade Center case Williams was the PE and Whitehurst an AE. The verbatim-inclusion rule is fundamental and should not be broken at any time. The burden of retyping a lengthy or technical dictation is an inadequate reason for violating the rule.

#### **D. Allegation Concerning SSA Haldimann**

In December 1993 Whitehurst submitted a memorandum to the OIG concerning a conversation he had with SSA Don Haldimann on December 15, 1993. According to Whitehurst, Haldimann stated that the Assistant United States Attorneys (AUSAs) in the Trade Center case had grave concerns about the complexity of Whitehurst's dictation and thought the information in the dictation could be damaging to the case. Whitehurst further asserted that Haldimann said that the U.S. Attorney's Office had inquired into means of circumventing my testimony in this matter and is displeased with my expert opinion as it is stated because it offers strength to the defense side in this matter. Whitehurst characterized Haldimann's statements as indicating possible suppressions of evidence by the U.S. Attorney's office . . . [which] can be deemed to be fraudulent and unethical.

At the Rahman trial, Whitehurst testified that after the December 15, 1993, conversation he met with the prosecutors in the World Trade Center case and felt no pressure from the lawyers on the prosecution team. He testified further, however, that in the December 15, 1993, conversation he felt pressure from Haldimann to take out the qualifying statements in his dictation. Whitehurst acknowledged that the conversation with Haldimann occurred at a Christmas party.

In his OIG interview Haldimann stated that the conversation on December 15, 1993, was a personal conversation at a Christmas party and lasted about 10 or 15 minutes. Haldimann stated that in the conversation Haldimann was merely giving his opinion that the dictation was confusing and included superfluous information and that simpler reports would be better. Haldimann insisted in the interview that he was in no way asking or attempting to influence Whitehurst to change the reports ; the reports had already been provided to the defense attorney in discovery, and therefore the point was moot. Haldimann stated in the interview that it was his impression that the AUSAs in the case were distressed about Whitehurst's dictation, and he did tell Whitehurst that the AUSAs did not want to put Whitehurst on the stand. Finally, Haldimann stated in the interview that no one directed him to talk to Whitehurst.

Whitehurst did not change his dictation as a result of the Haldimann conversation, and Whitehurst was agreeable to having Burmeister testify at the Trade Center trials.

Although we are unable to determine the specific words used in the December 15, 1993, Christmas party conversation, we think Whitehurst grossly overstated the matter in his memorandum. Whatever was said in this brief conversation does not constitute or evince suppressions of evidence . . . [which] can be deemed to be fraudulent and unethical. Although both Whitehurst and Haldimann may have raised their voices during this conversation, ultimately it signified nothing.

## IV. Conclusion

We are profoundly disturbed by Williams' testimony in the Salameh trial. We conclude that Williams (1) gave inaccurate testimony regarding his role in the manufacture of urea nitrate and regarding whether the urea nitrate was made pursuant to Arabic formulas from bomb-making books; (2) testified beyond his expertise regarding the defendants' capacity to make urea nitrate and in a way that made the testimony appear tailored to the most incriminating result; (3) gave incomplete testimony concerning the VOD of urea nitrate; (4) gave an invalid opinion regarding the VOD of the main charge; (5) gave invalid and misleading opinions on direct examination concerning the explosives that may have been used in the bombing; (6) regarding his identification of the main charge on cross examination, gave an opinion that was based on speculation beyond his scientific expertise and that appears tailored to the most incriminating result; and (7) gave misleading testimony concerning his attempt to modify Whitehurst's dictation. In short, the testimony lacked the objectivity, credibility, and competence demanded of examiners in the FBI Laboratory.

Williams' testimony also suggests the need for certain improvements in Laboratory procedure that we discuss in detail in Part Six of this Report. For example, Williams' testimony about a specific VOD had no precedent in the FBI, and we found it to be scientifically unjustifiable. This error would have been avoided had Williams followed the ASCLD/LAB requirement that new procedures be validated before they are used in casework. Similarly, the need for complete case notes was exemplified by the absence of any notes supporting Williams' claim that he determined the VOD of urea nitrate from conversations with persons outside the Laboratory. Further, Williams' lack of a scientific background may have been the cause of his difficulty with the stoichiometric calculations. Finally, clear guidelines regarding what is within an EU examiner's expertise may have helped Williams avoid other problems identified in this section.

The pre-trial issues present relatively minor matters, but exemplify the need to follow applicable protocols and to have an orderly dispute-resolution procedure within the Laboratory.

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## **SECTION D: THE BUSH ASSASSINATION ATTEMPT**

### **I. Introduction**

In April 1993, former President George Bush visited Kuwait to commemorate the victory over Iraq in the Persian Gulf War. During Bush's visit, Kuwaiti authorities arrested 17 people allegedly involved in a plot to kill Bush using a car bomb.

The United States sent various personnel to Kuwait to investigate the alleged assassination attempt. Based on interviews of the alleged coconspirators, forensic examinations of the explosive devices, and intelligence reports, the United States Government concluded that Iraq was behind the attempted car bombing. In response, on June 26, 1993, President Clinton ordered a cruise missile strike against an Iraqi Intelligence Service (IIS) building in Baghdad. A Kuwaiti court later convicted all but one of the defendants charged with crimes arising from the assassination attempt.

Whitehurst alleges that he compared the explosive material in the main charge of the Bush device to explosive materials in known Iraqi devices and told Explosives Unit Chief J. Christopher Ronay that the explosives were different. Whitehurst claims that Ronay purposely misinterpreted these results in order to link the explosive material to Iraqi agents. Whitehurst further asserts that very possibly his results were changed to support the retaliatory missile strike by the United States.

We reviewed relevant Laboratory reports, dictation, and work papers, along with relevant memoranda, articles, notes, teletypes, and reports concerning the Bush assassination attempt. We also interviewed various witnesses from the FBI, including Whitehurst, former Explosives Unit Chief J. Christopher Ronay,

former Explosives examiner Alan R. Jordan, and FBI Counter Intelligence Section Chief Neil Gallagher, along with personnel from the CIA Counter Terrorism Center and DOJ Terrorism and Violent Crime Section.

We conclude that the evidence does not support Whitehurst's claim that Ronay changed or purposely misinterpreted Whitehurst's results, either in the Laboratory reports or verbally during discussions of those results. Nor does the evidence support Whitehurst's suggestion that the United States launched the missile strike against the IIS building in Baghdad based on a misinterpretation of Whitehurst's results. This case does illustrate the importance of documenting all case-related work in the Laboratory. To the extent that the results of Whitehurst's comparison were reported less precisely than they should have been, such lack of precision may have been avoided if Whitehurst had prepared a written report containing those results.

## **II. Factual Background**

Former President George Bush visited Kuwait between April 14 and April 16, 1993, to commemorate the allied victory in the Persian Gulf War.

Accompanying Bush were his wife, two of his sons, former Secretary of State James A. Baker III, former Chief of Staff John Sununu, and former Treasury Secretary Nicholas Brady.

In late-April 1993, the United States learned that terrorists had attempted to assassinate Bush during his visit to Kuwait. The Kuwaiti authorities arrested 17 persons suspected in the plot to kill Bush using explosives hidden in a Toyota Landcruiser. The Kuwaitis recovered the Landcruiser, which contained between 80 and 90 kilograms of plastic explosives connected to a detonator ( the Bush device or Bush explosive device ). The Kuwaitis also recovered ten cube-shaped plastic explosive devices with detonators (the cube-bombs ) from the Landcruiser. Some of the suspects reportedly confessed that the Iraqi Intelligence Service (IIS ) was behind the assassination attempt.

On April 29, 1993, CIA bomb technicians compared the Bush explosive device to two known Iraqi explosive devices found in different Middle-Eastern countries in 1990 and 1991 (the Middle-East devices) . The technicians reported that the remote control firing mechanism in the Bush device was identical to those in the Middle-East devices. Additionally, the technicians reported that blasting caps from the Bush device appeared to be identical to those found in one of the Middle-East devices. The technicians later concluded that the circuit board from the Bush device also closely resembled circuit boards from the Middle-East devices.

In early-May 1993, the FBI sent personnel to Kuwait to interview the suspects and examine the physical evidence. FBI Special Agents, along with representatives of the Secret Service and State Department, interviewed 16 suspects, some more than once. Two of the suspects, Wali 'Abd Al-Hadi 'Abd Al-Hasan Al-Ghazali ( Al-Ghazali ) and Ra'd 'Abd Al-Amir 'Abbud Al-Asadi ( Al-Asadi ), admitted during the FBI interviews that they had participated in the plot at the direction of the IIS.

Explosives examiner Jordan also traveled to Kuwait in May 1993 to examine the Bush device. Jordan examined the main charge, which was hidden in three panels in the Landcruiser and was capable of being detonated by remote control, a timing device, or a push-pull suicide switch. Jordan compared the Bush device to photographs of the Middle-East devices, as well as other devices, and concluded that the same person or persons manufactured the Bush device and one of the Middle-East devices, and that a connection existed between persons responsible for the Bush device and several other devices, including the other Middle-East device. Jordan reported these conclusions in a May 11, 1993 Laboratory report.

Jordan then returned to Washington, D.C., and delivered samples of the explosives from the Bush device to Whitehurst. Whitehurst analyzed the explosive from the main charge and concluded that the substance was approximately 96% RDX, 3% polyvinyl-isobutyl ether binder, and 1% hydrocarbon oil. As for samples from the cube-bombs, Whitehurst concluded that the explosive was consistent with an explosive containing RDX bound



with a cross-linked phenoxy or epoxy binder containing Sudan I dye. Whitehurst reported these findings in his June 7, 1993, dictation.

Shortly thereafter, Jordan returned to the Middle-East to conduct further examinations of the Bush device and the Middle-East devices. Based on these examinations, Jordan reported significant consistencies in the selection of individual components and alterations to manufactured items in all of the devices. Jordan concluded that the similarities represented signature characteristics. He further reported that the same person or persons of close association constructed the remote control fuzing systems and electronic timing mechanisms used in all of these devices. Jordan also reported that a second person or persons of close association were responsible for adding wiring and components to the Bush device and one of the Middle-East devices, enabling those devices to be incorporated in vehicles. Jordan reported these conclusions in his June 18, 1993, Laboratory report, in which he also summarized parts of Whitehurst's June 7, 1993, dictation.

On June 2, 1993, representatives of the FBI, the Central Intelligence Agency (CIA), and others in the Department of Justice (DOJ) discussed the results of their investigations with representatives of the Clinton Administration. Three weeks later, the DOJ and CIA reported their conclusions. The DOJ and CIA reported that it was highly likely that the Iraqi Government originated the plot and more than likely that Bush was the target. Additionally, based on past Iraqi methods and other sources of intelligence, the CIA independently reported that there was a strong case that Saddam Hussein directed the plot against Bush.

On June 26, 1993, the United States launched a cruise missile attack against a building housing the IIS in Baghdad in retaliation for the assassination attempt on former President Bush. According to news reports, the attack killed between six and eight persons and injured approximately 12 others. On June 27, 1993, Madeleine Albright, U.S. Ambassador to the United Nations, addressed an emergency session of the Security Council and provided evidence to support the attack on the IIS facility.

### **III. Analysis of Whitehurst's Allegations**

In a letter to the DOJ OIG, Whitehurst claims that Ronay may have purposely misinterpreted his results in order to suggest involvement by Iraq and support the missile strike by the United States.

Whitehurst explains that before the missile strike, Ronay asked him to compare the explosive material in the Bush device to explosive materials and residues from Iraqi devices discovered in Southeast Asia during the 1991 Gulf War (the Southeast Asia devices or Southeast Asia explosives ). When Whitehurst previously examined the explosives and residues from these Southeast Asia devices, he reported that they were consistent with, or could have come from, a British-made plastic explosive described as "PE-4A," although the results did not agree entirely with the formula for British PE-4A.

Whitehurst told us that he conducted the comparison suggested by Ronay and found that the binder material from the Southeast Asia explosives readily dissolved in acetone and had a relatively low molecular weight distribution, unlike the binder material in the Bush explosive. Therefore, according to Whitehurst, he informed Ronay that the explosive in the Bush device which he suspected to be Portuguese PE-4A, was very much different from the explosives in the Southeast Asia devices, which he thought were similar to British PE-4A :

I advised Ronay that at the time of the analysis of [the Southeast Asia] material we had interpreted the data to be consistent except in one aspect with a British product called PE-4A which was very much different from Portuguese PE-4A which was what we suspected the material used in the [Bush] assassination attempt was.

Whitehurst did not incorporate the results of this comparison in any dictation or written report.

Whitehurst stated that he later read a newspaper article and an FBI memorandum about the Bush matter, which he believed suggested that his comparison results had been used to link the Bush device to Iraq and to support the missile strike. Whitehurst told us that as a result, he reviewed his data again and discovered that he had overlooked Fourier Transform Infrared (FTIR) data from the Bush explosives that resembled FTIR data from the Southeast Asia explosives. This discovery somewhat lessened Whitehurst's concern about the reported relationship between the Bush and Southeast Asia explosives. Still, Whitehurst remained concerned that after he had advised Ronay that there was no link between the Bush explosive and other explosives, Ronay had purposely misreported this conclusion.

### **A. The Laboratory Reports**

To determine whether Ronay misreported Whitehurst's comparison results, we first reviewed the Laboratory reports prepared by the Explosives Unit in this matter. Our review showed that the Laboratory reports, which Ronay had authority to approve as Unit Chief, did not misstate the results of Whitehurst's comparison.

Explosive examiner Jordan prepared four Laboratory reports in the Bush matter. None of these reports mentioned Whitehurst's comparison of the Bush and Southeast Asia explosives. Specifically, the May 11, 1993, Laboratory report did not contain any dictation by Whitehurst. The June 18, 1993, Laboratory report included a summary of Whitehurst's June 7, 1993, dictation, but again did not include any results from the comparison performed by Whitehurst. The November 2, 1993, Laboratory report contained a verbatim version of Whitehurst's entire June 7, 1993, dictation, except for a transcription error, but did not mention Whitehurst's comparison results. Finally, the December 17, 1993, Laboratory report contained the results of Whitehurst's comparison of the explosive materials in the cube-bombs with known Iraqi explosives, but again did not include his results from the comparison of the main charge of the Bush device to the Southeast Asia explosives.

Although these Laboratory reports did not misstate Whitehurst's findings, our review did show that Jordan, in the June 18, 1993, Laboratory report, omitted and rewrote parts of Whitehurst's June 7, 1993, dictation. Specifically, Jordan omitted a description of the instrumentation used in Whitehurst's analysis and the results from Whitehurst's examinations of the detonator leg wires, detonating cord, and end plug. Jordan also reworded Whitehurst's description of two earlier laboratory cases involving explosive material similar to that in the Bush device. When questioned about these changes to Whitehurst's dictation, Jordan explained that his June 18, 1993, Laboratory report was not a normal report. Jordan told us that his supervisors at the FBI, including FBI Counter Intelligence Section Chief Neil Gallagher, requested just an opinion from the explosive examiner. Therefore, Jordan suggested that he included only those portions of Whitehurst's dictation that he had considered in forming his own opinion.

We think that once Jordan decided to include any part of Whitehurst's dictation, he should have included all of that dictation verbatim. As discussed elsewhere in our Report, the practice within the Explosives Unit of rewriting or editing the dictation of other examiners created an unacceptable risk of misinterpretation.

## **B. Verbal Reports by Ronay**

We further sought to determine whether Ronay verbally misreported the results from Whitehurst's comparison of the explosive material in the Bush device and Southeast Asia devices. The evidence does not support this claim.

During our interviews, Ronay stated that he possibly reported some of the Laboratory's results to representatives of the FBI and CIA. Ronay stated that although he did not rewrite any of Whitehurst's dictation, he may have paraphrased Whitehurst's conclusions in those briefings. Ronay reported that he could not specifically recall requesting that Whitehurst compare the Bush explosives to the Southeast Asia explosives or receiving any results from those comparisons. However, he vaguely recalled that Whitehurst stated that the explosive in the Southeast Asia cases could be British PE-4A and the explosive

in the Bush device could be Portuguese PE-4A. Ronay stated that if Whitehurst had reported this, he may have told others that the explosives were consistent with a PE-4A kind of explosive, [but] they are different. Ronay added that he would not have portrayed the explosives as chemically identical.

We interviewed Neil Gallagher, Chief of the FBI Counter Intelligence Section, about Ronay's statements. Gallagher told us that as Chief of the Intelligence Section, he reported the results of the FBI's investigation in the Bush matter to appropriate parties in the Administration. Gallagher stated that sometime before the June 2, 1993, meeting with the Attorney General, Ronay told him that the explosive material used in the Bush device and other Iraqi devices (including the Southeast Asia devices) was PE-4A, but that the FBI could not connect these explosives chemically or say that they came from the same shipment, sources, or country. Gallagher also stated that Ronay told him that there could be chemical differences in different batches of PE-4A and that one could only say that these bombing cases involved a plastic explosive described as PE-4A. Based on this conversation with Ronay, Gallagher reported to us that he believes he clarified for the Attorney General in the June 2, 1993, meeting that the explosives used in these cases were consistent with some type of PE-4A, but that this identification alone would not be enough to connect the devices. Gallagher stated that he also told the Attorney General that the identification of PE-4A was not that significant because its use was so common.

Although it appears that Ronay did report that the explosives in the Bush and Southeast Asia devices could not be connected based on chemical composition, subsequent reports on the matter tended to ignore such chemical differences. In a report to the President drafted before the missile strike by representatives with the DOJ Terrorism and Violent Crime Section, the DOJ reported in pertinent part:

The results of chemical and physical analyses of the explosive main charge from the Kuwait car bomb are consistent with the presence of a moldable plastic bonded explosive composed of approximately 96% RDX explosive, 3% poly (vinyl-isobutyl ether) binder and 1% hydrocarbon oil (PE-4A). According to the FBI Laboratory Explosives Unit, PE-4A plastic explosive was

contained in a terrorist improvised explosive device used by Iraqi operatives in early 1991 in [Southeast Asia] and two other devices believed to have been used by Iraqi operatives in [Southeast Asia] in early 1991.

(Emphasis added). A DOJ representative who assisted in preparing this Report told us that the FBI provided the information in this paragraph, although that DOJ representative was not sure whether the language later was massaged in some way.

Similarly, in the CIA's report to the President before the missile strike, members of the CIA Counter Terrorism Center (CTC) reported in part:

The results of chemical and physical analysis of the explosive main charge from the car bomb recovered in Kuwait indicate an explosive known as PE-4A. According to the FBI Laboratory Explosives Unit, PE-4A plastic explosive was contained in terrorist improvised explosive devices used by Iraqi operatives in early 1991 in [Southeast Asia].

(Emphasis added). Representatives of the CTC also told us that this information came from the FBI.

Moreover, even after the missile strike, the FBI and CIA continued to report simply that PE-4A plastic explosive had been identified in the Bush device and other Iraqi explosive devices, including those from Southeast Asia. We found such language in FBI memoranda and a FBI teletype concerning the Bush matter, as well as in two CIA intelligence reports.

Thus, the evidence shows that Ronay and Gallagher did understand and report that the Bush explosive and the Southeast Asia explosives contained PE-4A that the FBI could not say was chemically identical. At the time, Whitehurst suspected that the explosive in the Bush device was Portuguese PE-4A and that the explosive in the Southeast Asia devices was similar to British-made PE-4A. However, subsequent reports failed to note the possibility of chemical differences and simply reported that all of the cases involved a PE-4A plastic explosive. While these reports were not as precise as Whitehurst would have liked because they failed to discuss specific chemical differences, we find no evidence that Ronay or Gallagher purposely misreported that the explosives were chemically identical.

We also note that if the comparison results were not reported as precisely as possible, that lack of precision may have resulted from Whitehurst's own failure to prepare dictation reporting his findings. Whitehurst told us that he did not prepare such dictation because the results of his comparisons were already addressed in his June 7, 1993, dictation. In that dictation, Whitehurst reported that he had detected this type of explosive two times in the past, and then referred only to two prior Laboratory cases involving caches of explosives that the FBI could not link to Iraq. Whitehurst's explanation does not justify his failure to prepare dictation. As illustrated in this case, analytical results that provide a basis for distinguishing explosives can be as meaningful as results showing that explosives are chemically identical. Whitehurst should have prepared dictation explaining that he had compared the Bush and Southeast Asia explosives and documenting chemical differences between the explosives.

### **C. The Missile Strike**

Whitehurst also suggests that the United States may have launched the missile strike against the IIS Building in Baghdad as a result of his findings being misreported.

Contrary to Whitehurst's suggestion, the decision to launch the missile strike did not turn on reports that the Bush and Southeast Asia explosives contained

PE-4A. The FBI and CIA assembled extensive evidence of Iraqi involvement, including admissions from two key suspects, forensic examinations of relevant explosive devices, and intelligence from various sources. Our investigation showed that reports that the Laboratory had found PE-4A in the Bush matter and Southeast Asia cases were not a significant part of the overall evidence against the Iraqi Government.

Specifically, the evidence presented to the Administration included admissions from the two main suspects, Al-Ghazali and Al-Asadi. Each confessed during interviews with the FBI that they had participated in the plot at the direction of IIS officers. Al-Asadi, an Iraqi national, stated that he was recruited by suspected IIS officer, Muhammad Jawad. Jawad reportedly instructed Al-Asadi to plant the cube-bomb explosives in commercial areas of Kuwait City and to guide Al-Ghazali to Kuwait University. Al-Asadi reported that Al-Ghazali later told him that Bush was the target, although Al-Ghazali disputed this assertion. Al-Ghazali, also an Iraqi National, reported that he was recruited by suspected IIS officer, Abu Rafid. Rafid allegedly told Al-Ghazali that Bush was the target of the bombing attempt. Al-Ghazali also reported that Muhammad Jawad assisted in the plot.

The Administration also received forensic results from the FBI and CIA. These results consisted primarily of comparisons of components from the Bush device to other known Iraqi devices, including the Middle-East devices. CIA technicians found that the remote-control firing devices in the Bush case closely resembled devices used in other IIS devices, including the Middle-East devices. They found that blasting caps in the Bush case had the same characteristics as those found in one of the Middle-East devices, and the detonators matched those found in the other Middle-East device and one of the Southeast Asia devices. They further determined that the cube-bombs incorporated timing circuits and remote control firing devices containing integrated circuits used by Iraq in other devices.

Likewise, FBI explosives examiner Jordan found that the makers of the Bush device and the Middle-East devices used the same basic components, including the same circuit boards, manufactured radio control units, and anodized metal container. The circuit boards even had the same serial numbers, suggesting a



single manufacturer, according to Jordan. Jordan characterized the maker's placement of components and soldering techniques as a signature. Jordan added that he observed in the radio-controlled receiving units the same drilled holes, wiring, component selection for incorporating an external power source, and soldering expertise. He also observed similar heat-shrunk, textile, and plastic materials used to protect wires, along with an unusually large quantity of black electrical tape. Jordan also pointed to other similarities, including similar or identical breaks and jumpers in the circuit boards, similar computer-type ribbon cable, similar adhesive material added to the potentiometers, and the same positioning of resistors on the timing mechanism.

Additionally, before the missile strike, the CIA obtained various intelligence reports indicating involvement by the Iraqi Government. The CIA learned that the IIS was planning to assassinate Bush now that he had returned to private life and that the assassination attempt would occur only with authorization from Saddam Hussein. The CIA also received information suggesting that Saddam Hussein had authorized the assassination attempt to obtain personal revenge and intimidate Kuwait and other Arab states.

Representatives of the DOJ, FBI, and CIA told us that in view of this evidence of Iraqi involvement, the Administration had significant information indicating Iraqi involvement aside from identification of the explosive material. Neil Gallagher stated that the identification of the explosive material in the Bush device was not a critical issue because the FBI could not say that the explosive material was identical to that in other Iraqi devices. According to Gallagher, similarities in the wiring, fuzing system, and circuit boards were deemed more significant than whether the explosive was identical to what had been contained in known Iraqi devices. Likewise, other highly placed representatives in the FBI Intelligence Division told us that the FBI established responsibility for the assassination attempt based on interviews of the suspects and examinations of the circuitry and wiring that showed signature characteristics.

Similarly, representatives of the DOJ Terrorism and Violent Crime Section stated that the various intelligence information, similarities in wiring and circuitry, and the confessions of the suspects were more important than the composition of the main charge. Representatives of the CIA Counter Terrorism Center also told us that analyses of the electrical components constituted more compelling evidence of Iraqi involvement, and that they were confident that

Iraq was responsible based on the firing device, statements by the suspects, and Iraqi methods of operation. Even Ambassador Albright in her remarks to the United Nations focused almost exclusively on similarities in wiring and circuitry of the various devices, statements by the suspects, and information from the intelligence community.

In sum, it appears that significant information linked Iraq to the attempted bombing aside from any information about the explosive material. Even Whitehurst acknowledged that [t]here may have been sufficient data in other areas [to support the missile strike] and I have no doubt that there was. The evidence suggests that the identification of PE-4A in the Bush and Southeast Asia cases, even if stated less precisely than Whitehurst would have liked, was not responsible for the decision to launch the missile strike.

#### **IV. Conclusion**

The evidence does not support Whitehurst's claim that Ronay purposely changed or misinterpreted Whitehurst's results, either in the Laboratory reports or during discussions of those results. Nor does the evidence support Whitehurst's suggestion that the United States launched the missile strike against the IIS building in Baghdad based on a misinterpretation of Whitehurst's results.

This case does illustrate the importance of documenting all case-related work in the Laboratory. To the extent that chemical differences between the Bush and Southeast Asia explosives did not receive appropriate emphasis in this matter, that result may have been avoided if Whitehurst had prepared written dictation reporting his results.

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## **SECTION E: AVIANCA BOMBING**

### **I. Introduction**

On November 27, 1989, Avianca Airlines Flight 203, originating from Bogota, Colombia, exploded shortly after take-off, killing the 107 persons on board including two Americans. SSA Richard Hahn was assigned to this case as part of a team of representatives from the United States. Hahn collected evidence at the crime scene, examined evidence, and prepared a final report. Dandeny Munoz-Mascara (Munoz) was indicted for causing the explosion and in 1994 was tried twice in the Eastern District of New York. The first trial resulted in a mistrial; he was convicted in the second trial. Hahn testified as an explosives expert in both trials.

Whitehurst alleges that in the trials Hahn, among other things, fabricated evidence, committed perjury, and testified outside his area of expertise. Whitehurst's principal allegations concern Hahn's testimony about (1) the type of explosive that caused the crash, (2) Whitehurst's scientific results, and (3) the fire and secondary explosion that followed the initial blast.

To investigate Whitehurst's claims, we reviewed the pertinent Laboratory reports and, where available, the underlying work papers and test results. We reviewed transcripts of the testimony of Hahn and the closing arguments made by the prosecutor in both trials. We also questioned agents Hahn and Whitehurst and their former unit chiefs, J. Christopher Ronay and James Corby. Finally, we also interviewed others involved in the case, including Edward Bender, James Kearney, Donald Thompson, Dwight Dennett, former Assistant United States Attorneys (AUSAs) Cheryl Pollak and Beth Wilkinson (who jointly tried the Munoz case twice), and DEA agent Sam Trotman.

We conclude that Hahn did not commit perjury or fabricate evidence. We further conclude, however, that Hahn gave testimony that was, in part, either

scientifically unsound or beyond his expertise. We also conclude that Kearney erred when he failed to resolve a dispute between Hahn and Whitehurst; the result was that Hahn gave incomplete testimony regarding Whitehurst's scientific results. Finally, we conclude that Whitehurst sent a scientifically flawed memorandum to the prosecutor during the first trial and committed other errors in the case.

The following section (Section II) summarizes the factual background to the allegations. Section III analyzes the issues relating to Hahn's testimony (Section A) and Whitehurst's conduct (Section B). We state our conclusions in Section IV.

## **II. Factual Background**

### **A. The Crime Scene**

On November 29, 1989, Hahn arrived in Colombia to investigate the crash. While there, he met with and discussed the aircraft explosion with experts from the Federal Aviation Administration (FAA) and the National Transportation Safety Board (NTSB). He and other experts in various fields examined the crime scene, collected evidence, attempted to reconstruct the aircraft, and formed theories as to what happened.

After days of investigation, Hahn and the FAA representatives concluded as follows: A small explosive device functioned on the aircraft beneath a seat over the wing. This explosion breached certain portions of the aircraft and caused a fire and a second explosion described as a fuel-air explosion, which blew the aircraft apart and sent it to the ground in pieces.

On December 6, 1989, while Hahn was still in Colombia investigating the Avianca crash, a Colombian government building (the DAS Building) was bombed. Later that day Hahn went to the scene of the DAS explosion to offer his assistance. He examined the damage there and took soil samples in which no explosives residues were found.

## **B. The Laboratory Analysis**

Hahn sent samples of evidence from the Avianca crime scene to the FBI Laboratory. Once the samples arrived, an EU technician catalogued the evidence and sent it to various units in the Laboratory for examination. Whitehurst, as an examiner in the MAU, was asked to examine various items for explosives residues. Edward Bender, the technician then assigned to Whitehurst, received and analyzed this evidence. As was customary in the Laboratory, Bender ran the instrumental analysis and reported the results to Whitehurst. Whitehurst's role as an examiner was to review and draw conclusions from the data provided by the technician.

In January 1990 Whitehurst identified RDX and PETN high explosives on a specimen from a portion of the aircraft. He wrote a report (dictation), which was approved by MAU Chief James Corby and was sent to Hahn who included it verbatim in one of his two reports. In his other report Hahn noted that a portion of the aircraft skin bore pitting and cratering unique to high explosives. Hahn concluded that an explosive device with a relatively small amount of high explosives functioned on board the aircraft, causing a breach of the fuselage and other parts of the aircraft, a fire, and a fuel-air explosion that caused the aircraft to break apart.

## **C. The Confessor**

In the spring of 1994, on the eve of the first Munoz trial, the Attorney General of Colombia wrote a letter to the District Court Judge in the case and stated that the wrong person was charged in the Avianca case and that the responsible person was in custody in Colombia and had confessed to the crime. In

interviews by an ATF agent in Colombia, the Confessor stated, among other things, that he was responsible for making the bomb that destroyed Avianca Flight 203 and that the explosive consisted of 5 kilograms of an ammonium based gelatin dynamite. The Confessor claimed that this dynamite was the same explosive used at the DAS Building.

The Munoz prosecutor sought Hahn's advice regarding this development. According to a memorandum Hahn wrote in 1995, he advised the prosecutor [in 1994] that neither was the damage to the aircraft consistent with dynamite, based on the pitting and cratering that was present on the fuselage, nor was the damage consistent with the functioning of a single dynamite device of five kilos in size. Hahn added that his opinion was supported by the finding of residues RDX and PETN and the lack of residues consistent with a dynamite.

On June 4, 1994, Hahn telephoned Whitehurst to tell him that he (Whitehurst) might be called as a witness to rebut the claims of the Confessor, which Hahn described. According to Whitehurst, Hahn asked whether Whitehurst could discredit the Confessor's story based on the residue analysis. According to Hahn, he asked Whitehurst, [C]an you say, from your material analysis, whether or not this might have been an ammonia gel dynamite or not.

During the June 4, 1994, conversation, Hahn told Whitehurst that Hahn believed the pitting and cratering on the evidence was indicative of an explosive with a VOD of 20,000 feet per second. Whitehurst responded that there are ammonia-gel dynamites capable of detonation velocities of approximately 20,000 feet per second and that therefore the damage may have been possible from such a dynamite. Hahn dismissed Whitehurst's views because Whitehurst was not at the crime scene or aircraft reconstruction and because explosives damage assessment is outside Whitehurst's expertise. Hahn did not ask Whitehurst to prepare any documents regarding his analysis of the Confessor's statement. On June 6th Hahn faxed Whitehurst a copy of one of the Confessor's statements.

#### **D. The Whitehurst Memorandum**

On June 7, 1994, Whitehurst prepared a memorandum to Corby (the Whitehurst Memorandum) relating to whether the FBI could scientifically disprove the Confessor's story. The following day Whitehurst delivered to Corby the memorandum with technical papers that Whitehurst claimed supported his views. Whitehurst stated in the memorandum that he could not disprove the use of an ammonium gel dynamite and that in fact the data is consistent with the use of an ammonium nitrate based high explosive. The memorandum asserted that the pitting and cratering did not rule out the use of a gelatin dynamite, citing the attached literature. Whitehurst also raised questions concerning possible contamination that would affect the significance of his previous findings of PETN and RDX.

Corby reviewed the memorandum overnight, and on June 9, 1994, according to Whitehurst, Corby told him to quickly provide Whitehurst's assessment to the prosecutor. Corby stated that he did not authorize Whitehurst to send the memorandum itself directly to the prosecutor, only to provide the information in the memorandum to the prosecutor. On June 9, 1994, Whitehurst gave the memorandum to an agent on the case (Dwight Dennett) to give to the prosecutor. Dennett delivered the document as promised. Whitehurst did not send a copy of the memorandum to Hahn or discuss this memorandum with him prior to sending it to the prosecutor.

On June 14, 1994, Whitehurst received a note from Corby stating that AUSA Pollak wanted to talk to him. Whitehurst called Pollak, who was angry. They discussed the memorandum. According to Whitehurst, Pollak explained the concept of Brady material and told Whitehurst that now she would have to turn the information over to the defense. At about the same time, Pollak also told Hahn that she would have to disclose the memorandum to the defense under Brady. Although Hahn later assumed the Whitehurst Memorandum was disclosed to the defense, it is unclear whether in fact disclosure was made. The prosecutors did not contact Whitehurst further regarding this case.

## **E. The Trials**

Hahn testified in the first Munoz trial on June 7, 1994. This was two days before Whitehurst gave his memorandum to Dennett, and thus Hahn did not have the memorandum when he testified. Among other things, Hahn testified to his opinion as to how the initial and secondary explosions occurred on the aircraft and related the conclusions regarding RDX and PETN as set forth in Whitehurst's dictation. Hahn also gave testimony that tended to contradict the Confessor's story by asserting that the damage to the aircraft indicated the use of a fast-moving explosive like RDX or PETN while the damage to the DAS Building indicated a slower-moving explosive like dynamite.

On June 14, 1994, Hahn received a copy of the Whitehurst Memorandum from Pollak. He then sent a copy to his former unit chief, J. Christopher Ronay, and discussed the matter with him. Between the two trials, SAS Chief James Kearney, MAU Chief Corby, and Ronay addressed the issues raised by Whitehurst's Memorandum but made no communication to Hahn regarding any resolution of the controversy. Hahn, therefore, proceeded to the second trial with no guidance from management about how to testify in light of the views expressed in the Whitehurst Memorandum.

On November 22, 1994, during the second trial, Hahn repeated essentially the same testimony he gave in the first trial. No mention was made of any of the opinions discussed in the Whitehurst Memorandum.

### **III. Analysis**

#### **A. Hahn's Testimony**

##### **1. Contradiction of Confessor, Pitting and Cratering**



In both trials Hahn opined that the pitting and cratering on the fuselage of the aircraft was caused by an extremely or very high explosive but that the DAS Building was damaged by a slower-moving explosive such as dynamite. This testimony contradicted the Confessor's story that the same explosive--a dynamite--was used at the DAS Building and on the aircraft. We conclude that Hahn's opinions correlating the pitting and cratering to a high velocity explosive were unsound and not justified by his experience or by the scientific literature. Although a high velocity explosive may have been used on the aircraft, Hahn's opinions at the trials regarding pitting and cratering were flawed.

#### **a. Trial Testimony**

In the first trial, Hahn testified that an extremely high explosive caused the pitting and cratering on the aircraft, that RDX and PETN are explosives in that category, that no dynamite could have caused that damage, and that the damage at the DAS Building was indicative of a heaving explosive such as dynamite and not a brisant explosive like RDX or PETN. Hahn further testified that by extremely high explosive he meant the ones that do travel at 22, 24 thousand feet per second. Hahn was certain that this testimony contrasting dynamite with RDX and PETN was elicited to anticipate and contradict the Confessor's story should it be introduced by the defense. A defense based on the Confessor, however, was not interposed in either trial.

In the second trial Hahn testified that the pitting and cratering on the fuselage was caused by a very high explosive here functioning in the area of 20,000 feet per second. Regarding the damage at the DAS Building, he testified:

It indicated to me that again the explosive that was used here, unlike the explosive device or an explosive that would cause pitting and cratering, this was a much slower moving explosive. This was going to be like a dynamite or ammonia-base type nitrate explosive that would have a long period heaving effect, if you will.

## **b. Validity of Hahn's Correlation of the Pitting to a VOD Range**

In the first trial, Hahn testified that no dynamite could have caused the pitting and cratering on the aircraft. This testimony was clearly erroneous even under Hahn's own theories, since Hahn firmly maintains that the pitting was caused by an explosive with a VOD of about 20,000 feet per second and he testified at the first trial and the OIG interviews that some dynamites have a VOD in that range.

Taken literally, Hahn's testimony in the second trial indicated that he believed the phenomenon of pitting and cratering can only occur with a very high explosive --that is, an explosive with a VOD of about 20,000 feet per second or more. This is implied from his testimony that the damage at the DAS Building was indicative of an explosive such as a dynamite rather than an explosive that would cause pitting and cratering. Hahn told us in his first interview that at the time of the Munoz trials he had only experienced pitting and cratering with explosives having a VOD of at least 20,000 feet per second and believed that pitting and cratering would only occur with such explosives. Hahn's experience, however, was, at best, incomplete. In fact, pitting and cratering can be achieved with some high explosives with a VOD as low as 10,000 feet per second. Most dynamites have a VOD in excess of 10,000 feet per second.

In a letter after his first OIG interview and in a second interview, Hahn insisted that his testimony should not be taken literally. He maintained that when he said the explosive at the DAS Building was not the type of explosive that would cause pitting and cratering, he meant it was not the type of explosive that would cause the distinctive pitting and cratering on the Avianca aircraft. The pits on the aircraft had diameters of about one-eighth to one-quarter inch. By contrast, the pitting and cratering discussed in the articles attached to the Whitehurst Memorandum contained much smaller pits (.1 to .5 millimeters). To Hahn the size of the pits on the Avianca aircraft indicated a VOD of about 20,000 feet per second or more. Hahn insisted that it was this type of pitting and cratering ( the large pits ) that he was referring to in his trial testimony.

Hahn believed that large pits, as in the Avianca case, are indicative of a VOD of about 20,000 feet per second or more because he had never seen pitting of that size or anything closely resembling that except with explosives in the range of 20,000 ft/second detonation velocity. Hahn has seen such pitting in his tests of shaped charges at the FBI range. In these tests Hahn used explosives with a VOD of at least 20,000 feet per second. Hahn theorized that the pitting on the Avianca aircraft was caused by jetting resulting from a deformation on the explosive's surface that was, in effect, a small shaped charge. See also Hahn OIG Interview: I speculated far enough to say, there had to be some imperfection in this explosive charge to cause this shape, to form this jet.

Hahn admitted, however, that in his tests with shaped charges at the range he had never seen such pitting at all except when he was trying to deliberately achieve that effect with a shaped charge that was lined (e.g., with an old vehicle headlight) and that he had never experimented with shaped explosives with a VOD less than 20,000 feet per second. Based on this experience, therefore, Hahn was unqualified to say whether it was the shaping, the fragmentation from the lining, or the high velocity, or some combination of these elements, that was necessary to produce the large pits.

Moreover, the pitting here was found on aircraft aluminum, and Hahn had no experience using aircraft aluminum as a target material with any type of explosive. Hahn acknowledged that pitting would occur more readily on aircraft aluminum than on steel, which Hahn used in his tests.

Hahn assumed that the perpetrators of the Avianca blast did not take the time to create an intentionally shaped charge. Hahn's tests at the FBI range, in which he obtained pitting similar to Avianca's, involved lined, intentionally shaped charges and targets of steel, which had little connection to the scenario he posited in the Avianca case--an explosive not intentionally shaped with a target of aircraft aluminum.

Hahn theorized that the jetting that caused the large pits on the aircraft came from random imperfections at the surface of the explosive. Hahn acknowledged, however, that he has no experience, documentation, or anything that validates the proposition that such pits can be created from accidental imperfections on the explosive.

Additionally, Hahn admitted at one point in the OIG interviews that the pitting and cratering in this case is merely consistent with an explosive with a VOD of at least 20,000 feet per second. He stated that, because we don't have the experimental data, he cannot exclu[de] other explosives.

Accordingly, for all these reasons, we conclude that Hahn's experience was inadequate to support his opinion that the large pits found on the aircraft aluminum in this case were necessarily caused by an extremely or very high explosive with a VOD of at least 20,000 feet per second.

Hahn's correlation of the pitting to a VOD range was not based on his experience but was a speculative extrapolation from his experience. This speculation was based on Hahn's understanding of the science of pitting and cratering (his jetting theory). Hahn admitted, however, that the science of pitting and cratering is beyond his expertise: I'm not qualified to talk to you about exactly how this process functions. I'm not even sure that the scientific community knows exactly what goes on here, to be honest with you. Hahn was qualified to render opinions based only on his experience, which did not justify his attempt to correlate the pitting with the VOD of the explosive.

Hahn asserted that he relied on his jetting theory because I don't know how else you would get that damage. That Hahn could conceive of no other theory, however, did not make his jetting theory valid.

Finally, Hahn's recent involvement in the Oklahoma City case has broadened his experience. The pitting in that case is similar in size to the pitting in the

Avianca case, although the VOD of the explosive in Oklahoma City, according to Hahn, is significantly below 20,000 feet per second. Given the Oklahoma City case, Hahn acknowledged that big pits can be obtained from an explosive with a VOD substantially less than 20,000 feet per second. Based on the Oklahoma City case and our own experience, we conclude that there is no scientific basis for correlating large pits, as in the Avianca and Oklahoma City cases, with a VOD of about 20,000 feet per second or more.

### **c. Other Theories in Support of Hahn's VOD Opinion**

Hahn also told us that his opinion that the explosive had a VOD of at least 20,000 feet per second rested on two factors in addition to the pitting and cratering: (1) the shattering of an I-beam on the aircraft showing that the explosive was very brisant and (2) the short amount of time the gas jet would have had to cause the pitting before the explosive shock wave and the depressurization of the cabin pushed the fuselage away. This explanation is problematic for three reasons. First, Hahn's VOD opinions at the trials only relied on the pitting and cratering. Second, the evidence that the I-beam in fact was shattered by the explosive is weak. All that one can say with certainty is that a portion of the I-beam, like many other portions of the aircraft, was missing. Hahn made no scientific comparison between (1) the ends of the I-beam that were adjacent to the missing piece and (2) the ends of other items adjacent to missing pieces, to determine whether the breakage of the I-beam was necessarily from a brisant explosive. Further, in the opinion of Walter Korsgaard, the FAA expert who investigated the Avianca crash, the wing box that contained the I-beam was violated after the second (fuel-air) explosion. Third, regardless of the VOD of the explosive, a gas jet will precede the shock wave and hit the target before the shock wave pushes it away. Hahn made no calculations of the difference in speed between a jet from an explosive with a VOD of 20,000 feet per second and a jet from an explosive with a VOD of, say, 16,000 feet per second. Needless to say, jets from either explosive would travel extraordinarily fast. Hahn has no scientific basis for concluding that the depressurization of the cabin would have pushed the fuselage away before it could have been hit by a jet from an explosive with a VOD below 20,000 feet per second.

On January 8, 1997, an attorney representing Hahn submitted a letter arguing, among other things, that, quite apart from the pitting and cratering, Hahn's

VOD opinion was reasonable in light of (1) the shattering of the I-beam and (2) the detection of residue of RDX and PETN. The letter asserts that these two factors, taken together, alone establish the reasonableness of Agent Hahn's conclusion. (Emphasis in original). Again, this justification is not the one Hahn used in his trial testimony, in which he asserted that the pitting established the explosive's VOD. In any event, as discussed in the preceding paragraph, the evidence that the I-beam was shattered in such a way as to show high brisance is weak. As to the second factor, if the explosive device on the aircraft used RDX and PETN as the explosive main charge, then by definition the main charge would have had a VOD in excess of 20,000 feet per second since the VODs of RDX, PETN, and Semtex (which combines RDX and PETN) exceed 23,900 feet per second. The residue evidence does indicate that the main charge may have consisted of RDX and PETN and that therefore the VOD of the main charge may have exceeded 23,900 feet per second. Had Hahn so testified, his testimony would have been reasonable, but he testified to something else. The problem with Hahn's testimony was that he correlated the pitting to a particular VOD range. That testimony was scientifically unsound and not justified by Hahn's experience, regardless of what the residue evidence may have shown.

#### **d. Hahn's Rejection of the Whitehurst Literature**

On June 14, 1994--a few days after his testimony in the first trial and 5 months before his testimony in the second trial--Hahn received the Whitehurst Memorandum with its attached scientific literature. One of the attached articles indicated that pitting and cratering could be achieved on aircraft aluminum with a 40% Forcite gelatin dynamite. Although Hahn assumed in 1994 that this dynamite had a VOD of 20,000 feet per second, in fact its VOD is about 13,800 feet per second.

Hahn told us that he ignored the literature when he testified in the second trial, because the pitting depicted in the literature (pits with a diameter of .1 to .5 millimeters) was vastly different in dimension from the pitting in the Avianca case (pits with a diameter of 1/8 to 1/4 inch). Hahn stated in his interview that [u]ntil such time as I saw Mr. Whitehurst's paper, I never paid attention to, looked for, [or] was even aware of this sort of microscopic pitting and cratering that that paper refers to.

The literature also discussed how pitting and cratering is caused. One article (by H. P. Tardif and another author) stated:

This phenomenon can be produced by two separate mechanisms. The first is due to the shaped charge effect caused by tiny imperfections at the surface of the charge. These imperfections, such as holes and cavities, collapse to form extremely high velocity jets of gases which impinge on the surface to form small crater-like pits. The second appears to be caused by the high velocity impact of small amounts of unconsumed explosive with a nearby surface or by friable extraneous material placed between the charge and the nearby surface.

A second article (by D. G. Higgs and T. S. Hayes) stated: It is thought that the pits are caused by the impingement of high velocity particles of partially combusted explosive and/or fused extraneous matter encountered between the explosive charge and the witness' material.

The Tardif and Higgs explanations differed from Hahn's jetting theory in two respects. First, Hahn believed that pitting was derived from gas jets. Both articles, however, provide another mechanism for pitting--namely, the impingement of particles of unconsumed explosive or extraneous matter placed between the explosive and the target. Second, the Tardif article does include as one mechanism Hahn's theory that pits can be caused by jets formed from imperfections at the surface of the explosive. But Tardif states that these pits will be small, presumably within the size range discussed in the article (.1 to .5 millimeters). The Tardif article thus at least raises the question whether Hahn's jetting theory can account for the large pits on the Avianca aircraft.

After Hahn received the Whitehurst memorandum and the attached scientific literature, he made no inquiries before the second trial concerning the soundness of his theories regarding pitting and cratering. Because Hahn was

unfamiliar with microscopic pitting and had no experience with pitting on aircraft aluminum and because the articles raised questions concerning the validity of his jetting theory, we conclude that Hahn erred when he failed to look into these matters before he testified in the second trial.

## **2. Hahn's Testimony About the Results of Whitehurst's Examination**

Whitehurst contends that in both trials Hahn gave inappropriate testimony regarding the findings of RDX and PETN, because Hahn failed to mention the conclusions set forth in the Whitehurst Memorandum. We conclude that Hahn's testimony in the first trial was unobjectionable but that his testimony in the second trial was incomplete. Further, we conclude that SAS Chief James Kearney contributed to Hahn's incomplete testimony by not properly resolving the issues raised by the Whitehurst Memorandum. As discussed in Section B, infra, however, the Whitehurst Memorandum was a deeply flawed document. Accordingly, the impact of Hahn's failure to mention the opinions in the document may have been insignificant.

### **a. Background**

In 1990 Whitehurst submitted AE dictation in which he identified the presence of RDX and PETN high explosive[s] on a specimen consisting of a piece of the rubber fuel bladder Hahn had cut from the Avianca wreckage in Colombia. The dictation contained no other findings on any specimen. The instrumental analyses upon which Whitehurst based his conclusions were performed by a technician, Edward Bender.

On June 8, 1994, the Whitehurst Memorandum was submitted to Corby. In the memorandum, Whitehurst reviewed this matter and offered opinions that supplemented or questioned his 1990 dictation. Whitehurst stated: It is my opinion at this time that the data we acquired from analysis of the evidence



provided to us in this matter does not disprove the use of an ammonium nitrate based high explosive and in fact is consistent with but not proof of the use of such an explosive. Regarding his 1990 chemical analysis that detected PETN and RDX, Whitehurst stated that [a] number of questions [about possible contamination] need to be answered before we can determine the significance of that data. He then listed a series of questions concerning possible contamination at the crime scene, during transportation of the evidence, and during the processing of the evidence at the Laboratory. He further opined that [t]he upshot of all of this is that the data we have at this time cannot be used to successfully disprove the statement that a gelatin dynamite was used in this bombing.

On June 14, 1994, a week after he testified in the first trial, Hahn received the Whitehurst Memorandum. He discussed the memorandum with EU Chief Ronay and sent Ronay a copy of the memorandum on June 14, 1994. On June 16, 1994, Ronay sent a memorandum to SAS Chief Kearney regarding the Whitehurst Memorandum, which he attached. On June 22, 1994, Hahn also sent Kearney a memorandum. Shortly after receiving Ronay's memorandum, Kearney sent a list of questions to Corby about the events surrounding the Whitehurst Memorandum and its dissemination to Pollak. Corby responded to Kearney's questions in writing on July 6, 1994. Corby supported many of Whitehurst's opinions.

Kearney told us he thought both Hahn and Whitehurst should have testified at the trials. However, neither Kearney, Ronay, nor any other supervisor advised Hahn on how he should deal with the Whitehurst Memorandum in his testimony at the second trial.

Hahn regarded the Whitehurst Memorandum as a rejection of his [Whitehurst's] own scientific findings. Hahn stated, In this case, Mr. Whitehurst has, in writing, offered an opinion contrary to his own scientific findings. Nevertheless, on November 22, 1994, Hahn testified in the second Munoz trial that in 1990 he submitted pieces of the aircraft and swabbings to

the Materials Analysis Unit of the F.B.I. laboratory to try -- who specialize in looking for explosives residue to try to determine what explosive was used here.

Q. What were the results of those tests?

A. The results were although they found no residue that they could identify here on this piece, or any other piece, except a piece of the fuel bladder, and on that piece of fuel bladder taken from the area right immediately underneath the blast, they found residue of two explosives, Research Development Explosive, RDX, which is again a very fast brisant explosive; and PETN, or Penta-erithrit[o]l tetranitrate. . . .

In his testimony Hahn made no mention of anything in the Whitehurst Memorandum.

Hahn maintains that he properly ignored the Whitehurst Memorandum in his testimony for the following reasons:

What he says in the letter [referring to the Whitehurst Memorandum] is not based on any sort of analysis. What he says in the letter is based on speculation, it's not the results of his material analysis.

I mean, Fred does nothing in that letter [but] speculate as to what could have been or what might have been or what may have occurred. His scientific analysis, his instrumental analysis that he conducts, still remains that the results were PETN and RDX.

Furthermore, I spoke to Bender, who actually conducted it, who, again, was completely comfortable with those results, felt they could be relied upon. Why should I not rely on them.

Further, Hahn told us that he answered the questions raised by Whitehurst regarding contamination and assured himself that there was no contamination of the evidence. Finally, Hahn relied on his belief that the defense had a copy of the Whitehurst Memorandum so that the defendant could call Whitehurst as a witness to elicit any of the information in the memorandum.

## **b. Discussion**

### **(1) Hahn**

Because Hahn was unaware of the Whitehurst Memorandum when he testified in the first trial, he cannot be faulted for failing to include it in his testimony.

Regarding Hahn's testimony in the second trial, Whitehurst alleges that Hahn committed perjury by reciting the MAU results without supplementing or amending them with the information in the Whitehurst Memorandum. Although we find no perjury, we conclude that the testimony was incomplete.

When one Laboratory examiner testifies to the results or conclusions of another examiner, the testifying examiner has a duty to report the results accurately and completely--whether he agrees or disagrees with his colleague's opinions. Although in 1990 Whitehurst concluded that RDX and PETN were on the fuel bladder and that, according to his dictation, he reached no other conclusions regarding explosives residue, Whitehurst stated in 1994 that he reached additional conclusions from a review of the data. It was beyond Hahn's expertise as an EU examiner, and beyond his discretion as a witness purporting to recite the results of another examiner, to selectively omit the 1994 conclusions because Hahn thought they were speculative or otherwise

meritless. What was requested of Hahn on the witness stand was not his evaluation of Whitehurst's conclusions but merely a factual restatement of them. When Hahn was asked to state the MAU results, a complete answer would have been that the MAU chemist found RDX and PETN in 1990 but on a further review in 1994 also found that the data did not prove but was consistent with an ammonium nitrate explosive and thought that the significance of the data for RDX and PETN could not be determined without answering certain questions about contamination. Since Hahn believed that in 1994 Whitehurst reject[ed] the scientific findings made in 1990, Hahn's testimony about the 1990 findings was potentially misleading without the caveat that the author of the 1990 findings now had misgivings and additional findings.

We recognize that Whitehurst neither withdrew the original dictation nor submitted a supplemental dictation. Nor do we consider the Whitehurst Memorandum a complete rejection of Whitehurst's dictation. Nevertheless, when Hahn testified in the second trial, Hahn was aware that Whitehurst had reached additional conclusions supplementing those reflected in his 1990 dictation. To ignore the Whitehurst Memorandum because it lacked the form of a supplemental dictation would be an elevation of format over substance. At a minimum, Hahn had an affirmative duty to obtain explicit permission from a supervisor before he omitted reference to the Whitehurst Memorandum, because such omission was potentially incomplete and misleading. He failed to obtain such supervisory approval.

That Bender was comfortable with the original dictation is immaterial. Bender was a technician. Whitehurst, as the examiner, was responsible for the MAU results and conclusions. Moreover, all Bender could say was that the instrumental results were accurate--something Whitehurst never disputed. The Whitehurst Memorandum concerned additional conclusions concerning an ammonium nitrate explosive and the significance of the instrumental results--matters on which Bender was unqualified to comment.

Similarly, that Hahn believed there was no contamination did not justify omitting language Whitehurst used to qualify his conclusions.

Finally, that the defense may have had the Whitehurst Memorandum does not mean Hahn could ignore it in his testimony. Regardless of what the defense possesses, an examiner has a duty to present accurate testimony. By not testifying to the information in the memorandum, Hahn gave testimony that was incomplete. Moreover, Hahn did not know for a fact that the memorandum was disclosed. Although Hahn told us I'm certain the prosecutor gave the memorandum to the defense, he also told us, So, I mean, I don't really know, but I imagine that [Cheryl Pollak, the prosecutor] recognized that it was incumbent upon her to provide it [to the defense] and she discharged her duties. I have no reason to presume otherwise.

When one examiner testifies to another examiner's conclusions, the testifying examiner is only a messenger. He has no discretion to omit language supplementing or qualifying the conclusions, even if he believes the language is speculative or groundless. We recognize that Hahn was presented with a very unusual and difficult situation and that he received no guidance from his supervisors. We nevertheless conclude that he had an affirmative duty to resolve the controversy before he gave potentially incomplete and misleading testimony and that he therefore erred when he testified, without explicit supervisory approval, as though the Whitehurst Memorandum did not exist.

## **(2) Kearney**

Although Hahn erred in his testimony, Kearney contributed to that error. Kearney told us he believed that the Whitehurst Memorandum would not affect the Laboratory results or Hahn's testimony. Yet Kearney recognized that in the memorandum Whitehurst was attempting to qualify his initial results, and Kearney thought that Whitehurst should have testified to his examination and results at trial. Had Whitehurst testified, the qualif[ications] to his initial results would have been put before the jury. Yet Kearney took no action either to cause Whitehurst to testify in the second trial or to tell Hahn to include the qualif[ications] in his own testimony if Hahn was asked to restate Whitehurst's conclusions.

Moreover, Corby supported much of Whitehurst's analysis, but we can detect no steps taken by Kearney to consult with other qualified experts to resolve the scientific issues. Without further review of the technical and scientific issues that had been raised, we do not see a valid basis for Kearney's decision to dismiss the concerns raised by the Whitehurst Memorandum.

One example of a scientific issue in the memorandum that Kearney dismissed without proper consideration related to Whitehurst's observations concerning the VOD necessary to cause pitting and cratering. Despite Corby's support for Whitehurst's position, Kearney apparently rejected Whitehurst's position without thorough scientific research and analysis.

The most glaring mistake made by Kearney was his failure to communicate to Hahn or Whitehurst, and document, any decisions he did make. Whitehurst waited but was never called as a witness in the first trial. He was not even informed of the second trial. Hahn heard nothing regarding his complaints about the memorandum and thus proceeded to the second trial with no further guidance on how to handle any questioning on this topic. If the memorandum had been turned over to the defense, questions regarding it were certainly possible at the second trial. Kearney should have informed Hahn of his reasoning in dismissing the concerns in the memorandum so that Hahn could be prepared to respond to defense questions. Instead, management left Hahn and Whitehurst totally unprepared for the embarrassing situation in which they might be forced to take the stand and contradict each other.

In sum, we conclude that Kearney erred in not properly resolving the issues raised by the Whitehurst Memorandum and not communicating his decisions to Hahn and Whitehurst.

### **3. Secondary Explosion**

Hahn testified in both trials that, after the explosive device was detonated on the Avianca aircraft, a fire started resulting in a secondary explosion, which he described as a fuel-air explosion, that destroyed the aircraft. In the first trial he stated that we reached the conclusion as to what happened. By implication, this meant that Hahn reached the conclusion in consultation with the FAA and NTSB representatives at the crime scene. In contrast, in the second trial Hahn stated that the scenario he described was my conclusion. This statement of the conclusion is problematic because Hahn is not an expert in fuel-air explosions.

When asked by the OIG what experience he had in linking particular damage with the occurrence of a fuel-air explosion, Hahn stated, The FAA has conducted experiments where they've done fires on board an aircraft fuselage and have had areas of flashover, and I've seen videos of that. And other than that, and being aware of fuel-air explosions, I don't have any experience. Hahn further explained that he based his testimony on other experts and things that he had read about fuel-air explosions. Hahn readily admitted to the OIG that he was not an expert in fuel-air explosions.

We find Hahn's testimony in the second trial regarding fuel-air explosions to be beyond his own experience and expertise. As proof of his lack of expertise, we cite the fact that Hahn interchangeably refers to the secondary explosion as a fuel-air explosion or a flash fire. These two phenomena are not the same, and Hahn's use of the two descriptions interchangeably is incorrect. Hahn admitted that he was using the two words to mean the same thing; however, he clarified that what he was really talking about was a flashover or the point at which matter suddenly burns explosively. This distinction was not made in his testimony at trial.

Walter Korsgaard was the FAA representative who investigated the Avianca crash; he is an expert on fuel-air explosions on aircraft. Like Hahn, Korsgaard concluded that a fuel-air explosion occurred on the Avianca flight. Korsgaard's opinion as to what happened, however, differed from Hahn's in certain respects. Korsgaard's report states:

Based on the above evidence and various eye witness accounts, the following sequence of events can be developed:

-- [1] IED [improvised explosive device] detonates in area under seat number 14F and frame station 783 on passenger cabin floor.

-- [2] Passenger cabin floor penetrated.

-- [3] Passenger cabin fuselage skin and top of center fuselage fuel tank middle bladder section penetrated.

-- [4] Passenger cabin relatively slowly begins to decompress and pressurize[d] center fuselage fuel tank.

-- [5] A fuel/air explosion and fuel ignition is initiated in top of center fuselage fuel tank spreading rapidly thru [sic] vent holes to right and left number 2 fuel tank wet wing sections and back into passenger cabin as pressure in fuel tank exceeds cabin pressure.

-- [6] Structure integrity of center fuselage wing box section and right and left wet wing fuel tank sections of number 2 fuel tank bulkheads are violated.

-- [7] Fuel in wet wing fuel tanks numbers 1 and 2 is ignited.



-- [8] The APU [auxillary power unit] located at rear of center fuselage wing box section is blown to rear of aircraft by the force of the fuel/air explosion within this center section fuel tank.

Korsgaard continues the sequence of events by describing how the aircraft broke up and came to the ground.

In the two trials and in his OIG interview, Hahn testified to a scenario different from Korsgaard's. Hahn agreed with the first three events described by Korsgaard: an IED detonated under seat 14F, breaching the center fuselage fuel bladder tank and the side of the aircraft. Then their accounts diverge. Hahn made no mention, as Korsgaard did (Event 4), that the passenger cabin relatively slowly beg[an] to decompress and pressurizes center fuselage fuel tank. In fact earlier in Hahn's testimony in the second trial he said that certain aircraft damage indicated rapid depressurization of the cabin.

The next event, according to Korsgaard (Event 5), was that a fuel/air explosion and fuel ignition is initiated in top of center fuselage fuel tank. According to Hahn, on the other hand, the next event is a fire that burned dirty, throwing a lot of hot gaseous material into the air, a lot of hot matter into the air. According to Hahn, the fuel-air explosion did not come until later:

[W]hat I believe happened is that a small explosive device functioned, breaching the aircraft, opening the side of the fuselage, opening up the bladder box or the bladder fuel cells inside the wing, blasted and started a fire.

That fire burned for a number of seconds, probably in the neighborhood of a minute, at which point in time the hot gases and hot particula[te] matter from that fire caused the secondary explosion of fuel air explosion. That broke the aircraft apart.

Moreover, according to Hahn, the fuel-air explosion did not occur in the fuel tank, as Korsgaard stated, but rather inside the fuselage (first trial). As Hahn described it in his OIG interview:

So the fire [that was set off by the explosive device] is burning as that fuel is venting and it's burning not only fuel, but it's going to be burning carpeting and seat cushions and fabrics, rugs, whatever is there on board that aircraft. . . . [E]ventually it reaches a point where you have enough heat and hot gasses and hot flammable gasses and particulate matter in the air where it flashes over, and when it flashes over, the aircraft comes apart.

In the first trial and in the OIG interview, Hahn compared the fuel-air explosion in Avianca to a fuel-air explosion in a grain elevator, in which small particulate matter from the grain is suspended in the air. Korsgaard said nothing about particulate matter from the interior of the cabin playing a role in the fuel-air explosion.

Thus, Hahn's theory regarding a fuel-air explosion differed from Korsgaard's in three principal respects. The first difference related to the sequence of events: Korsgaard thought the event that followed the detonation of the IED was the fuel-air explosion and the fire, whereas Hahn testified that the detonation led to a fire that burned probably for about a minute and then the fuel-air explosion occurred. The second difference related to the location of the fuel-air explosion: the center fuel tank (Korsgaard) as opposed to the fuselage (Hahn). Finally, Korsgaard did not say, as Hahn did, that particulate matter played a role in the explosion.

Because Hahn is not an expert in fuel-air explosions, he should have simply testified to the opinion of Korsgaard (or to the opinion of another qualified expert)--with an attribution and without embellishment. Hahn ventured beyond

his expertise when he developed and testified to his own theory of a fuel-air explosion.

#### **4. Injuries to Passengers**

Hahn testified in both trials that certain injuries observed on the passengers' bodies--hard, burnt skin and skulls that had been cracked open--supported his theory of a secondary explosion. In the first trial he stated that these injuries were consistent with extreme heat, flash-fire type of damage. In the second trial he stated the injuries were consistent with a flash fire or a fuel-air explosion. We conclude that this testimony was beyond Hahn's expertise and was incorrect.

Hahn told us that he drew the connection between these injuries and the flash fire because the only other place he had heard of the same type of injuries was in lectures regarding a flash fire at Dupont Plaza in Puerto Rico. He also told us that he was familiar with the subject matter because he attended lectures on fire damage by a former agent where this was discussed and had read articles about these same types of injuries and their causes. We conclude that this experience was inadequate to make him an expert on the relationship between the injuries and an explosion.

In fact, the injuries are not consistent with a flash fire or fuel-air explosion, which are of short duration. Rather, the injuries indicate that the bodies were subjected to substantial heat for a significant period of time. When we pressed Hahn on this point, he acknowledged that the injuries to the bodies did not justify the opinion that a fuel-air explosion occurred but rather that there was a hot fire burning for a continuous period of time. Hahn admitted that it might have been more accurate for him to say that the injuries to the bodies were consistent with his theory of how the fuel-air explosion came about--that is, that there was a preexisting condition (the continuous hot fire) which could have led to a fuel-air explosion. As Hahn also admitted, however, this preexisting condition would not always result in a fuel-air explosion, and a fuel-air explosion would not always require a fire such as the one he believed occurred in this case. Essentially, the injuries to the bodies told Hahn nothing about whether a fuel-air explosion occurred; they only told him that an intense

fire burned for a period of time. This is quite different from his testimony that the injuries to the bodies were consistent with a flash fire or fuel-air explosion.

Hahn told us he thought he could render opinions about matters if I know more than a layman, which is your test of whether or not you're an expert. He also stated that if I know the answer it would be permissible for him to respond to questions outside his expertise. As exemplified by this case, Hahn's views are incorrect and dangerous. All educated laymen are not experts. That a witness thinks he knows the answer to a question does not mean he does. To assure that erroneous and unreliable information is not presented in court, a Laboratory examiner must only answer questions within his expertise.

In sum, we conclude that Hahn's testimony about the injuries was misleading, inaccurate, and outside his area of expertise. We further conclude that he improperly used this testimony to support his theory of a fuel-air explosion.

## **5. Other Allegations**

Concerning Hahn's testimony, Whitehurst makes numerous other allegations, which we will address summarily. Because Whitehurst makes the same basic criticisms to Hahn's testimony in both trials, the references below are to the second trial unless otherwise noted.

**a.** Whitehurst contends that Hahn misstated his qualifications and background. We conclude that only one contention has merit. Hahn was not required to volunteer his major in college (English), and, when Hahn testified to his participation in scores of bombing cases, he was not required to volunteer the percentage relating to aircraft explosions.

Hahn also testified that [m]y experience includes being called upon to do crime scene processing and make assessments of such notable causes of explosives [sic] in criminal cases such as Pan Am 103 over Lockerbie, Scotland and the

World Trade Center in New York. This testimony overstated Hahn's experience. In the Pan Am 103 case, Hahn's only involvement in explosive assessments was that he examined the passengers' personal effects for blast damage. In the Trade Center case, Hahn's role was limited to management of the crime scene and did not include analysis of the evidence.

**b.** During his testimony Hahn was shown numerous photographs (most of which he took) of the aircraft wreckage and debris and a diagram of the aircraft, and he was asked to state his observations. Regarding one photograph he stated that on the inside wall of this fuselage is where we actually found charring and heat damage, which told us that, again, this side of the aircraft from the outside was not on fire, but inside smoke was filling out, circulating throughout the fuselage, and heating up terribly, melting down things on the inside of the aircraft on the left-hand side. (Emphasis added.) Although Hahn may not be an expert on fire damage to aircraft, his testimony here implicitly meant that the other experts at the scene, who do have expertise on this subject, participated in the assessment. Accordingly, we do not fault this testimony.

Regarding another photograph Hahn testified:

That is a wing of the aircraft and it show[s] very severe fire damage. That fire damage is very evident here (indicating) where you see this white area on the far right-hand side of the photograph, but that is actually where the aluminum has become oxidized from the heat. Cooked, if you will, almost to a boiling point.

We conclude that this testimony exceeded Hahn's expertise and was inaccurate. Hahn had no expertise in the oxidation of aluminum. Without a scientific examination of the white area, Hahn could not say categorically that it was the result of oxidation. In his OIG interview Hahn told us that the oxidation would not occur just from heat, as he testified at trial, but from the burning process in the presence of air (oxygen). Hahn had no scientific basis for saying that the aluminum was [c]ooked . . . almost to a boiling point.

Regarding the diagram and other photographs, Hahn commented on the structure of the aircraft. Kearney felt Hahn drifted outside his expertise on some of this testimony. Some of Hahn's comments were merely descriptive, requiring no special expertise ( debris at the crime scene, main landing gear ). Other testimony, however, appears to require expertise that Hahn lacked (position on aircraft of fuel tanks, position and function of wing box ). Also, Hahn commented on what he perceived as non-explosive damage (deformation of fuselage by depressurization of aircraft). In these examples, Hahn should have made clear that he was basing his testimony on information received from other experts. In contrast, regarding the lack of information from the voice data recorder, Hahn testified that [w]e believe the lines were cut by the detonation of the explosive device (emphasis added), implying that the assessment came, at least in part, from the aircraft experts at the scene.

**c.** We reject Whitehurst's contention that an EU examiner such as Hahn, because he is not a metallurgist, is unqualified to testify about his observations of unique explosive damage such as pitting and cratering. Such observations and conclusions are within a qualified EU examiner's expertise. Similarly, Hahn was qualified to say that (1) a portion of the emergency exit was probably in . . . many pieces because it was situated near the seat of the explosive device, (2) certain damage was probably impact rather than explosive pitting, and (3) the explosive pitting would occur within a certain distance of the explosive. We do not consider the latter comment fabricate[d] testimony, as Whitehurst claims.

**d.** We conclude that Hahn was beyond his expertise and inaccurate in his use of certain terms (the gas causing pitting and cratering was in the form of a plasma, the metal in the pits was crystallized, the explosive Semtex contains a butylene binder). These terms were unnecessary to Hahn's presentation and should have been avoided.

**e.** Contrary to Whitehurst's claims, Hahn, in our opinion, did not give fabricate[d] explanations of brisant explosives and the functioning of a high explosive ( [h]igh explosives function not by burning, but by molecular

breaking apart ). These were not unacceptable lay explanations for these matters.

**f.** We find no fault with Hahn's testimony about the uses of PETN and RDX and the composition of Semtex. In fact, these explanations track Whitehurst's dictation. Similarly, Hahn's testimony that Semtex and C-4 are not, and nitroglycerine is, impact sensitive was accurate.

**g.** Hahn testified as to how his duties differed from the duties of the NTSB and FAA representatives, by saying that his assignment was to determine whether an explosive device functioned on the aircraft and the duties of the others were primarily to determine whether the crash resulted from a mechanical failure. We think this testimony was slightly inaccurate. Needless to say, if it was determined that the crash resulted from a criminal act, the FBI would have been the exclusive agency of the United States to investigate the crime. But the NTSB and FAA are, without limitation, mandated to determine the cause of the crash, which would include an inquiry by them as to whether an explosive device was used.

**h.** Whitehurst expressed concern that Hahn's testimony showed that his presence at the DAS crime scene may have led to contamination of the Avianca evidence. Hahn, however, told us that he had sent the Avianca evidence to the Laboratory before the DAS Building was bombed.

**i.** In the first trial, after Hahn testified to the findings of RDX and PETN, he was asked whether those chemicals would be found in any other part of the plane other than an explosive device --in, for example, the seats or the paneling. Hahn replied:

They are both extremely unstable molecules, as any explosive would be. And they, in fact, they can break down with something

as simple as sunlight. You would not find them in the environment, no.

This answer was partially inaccurate. Although RDX and PETN do not occur naturally in the environment, they are not extremely unstable and would not readily break down from sunlight under normal circumstances.

## **B. Whitehurst's Conduct**

As explained below, we conclude that Whitehurst's conduct in this case was deeply flawed in several respects.

### **1. Overload**

On June 4, 1994, Hahn called Whitehurst about the Confessor. According to Whitehurst, Hahn asked whether Whitehurst could discredit the Confessor's claim that an ammonium nitrate gelatin dynamite was used on the aircraft. As Whitehurst told Hahn on June 4th, and as Whitehurst acknowledged in his memorandum, he would have expected to find residues of nitroglycerine (NG) on the evidence if a dynamite had detonated on the aircraft. (NG is a primary component of dynamite. See n.98, supra.) According to the Whitehurst Memorandum, however, no residues of NG were found on the specimens Whitehurst examined. Nevertheless, Whitehurst concluded in the memorandum that he could not disprove the dynamite claim. One of the reasons for this conclusion was that Whitehurst noticed in his 1994 review that the liquid chromatography test (LC) for PETN was overloaded, which may have obscured the presence of NG. Because, therefore, NG may have been present but not detected due to the overload, Whitehurst asserted in the memorandum that he could not eliminate the possibility of a dynamite.



What Whitehurst overlooked in his 1994 review, however, was that, in addition to the LC test, a thin layer chromatography test (TLC) was conducted. The TLC would have detected NG if present. It did not. A thorough review of the file by Whitehurst would have revealed this information. When we confronted Whitehurst with the TLC results, he admitted that he erred in not reviewing the TLC data in 1994 and in concluding that due to the overload he could not exclude the presence of NG. Thus, we fault Whitehurst for failing to conduct an adequate review of his own file prior to issuing his memorandum, a review that would have invalidated his theory that NG may have been present and was obscured by the overload.

With respect to his original 1990 examination, we also fault Whitehurst for failing to recognize the overload and run a second test.

## **2. Misstatement of the June 4th Conversation and of the Pertinent Issue**

The Whitehurst Memorandum began with a summary of Whitehurst's June 4, 1994, conversation with Hahn about the Confessor. The summary, however, misstates the conversation on a material point. According to the memorandum, Hahn said in this conversation that the Confessor claimed to have used an ammonium nitrate based explosive (emphasis added) and that the damage was not consistent with an ANFO type explosive. (ANFO consists of ammonium nitrate and fuel oil.) In fact, as Whitehurst acknowledged in his OIG interview, Hahn said that the Confessor claimed to have used an ammonium nitrate based dynamite. When Whitehurst wrote the memorandum, he, of course, knew the claim concerned a dynamite, since he discussed dynamite throughout the memorandum, and he attached to the memorandum one of the Confessor's statements, which described the use of a dynamite.

One important difference between an ammonium nitrate based explosive and an ammonium nitrate based dynamite is NG, which is an essential component only of the latter. By misstating the June 4th conversation by omitting reference to a

dynamite and by including reference to ANFO, Whitehurst made it seem that the important issue to be addressed in the memorandum was the use of an explosive that may not contain NG. As noted, Whitehurst detected no residues of NG on the evidence.

In the second paragraph of the memorandum, Whitehurst stated the following conclusion:

It is my opinion at this time that the data we acquired from analysis of the evidence provided to us in this matter does not disprove the use of an ammonium nitrate based high explosive and in fact is consistent with but not proof of the use of such an explosive.

Later in the memorandum, Whitehurst stated the basis for this conclusion:

The presence of white powder in the pits and the initial data consistent with the presence of nitrate and nitrite ions is consistent with though not proof of the presence of an ammonium nitrate based explosive.

This conclusion tracked Whitehurst's misstatement of the June 4th conversation and begged the real question in the case--namely, whether the data disproved or was consistent with the use of an ammonium nitrate based dynamite. As Whitehurst stated in his interview, The question that [Hahn] asked me was essentially, was an ammonium nitrate gelatin based dynamite used, or can you discredit that.

Because Whitehurst detected no NG residue, it would have been difficult for him to conclude that the evidence in fact is consistent with the use of a

dynamite. We are unable to find that Whitehurst deliberately misstated the June 4th conversation to avoid that difficulty but still render an opinion that the evidence was consistent with a large class of explosives that would appear to include an ammonium nitrate dynamite. In any event, the conclusion about an ammonium nitrate explosive did not address the exact question asked by Hahn. Nowhere in the Whitehurst Memorandum does the author say that the data is consistent with an ammonium nitrate dynamite.

Whitehurst may have rendered an opinion that the data was consistent with an ammonium nitrate explosive because he thought this was the only conclusion justified by the evidence and he thought, in good faith, that he should set forth any conclusions he could reach. If so, he should have stated explicitly that he could not conclude that the data was in fact consistent with an ammonium nitrate dynamite, the Confessor's alleged explosive. As written, the conclusion is, at best, confusing, because it erroneously suggests that Whitehurst thought the data was consistent with the Confessor's story.

### **3. Validity of Opinions**

#### **a. Ammonium Nitrate Explosive**

As noted, Whitehurst opined that the data (1) does not disprove, and (2) in fact is consistent with, an ammonium nitrate based high explosive. The first part of the opinion appears valid. Indeed, because all the remnants of the aircraft were not recovered and because the recovery did not begin until several days after the crash, it would have been virtually impossible to disprove the use of any explosive based on the residue analysis. Finding one or more explosives on the recovered residue (e.g., RDX and PETN) would not preclude the possibility that the residue of another explosive either was on an unrecovered remnant or, before the recovery began, was washed away by rain, was dislodged by the crash, decomposed, etc. The failure to find residue of an ammonium nitrate explosive, therefore, would not constitute proof that the explosive was not used on the aircraft.

In contrast, Whitehurst's opinion that the data in fact is consistent with an ammonium nitrate explosive is an overstatement by any reasonable measure. Whitehurst stated in the memorandum: The presence of white powder in the pits and the initial data consistent with the presence of nitrate and nitrite ions is consistent with though not proof of the presence of an ammonium nitrate based explosive. Whitehurst's technician found white powder in certain pits on the fuselage. This white powder possibly could have been ammonium nitrate. The technician, however, attempted to examine this powder instrumentally and was unable to determine what it was. The identity of the white powder is unknown.

As for the ions, Whitehurst's technician produced initial data consistent with the presence of nitrate and ammonium ions on specimen Q13. A second test, however, could not confirm[] the presence of the ions. Accordingly, it is not certain that the ions were in fact present. In any event, because nitrate and ammonium ions occur naturally in the environment, the mere detection of them has only very limited probative value.

Whitehurst himself later maintained that similar results were not significant when he criticized certain work by David Williams in the Oklahoma City case. There, Williams stated in his report that [a]mmonium ions and nitrate ions were found to be present on specimen Q171. This statement was apparently made in support of Williams' theory that ANFO was the main charge in the explosive device. Whitehurst had this to say about Williams' statement:

Why is Mr. Williams being allowed to introduce this into his report. He knows perfectly well that that means absolutely nothing at all. But the prosecutors will not. After an explosion the presence of nitrates are ubiquitous. Before an explosion nitrates are ubiquitous, everywhere. We are only now conducting background studies to determine just how prevalent. Many explosives give off ammonium. It means nothing, UNLESS TAKEN OUT OF CONTEXT.

(Capitalization in original; emphasis added.) When confronted with the contradiction between his comments about ions in the Avianca and Oklahoma City cases, Whitehurst could provide no explanation.

The laboratory notes in the Avianca case for specimen Q13 state that the ammonium and nitrate ions could not be reasonably associated because ammonium nitrate was not detected on a particular test and both ions could be formed by other than ammonium nitrate explosives. In his dictation, neither did Whitehurst mention the ions, nor did he say the data was consistent with an ammonium nitrate explosive.

Because (1) the white powder could not be identified, (2) the presence of the ions could not be confirmed, and (3) the ions have been found to occur naturally in the environment, we conclude that Whitehurst's statement that the data is consistent with the use of an ammonium nitrate explosive is overstated and suggests too strongly that such an explosive may have been used on the aircraft.

#### **b. Ammonium Nitrate Dynamite**

In his memorandum Whitehurst also opined that the data we have at this time cannot be used to successfully disprove the statement that a gelatin dynamite was used in this bombing. This opinion is valid for the reasons stated above concerning the inability to disprove the use of an ammonium nitrate explosive (failure to recover all remnants of the aircraft, etc.).

In his OIG interview Whitehurst addressed whether the data was consistent with the presence of an ammonium nitrate dynamite. He stated there was a weak consistency. He stated that the bases for this opinion were the factors discussed above regarding an ammonium nitrate explosive (the white powder and ions) and the fact that the presence of NG might have been obscured by the instrumental overload. As discussed above, Whitehurst's overload theory was

invalid. Given Whitehurst's failure to detect NG residue and given the weakness of the data showing the use of an ammonium nitrate explosive, we conclude that Whitehurst's data did not warrant the opinion (given in his OIG interview) that the evidence was consistent with the use of an ammonium nitrate dynamite.

Whitehurst's data only allowed him to opine: (1) the data does not disprove the use of an ammonium nitrate dynamite; (2) no data points to the use of a dynamite; (3) some data (the unconfirmed presence of ions and the unidentified white powder in the pits) have very limited probative value; (4) the ions (if they were present) could have come from an ammonium nitrate dynamite or from numerous other explosives or from the environment, and he cannot say which alternative is most likely; and (5) the unidentified white powder could have been ammonium nitrate or some other white substance, and he cannot say which alternative is most likely.

Thus, Whitehurst's opinion that the data was consistent with the use of an ammonium nitrate explosive was not only overstated but begged the real question--namely, whether the data was consistent with the use of an ammonium nitrate dynamite (the explosive the Confessor said he used). As to that question, we conclude that Whitehurst's data did not justify an opinion that the evidence was consistent with any dynamite. Accordingly, Whitehurst's conclusion in the second paragraph of the memorandum--that the data in fact is consistent with an ammonium nitrate explosive--was not only overstated, but also misleading, because it suggested, without a valid scientific basis, that Whitehurst's data supported the Confessor's story.

#### **4. Contamination**

Although not directly relevant to the discrediting of the Confessor's story, Whitehurst addressed in the memorandum whether possible contamination prevented the Laboratory from determining the significance of the data identifying the presence of RDX and PETN. In his original dictation Whitehurst stated:

Chemical analysis of specimen Q15 identified the presence of RDX and PETN high explosive. These two explosives are used in conjunction in the explosive SEMTEX. They also can be used in separate components of explosive systems.

It is the opinion of this examiner that the RDX and PETN identified on specimen Q15 originated either from an explosive such as SEMTEX or from a combination of components of an explosive system containing both PETN and RDX.

The Whitehurst Memorandum sets forth a series of questions about possible contamination at the crime scene, in transit, and at the Laboratory. See n.115, supra. Unlike Whitehurst's dictation, in which he opined that the RDX and PETN came from Semtex or an explosive system, in the memorandum he raised the question whether the RDX and PETN may have come from contamination rather than from the aircraft remnants before they were recovered in Colombia. Whitehurst asserted that the contamination questions need to be answered before we can determine the significance of the data -- that is, before it could be determined whether the RDX and PETN came from the aircraft or from contamination.

Whitehurst told us that when he wrote the memorandum, I had no evidence at all about contamination. He stated, So what you've asked me is, do I know there was contamination. No, but I don't know there wasn't contamination. Whitehurst acknowledged that the contamination questions he raised were not specific to the Avianca case, but applied to any case involving organic explosives like PETN, RDX, TNT, nitroglycerine. Nevertheless, at the time of Whitehurst's March 1996 OIG interview, he had never raised these questions in any of his numerous cases, before or after Avianca, unless there was specific evidence of contamination.

Despite Whitehurst's assertion that he had no evidence at all about contamination when he wrote the memorandum, we think the circumstantial evidence available to him pointed to the unlikelihood that the PETN and RDX

were present as a result of contamination. The RDX and PETN were both found on the same specimen, and none of the other eight specimens contained either explosive. According to Whitehurst's original dictation, and the prosecution's theory, the substances were found together because they were components of Semtex or an explosive system used in the bombing. If, instead, the specimens had been contaminated by RDX and PETN, it would have been likely that the contaminants would have been randomly distributed on the specimens, producing contamination with either or both of the explosives on more than one specimen. In an OIG interview Whitehurst cited a 1995 contamination study in the Laboratory to show the real possibility of contamination there, but in that study, of the four locations that contained either RDX or PETN, none contained both substances. Although it is of course possible that there was contamination of a single specimen with two separate explosives and no other specimen was affected by either contaminant, this is not the likeliest scenario.

We question the manner in which Whitehurst raised the issue of contamination. We do not fault an examiner for raising a relevant issue at a late date if it does not occur to him earlier, and vigilance concerning contamination should be an integral part of the work of a forensic scientist. Here, however, the contamination questions raised in the Whitehurst Memorandum could and should have been addressed within the Laboratory before the memorandum was disseminated to a prosecutor in the middle of a trial. Hahn was knowledgeable about the procedures followed at the crime scene and how the evidence was transported to the Laboratory. Other personnel could have explained how the evidence was processed once it arrived at the Laboratory. Whitehurst should have addressed the contamination questions to these people before he disseminated the memorandum outside the Laboratory. Finally, Whitehurst should have noted in his memorandum that the lack of a random distribution of the RDX and PETN was indicative of the absence of contamination.

Since (1) the contamination issue was only indirectly relevant to contradicting the Confessor's story, (2) there was no affirmative evidence of contamination, (3) the circumstantial evidence was indicative of a lack of contamination, and (4) Whitehurst never wrote a memorandum with questions like these in any other case before or since Avianca, we conclude that Whitehurst erred when he raised the issue, in the manner that he did, for the first time in an ongoing trial.



Corby told us he would not have authorized the release of the information in the Whitehurst Memorandum to the prosecutor had he known Whitehurst had not contacted Hahn first. Nevertheless, it is apparent from the face of the memorandum that Whitehurst had taken no steps within the Laboratory to determine the validity of any of the contamination issues raised in the memorandum. We therefore conclude that Corby erred when he told Whitehurst to provide the information in the memorandum to the prosecutor without also directing Whitehurst to make the necessary contamination inquiries in the Laboratory first.

## **5. Circumvention of Hahn**

Whitehurst wrote the memorandum on June 7, 1994, and gave it to Corby the next day. Corby reviewed it overnight and told Whitehurst on June 9, 1994, to give the memorandum to the prosecutor. That day Whitehurst gave the memorandum to an agent working on the case; he in turn gave it to the AUSA. Whitehurst did not consult with Hahn, or give him a copy of the memorandum, before it was disseminated outside the Laboratory.

Whitehurst justified his failure to consult with Hahn, or send him a copy of the memorandum, on his assertion that Hahn is a bully, will not listen to any reason at all, and does not receive information. We have already noted Whitehurst's error in failing to discuss the contamination questions with Hahn before disseminating the memorandum to the prosecutor. More generally, we conclude that Whitehurst's failure to consult with Hahn on any issue, or at least send him a copy of the memorandum, before releasing it outside the Laboratory was unprofessional.

## **IV. Conclusion**

### **A. Hahn**

We conclude that in the Munoz trials Hahn did not commit perjury, fabricate evidence, or intend to mislead the court. We also conclude that he committed several errors: he erroneously testified in the first trial that no dynamite could have caused the pitting and cratering on the aircraft; he gave scientific opinions correlating the pitting and cratering with a VOD range that were unsound and not justified by his experience; before the second trial, he made no inquiries about the validity of his jetting theory, even though the literature attached to the Whitehurst Memorandum conflicted with that theory; he gave incomplete testimony concerning the MAU results; he testified incorrectly and outside his expertise concerning a fuel-air explosion, the injuries to passengers, and other areas; and he slightly overstated his experience. Hahn's conduct exemplifies the need (discussed in Part Six, infra) to train examiners to base conclusions on confirmed findings and validated theories and to testify within their areas of expertise.

## **B. Whitehurst**

We conclude that Whitehurst committed several errors in connection with the Whitehurst Memorandum: he reached an invalid conclusion that an instrumental overload may have obscured the presence of NG; this error occurred because he neglected to thoroughly review the Laboratory file including the TLC results; he misstated his June 4, 1994, conversation with Hahn on a material point; he rendered a misleading and overstated opinion that suggested that his data was consistent with a potential defense; he raised questions whether contamination may account for his original findings of RDX and PETN, although there was no affirmative evidence of contamination, the circumstantial evidence was indicative of a lack of contamination, and he made no inquiries inside the Laboratory to determine whether his contamination concerns might have validity; and he released the memorandum outside the Laboratory without consulting with Hahn or at least sending him a copy. Finally, he also erred in his 1990 examination by failing to recognize the instrumental overload and run a second test. All of the errors in the memorandum tended to create problems for Hahn, the FBI, and the prosecution in an ongoing trial.

## **C. Kearney**

We conclude that SAS Chief Kearney erred by not properly resolving the controversy raised by the Whitehurst Memorandum and by not communicating his decisions to Hahn and Whitehurst. After the second trial Kearney reviewed Hahn's testimony in that trial and felt Hahn testified outside his expertise regarding the construction of the aircraft and the injuries to the passengers. Kearney also erred by failing to discuss these matters with Hahn, and define and document the corrective action taken, to avoid such problems in the future.

#### **D. Corby**

We conclude that Corby erred when he authorized Whitehurst to release the information in the memorandum to the prosecutor without also directing Whitehurst to address the contamination questions to personnel inside the Laboratory first.

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## **SECTION F: ROGER MARTZ'S TESTIMONY IN O.J. SIMPSON CASE**

### **I. Introduction**

During the California murder case of People v. O.J. Simpson, DNA results indicated that blood found on a rear gate at the crime scene belonged to O.J. Simpson and that blood found on socks at Simpson's residence belonged to murder victim Nicole Brown Simpson. To counter this evidence, the defense maintained that the police had planted this blood, using blood samples taken from O.J. Simpson and the body of Nicole Brown Simpson after the murders. Authorities collected those blood samples in test tubes that contained a blood preservative, ethylenediamine tetraacetic acid (EDTA). Accordingly, to disprove the defense's assertion, the prosecution asked the FBI to determine whether the blood evidence from the rear gate and socks contained levels of EDTA consistent with preserved blood from these test tubes.

CTU Chief Roger Martz and several research chemists at the FBI Forensic Science Research Unit (FSRU) in Quantico, Virginia, worked to develop a method for identifying EDTA in blood. Martz later examined the bloodstain evidence from the rear gate and socks and concluded that they did not contain EDTA-preserved blood. The defense subsequently called Martz to testify about this work.

Whitehurst stated that after Martz testified, scientists at the FSRU were highly critical of several aspects of Martz's testimony. These scientists reportedly claimed that Martz committed perjury by testifying that he had developed the method used to examine the evidence, misled the jury concerning the FSRU's validation studies and events surrounding the development of the protocol, misled the defense by stating that all digital data from the analysis of the evidence had been erased, and generally testified in an arrogant manner.

In connection with these allegations, we obtained and reviewed transcripts of Martz's trial testimony and Whitehurst's testimony during a hearing in the Simpson case. We also obtained and reviewed a videotape of part of Martz's testimony. We further reviewed pertinent Laboratory reports, dictation, work papers, and charts in the case, along with various correspondence and memoranda. Finally, we interviewed numerous personnel in the FSRU and Laboratory, including former Laboratory Director Milton Ahlerich, Acting Laboratory Director Donald Thompson, former SAS Chief Kenneth Nimmich, SAS Section Chief Randall Murch, FSRU Chief Bruce Budowle, FSRU Quality Assurance Chief Larry Presley, CTU Chief Roger Martz, research chemists Dr. Mark Miller, Dr. Dean Fetterolf, Dr. Bruce McCord, Dr. Mary Tungol, and Whitehurst.

We find no basis to conclude that Martz committed perjury or misled the jury or defense in the Simpson case. Nor do we conclude that Martz improperly erased digital data from his results. We do conclude that because of his lack of preparation, his deficient record-keeping and note-taking practices, and certain aspects of his presentation and demeanor at trial, Martz poorly represented the Laboratory and the FBI in this case.

## **II. Factual Background**

The prosecution's DNA test results in the Simpson case indicated that O.J. Simpson's blood was found on a rear gate at the murder scene and that Nicole Brown Simpson's blood was found on socks taken by police from O.J. Simpson's residence. The defense suggested in their opening statement that the police had planted this evidence, using known blood samples from Nicole Brown Simpson and O.J. Simpson. The police had collected these known blood samples in test tubes containing the preservative EDTA.

To refute the defense's contention, in late 1994 one of the Simpson prosecutors asked Dr. Bruce Budowle in the FSRU to determine whether the bloodstain evidence from the gate and socks contained the preservative EDTA. In January 1995, at Budowle's direction, various research chemists within the FSRU began

working to develop a method for identifying EDTA-preserved blood. Shortly thereafter, Martz also began working on the same task at the Laboratory in Washington, D.C. By early February 1995, both the chemists in the FSRU and Martz had developed methods, using slightly different procedures, for isolating and identifying EDTA in blood samples.

In mid-February, 1995, the prosecution sent Martz various items for testing, including a cloth swatch with blood from the rear gate (Q204); a pair of socks with blood taken from O.J. Simpson's residence (Q205/206); a known blood sample from Nicole Brown Simpson (K67); and a known blood sample from O.J. Simpson (K68). Martz examined blood from these items using liquid chromatography/tandem mass spectrometry (LC/MS/MS) and high pressure liquid chromatography (HPLC). In his dictation, Martz reported that EDTA was present in the preserved blood samples taken from Nicole Brown Simpson and O.J. Simpson, but not in the bloodstain evidence from the rear gate and socks, in pertinent part, as follows:

EDTA, a blood preservative, was identified on stains prepared from the K67 and K68 blood samples from Nicole Simpson and Orenthal J. Simpson, respectively. No EDTA was identified in the blood stains removed from the Q204 swabbing of the rear gate at the crime scene and from the Q205/6 sock. Traces of EDTA were detected on the stained and unstained cutting from the victim's dress.

In July 1995, Simpson's counsel sent a letter to the FBI requesting all digital data underlying the LC/MS and HPLC testing in the case. The FBI Office of General Counsel (OGC) responded by letter that the underlying digital data had not been saved in the computer. The following day, the OGC clarified this remark in a letter stating that the FBI had saved the digital data underlying its validation studies at the FSRU, but not the data underlying forensic testing by Martz.

On July 25 and 26, 1995, Martz testified in the Simpson case as a witness called by the defense. Martz testified that he came up with the method used to extract blood from the sock and the swatch from the rear gate. He further testified that it took him approximately one week to design the method used for identifying EDTA in blood. He stated that he did his own validation study and did not look at any validation study by the FSRU. He also stated that he was not aware that Quantico had conducted any studies to determine how well his method pulled EDTA out of blood. Later in the testimony, Martz did refer to the work performed by the FSRU.

Martz also answered questions by defense counsel concerning his failure to retain digital data underlying his charts. Martz explained that the raw data is stored on a computer with limited storage space. Martz stated that in this case he printed out the appropriate charts, drew his conclusions, and did not need to look at the data again. Therefore, Martz told us that he permitted the data to be erased. Martz added that there is a tape back-up attachment for this instrument, but it is quite complex. Martz testified that at present there is no way to review this raw digital data; however, it was possible to review the charts representing the digital data or re-run the samples to obtain digital data.

Martz made additional noteworthy statements during his testimony. In particular, when the defense counsel asked whether Martz had decided during a break to become more aggressive in answering questions, Martz responded, I think I decided that I had to be more truthful. I was not telling the whole truth with yes and no answers. . . . I decided that I wanted to tell the whole truth. At another point in the testimony, Martz acknowledged that he had performed analyses using his own blood in May and July 1995, but had not made any notes describing how he conducted the analyses.

After hearing Martz's testimony, Budowle complained to Forensic Science Research and Training Center Chief Kenneth Nimmich that Martz had not properly credited the FSRU for developing the testing procedures. As a result, Nimmich prepared an August 30, 1995, memorandum to Laboratory management that criticized Martz for failing to retain his digital data and for testifying that he did not review or rely upon the FSRU's data and validation study. Nimmich recommended that Martz be orally reprimanded.

In response, Martz wrote two memoranda. In the first, Martz defended his failure to retain digital data by asserting that he had produced a chart of ions of interest whenever coherent data were present. Martz also maintained that he had followed standard CTU practice in allowing the data to be erased as new data was added to the system's limited storage. In the second memorandum, Martz denied that he had misrepresented the involvement of the FSRU. Martz acknowledged that he had worked with members of the FSRU to develop the EDTA test, but added that he had developed and used a negative ion procedure that was different from the procedure developed at the FSRU. Martz also stated that contrary to Nimmich's suggestion, he did not recall receiving a written report of recommended procedures from the FSRU.

After receiving Martz's response, Nimmich wrote a memorandum in which he concluded that Martz had not improperly erased digital data or been less than candid in giving credit to the FSRU. Nimmich noted that Martz had printed out all pertinent data and that it was not practical to save all the digital data. Nimmich also concluded that Martz had given sufficient credit to the FSRU by the completion of his testimony. SAS Chief Randall Murch reviewed the matter and concluded that Martz's testimony raised a performance, not a misconduct, issue. Murch and Deputy Laboratory Director Thompson later counseled Martz about his lack of precision in testifying and his need to give credit to others.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst did not conduct any analyses in the Simpson case and watched only a few minutes of Martz's testimony on television. Whitehurst makes clear that his comments are based on his conversations with others rather than on first-hand knowledge. Based on these conversations, Whitehurst reports the following allegations:



## **A. The Claim that Martz Committed Perjury by Testifying that He Authored the Testing Procedures**

Whitehurst reports that FSRU chemists told him that Martz committed perjury by representing himself as the author of the protocol used to analyze the evidence. According to Whitehurst, these FSRU chemists actually developed the protocol that Martz used.

To evaluate this claim, we reviewed the sequence of events leading to Martz's examination of the evidence. Research chemists at the FSRU in Quantico, Virginia, began preliminary methods development as early as January 18, 1995. Dr. Dean Fetterolf of the FSRU began running samples using liquid chromatograph/mass spectrometry (LC/MS), although, according to Dr. Mark Miller at the FSRU, Fetterolf's initial results were not promising. In the meantime, Dr. Bruce McCord employed ion chromatography (IC) as a detection method. At about the same time, Miller and Martz at the FBI Laboratory in Washington, D.C., also began developing testing methods using the LC/MS method. Throughout this period, Miller and Martz shared information with one another about instrumental parameters, solutions, and preliminary results from testing positive and negative controls (samples with and without added EDTA).

On February 2, 1995, Miller recorded a method for identifying EDTA in dried blood stains using an aqueous extraction followed by Electrospray Liquid Chromatography/Tandem Mass Spectrometry (ES-LC/MS/MS). To test the validity of this method, Budowle prepared 42 dried bloodstain samples for blind testing at the FSRU. On February 9, 1995, using McCord's procedure for preparing the samples, Miller ran the 42 blind stains using ES-LC/MS/MS in the positive ion mode. In his notes of that validation study, Miller reported that this method correctly determined all 42 samples for EDTA. On February 10, 1995, Miller wrote up his method, which entailed aqueous extraction, injections on LC/MS/MS, specific instrumental parameters, and positive ion MS/MS. As part of these efforts, Miller also conducted a recovery study in which he added a known amount of EDTA to a blood sample and then recovered and measured the EDTA from the sample.

Throughout this time period, Miller conferred by telephone with Martz, who continued to test blood samples at the FBI Laboratory. Martz utilized LC/MS/MS in the positive ion mode, but also began using LC/MS/MS in the negative ion mode, a procedure that was not the focus of the work by Miller and McCord. Martz designed this procedure using different instrumental parameters and a different mobile phase than the positive ion mode procedure used at the FSRU. While not as sensitive as positive ion mode procedure, this negative ion mode procedure was more selective for ions of EDTA. On February 8, 1995, Martz conducted his own validation study of this method.

On February 19, 1995, Martz utilized this LC/MS/MS procedure in the negative ion mode to analyze the known samples of preserved blood taken from Nicole Brown Simpson and O.J. Simpson and the bloodstain evidence from the rear gate and socks. Miller assisted Martz in that analysis at the FBI Laboratory. Using this procedure, Martz was able to detect EDTA in the known samples of preserved blood from Nicole Brown Simpson and O.J. Simpson, but not in the bloodstains from the rear gate and socks. These results appear in Martz's report. In the following week, Martz also used the positive ion mode procedure substantially similar to that used at the FSRU to test the known blood samples from Nicole Brown Simpson and O.J. Simpson and to conduct parent-daughter ion experiments with the bloodstain evidence from the gate and socks. Martz also used a High Pressure Liquid Chromatography procedure, which confirmed Martz's reported results.

With this background, we conclude that on balance, Martz's testimony fairly characterized his responsibility for the testing procedures and was not false or perjury. To be sure, early in his testimony, Martz emphasized his own role in developing a set of conditions for using LC/MS/MS in the negative ion mode. He testified that he designed the method over a period of one week and described it as my method. He stated that he conducted his own validation study and did not look at a validation study by the FSRU. He added that if the defense counsel wanted to know about the FSRU's validation study, the defense counsel would have to ask them. He stated that he was not aware of any FSRU study to test the efficiency of his extraction method. Martz also indicated that he was responsible for the method used to extract blood from the sock and gate

swatch. At least initially, Martz appeared to ignore the contributions of the FSRU.

Martz corrected that impression later in his testimony, however. Martz testified that the studies that I did and the studies that were done at Quantico demonstrated that one could easily distinguish between preserved and non-preserved blood. He further testified that he ran a blind test on February 8, 1995, and analyzed the results with procedures developed by myself and--at Quantico . . . . Martz later acknowledged that the FSRU had tested the efficiency of his extraction method. Martz further testified that he kept current in the field of mass spectrometry by contact with his peers, noting, [W]e have a staff at Quantico, a lot of Ph.Ds that do a lot of research and we keep in contact with them.

In reaching the conclusion that Martz did not commit perjury, we also considered the comments of the scientists at the FSRU. McCord, Fetterolf, Miller, and Budowle all told us that they did not consider Martz's testimony to be perjurious or inaccurate. Budowle and Miller noted that Martz appeared initially to take credit for work at the FSRU, but later gave credit to the FSRU. Fetterolf and Budowle told us that they viewed Martz's problem as one of presentation and demeanor.

In sum, we find that Martz's testimony was sufficient to communicate his collaboration with the FSRU, as well as his role in developing the particular negative ion procedure used to analyze the evidence. We find that Martz did not testify falsely or commit perjury by claiming that he authored this procedure.

**B. The Claim that Martz Misled the Court  
Concerning the FSRU's Validation Study and  
Other Matters**

According to Whitehurst, scientists at the FSRU also reported that Martz gave misleading testimony concerning the validation studies and other matters.

During his examination by defense counsel, Martz testified that he was aware that the FSRU did something that they called a validation study. The defense counsel asked whether Martz looked at or reviewed these materials. In response, Martz testified that he did not look at those validation materials and noted that the FSRU had not prepared these materials for him.

Our investigation showed that this testimony by Martz was accurate. Miller told us that he and Martz spoke by telephone about the study, but he did not believe that Martz received from the FSRU any written materials about this validation study. Nor, according to Miller, did the FSRU prepare anything else about the validation study for Martz. During our interview, Martz also denied receiving any such materials from the FSRU before testifying. While it seems clear that Martz did not receive or review the FSRU's validation materials, Martz could have been clearer by noting that Miller had advised him of the validation results.

Martz also testified that he conducted his own validation study. Again, our investigation showed that this testimony by Martz was accurate. Martz's notes confirm that on February 8, 1995, he ran samples as a blind test in the negative ion mode. Miller also recalled that Martz conducted his own testing at the FBI Laboratory using negative and positive controls. Miller understood that Martz generated his own samples for these tests.

Whitehurst further reports that Martz was criticized for testifying that the testing method validated itself. The transcript shows that the defense counsel asked who bore responsibility for validating the test, and Martz replied, [t]he test validates itself basically. Standing alone, this statement appears to be nonsensical. However, Martz immediately went on to explain that the process of validation involves determining that the chemical can be extracted, identifying the chemical based on its mass spectrum, establishing the instrumentation, and using standards and controls to confirm the results. Under

the circumstances, we do not think that Martz's statement was erroneous or misleading.

Martz also testified that he was not aware that Quantico had conducted a recovery study to determine how well the extraction method pulled EDTA out of blood. Simpson's counsel asked Martz to review that study at the lunch break. After the lunch break, Martz testified that he had telephoned the FSRU and learned that the extraction method removed approximately 93% of the EDTA from the blood sample.

We do not think that Martz misled the trier concerning his knowledge of this recovery study. Miller told us that he had previously informed Martz of the results of the recovery study, but Martz apparently forgot. Miller recalled speaking with Martz at the lunch break and again informing him of those results. Martz likewise told us that he did not recall ever learning about those results until the time of trial. Also consistent with Martz's statement, our review of Martz's notes in the case did not disclose any notes about the recovery study.

Although we conclude that Martz did not mislead the court as suggested by Whitehurst, we think this case illustrates the importance of principal examiners reviewing the work performed by other examiners and researchers. Given the importance of this case and the obvious expertise on the defense side, Martz was surprisingly unprepared for his testimony. For example, Martz was not aware that the FSRU had conducted studies to determine how well his extraction method pulled EDTA out of blood. Nor had he reviewed the charts, graphs, and notes from the validation study conducted by the FSRU. Had Martz conducted this review, he might have side-stepped much of the attack on his method. We think that Martz's failure to prepare explains why he was not clear in describing the validation efforts performed by the FSRU and, by extension, giving credit to the FSRU for that work. Thus, we conclude that one element in Whitehurst's allegations -- that Martz did not review well the work that had been done -- is accurate.

### **C. The Claims That Martz Misled the Defense Concerning His Erasure of Digital Data and Improperly Erased Digital Data**

Whitehurst also reports that Martz was criticized for misleading the Simpson defense. Martz reportedly told the defense that he had erased the digital data underlying the testing, when in fact the FSRU still possessed such digital data.

The evidence does not support Whitehurst's suggestion that Martz misled the defense concerning the digital data. Our investigation showed that on July 9, 1995, Simpson's counsel sent a letter to the OGC requesting the digital data underlying the LCMS and HPLC testing which was done. In response, OGC attorney John Sylvester contacted Martz, who informed Sylvester that he had not saved his digital data. Martz told us that in reporting the absence of this data, he spoke only for himself and did not make any representations on behalf of the FSRU. Accordingly, on July 10, 1995, Sylvester sent a letter to Simpson's counsel stating that the data had not been saved. Sylvester told us that when Budowle received a copy of Sylvester's letter, he notified the OGC that the FSRU had in fact saved its digital data. As a result, on July 11, 1995, counsel in the OGC sent another letter advising Simpson's attorneys that the FBI had saved the digital data for the validation studies but not for the forensic testing. The foregoing shows that Martz truthfully reported that he had not saved the data underlying his own LCMS and HPLC testing. We discern no effort on Martz's part to mislead.

We also find no support for the allegation that Martz improperly erased his digital data. Martz's decision not to retain digital data, while perhaps subject to criticism for tactical reasons at trial, cannot be criticized from a scientific perspective. The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) provides guidance concerning the documentation requirements for such analyses. Under Essential Criterion 1.4.2.14 of ASCLD/LAB Manual, the Manual provides that case records such as notes, worksheets, photographs, spectra, printouts, charts and other data or records which support conclusions must be generated and kept by the laboratory. ASCLD-LAB Manual at 19 (Jan. 1994) (emphasis added). In its discussion section for that provision, the Manual further provides:

In general, documentation to support conclusions must be such that in the absence of the examiner, another competent examiner or supervisor could evaluate what was done and interpret the data. . . Examples of analytical documentation would include reference to procedures followed, tests conducted, standards and controls used, diagrams, printouts, autoradiographs, photographic, observations, and results of examinations . . . where instrumental analyses are conducted, operating parameters should be recorded.

ASCLD-LAB Manual at 30-31 (Jan. 1994).

Consistent with these guidelines, Martz retained in hard copy form all mass spectra that demonstrated the detection of any significant ions and upon which he based his conclusions. These charts would have enabled a competent examiner to interpret Martz's data and evaluate his conclusions. Martz was not required to retain his digital data. The digital data that Martz allowed to be erased, and which was not otherwise reflected in hard copy, was not material to Martz's conclusions.

In reaching this conclusion, we also recognize that the limitations of electronic storage made it difficult for Martz to retain this data. A mass spectrometer is capable of scanning streams of ions and recording data every one and one-half seconds, resulting in hundreds of scans collected in digital form and relatively few spectra of interest. In view of the amount of data that could be collected, the Finnegan TSQ 700 mass spectrometer used by Martz in the Laboratory had a cumbersome and inefficient long-term storage system. The available magnetic tape back-up system reportedly stored just 90 megabytes per tape and did so sequentially. Given the constraints of the instrumentation, it would have been extremely time consuming to record all of this digital data and difficult to locate and download information when needed.

Although we do not criticize Martz's erasure of the digital data under the circumstances of this case, we are troubled by Martz's other record-keeping practices. Martz testified that he examined his own blood for the presence of

EDTA in May and July 1995, but did not make any notes describing how he conducted these analyses. Martz explained at trial that because he examined his own blood in the same way he had examined other samples, he decided not to write down the procedure again. Martz further stated that he did not prepare a report because he considered these runs to be research, not case work. According to Martz, he would not generate a report when he did case-related research if he thought he could readily remember the examination.

Martz's rough notes in this case confirmed the absence of any notes or reports of these examinations. Additionally, Martz failed to number and initial his notes, identify the case number in some notes, or set forth his procedures for some of his testing.

We find the foregoing record-keeping practices to be unacceptable. Martz should have made and retained notes describing his procedures, even if he considered the procedures to be background research and not case work. As a general rule, an examiner should make and retain notes for all work related to any case, but especially work that might be the subject of examination at trial. Further, another examiner should be able to review such notes and have a complete understanding as to all procedures performed in any case. Martz's work in this regard was deficient.

#### **D. Criticism of Martz's Presentation**

Whitehurst also reports that scientists in the FSRU were critical of the manner in which Martz testified.

At the outset, we observe that contrary to the suggestion of the defense, Martz's analysis was sound. Martz employed well-established analytical techniques to isolate and identify EDTA in dried blood, and he answered the specific question raised in the case. While Martz came under intense questioning by the defense for not conducting various additional studies, we are not critical of



Martz on these grounds. Given an unlimited amount of time and resources, the FBI Laboratory could have conducted all sorts of studies on myriad related and tangential issues. But the reality is that Martz's role was to generate probative information based on the limited samples provided and return the samples for further independent analysis if necessary. He accomplished that task, and it does not appear that any other expert in the case repeated his work and came to any other conclusions.

All things considered, however, the Laboratory would have been better served by assigning another examiner in the CTU to this case. By his own admission during testimony, Martz had many other responsibilities at the time as the Unit Chief and Acting Section Chief. Martz's poor preparation, his lack of a toxicological background, and his maladroitness as a witness were evident when he misstated the value for pi, admitted that he was unfamiliar with the word pharmacokinetics, commented about the need to tell the whole truth, and appeared to boast that he was the foremost expert in EDTA testing. Furthermore, our review of a videotape of portions of Martz's testimony showed that Martz appeared to be unprepared, ill-at-ease, and defensive -- characteristics that undermined his effectiveness as a witness. In a high profile case such as this, consideration should have been given to assigning the case to an examiner with a stronger toxicological background. In this respect, Laboratory management must bear some responsibility for Martz's testimony in this case.

Perceptions by the court or jury as to the credibility of experts are often influenced by factors such as demeanor, presentation, and background. On these dimensions, Martz was not at all impressive.

#### **IV. Conclusion**

We find no basis to conclude that Martz committed perjury or misled the trier of facts or defense in the Simpson case. Nor do we conclude that Martz improperly erased digital data underlying his results. We do conclude that because of his lack of preparation, his deficient record-keeping and note-taking

practices, and certain aspects of his presentation and demeanor at trial, Martz poorly represented the Laboratory and the FBI in this case.

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## **SECTION G: OKLAHOMA CITY BOMBING**

### **I. Introduction**

On April 19, 1995, an explosion destroyed the Alfred P. Murrah Federal Building in Oklahoma City, Oklahoma, resulting in the deaths of 168 people. A massive investigation was undertaken by the FBI, as lead agency, with the assistance of other agencies including the Bureau of Alcohol, Tobacco and Firearms (ATF). Two persons, Timothy McVeigh and Terry Nichols, were indicted for causing the blast, but have not yet been tried.

In 1995 SSA Frederic Whitehurst sent the OIG correspondence criticizing members of the Laboratory for their handling of the Oklahoma City case. On January 9, 1996, Whitehurst sent the OIG a 30-page letter criticizing the September 5, 1995, FBI Laboratory explosives report of SSA David Williams in that case. Whitehurst contends that Williams' report goes beyond Williams' expertise, is biased in favor of the prosecution, and contains unjustified conclusions.

To investigate Whitehurst's allegations, we interviewed Whitehurst, Williams, EU Chief J. Thomas Thurman (who reviewed and approved Williams' report), Steven Burmeister (a CTU explosives residue examiner who worked on the case), James Corby (former MAU Chief), as well as other FBI and ATF personnel, some of whom worked at the scene of the blast. We also submitted written questions to Roger Martz, the CTU Chief who worked briefly on the Oklahoma City case. Additionally, we considered pertinent FBI documents and applicable literature in the field of explosives.

As explained below, we conclude that in his report Williams repeatedly reached conclusions that incriminated the defendants without a scientific basis and that

were not explained in the body of the report. We find fault with other aspects of the report as well. We also conclude that Thurman performed an inadequate review of Williams' report by allowing Williams too much discretion and by approving conclusions with which Thurman disagreed and could not support. Further, we conclude that Martz improperly deviated from the explosives residue protocol in his examination of some specimens. Finally, we conclude that Whitehurst's numerous other contentions lack merit.

The following section (Section II) analyzes Williams' report, and Section III addresses Thurman's review of the report. Section IV addresses allegations concerning Martz's examination of evidence. Section V states our conclusions.

## **II. Williams' Report**

### **A. Velocity of Detonation**

As discussed with reference to the Trade Center bombing, Williams is the only EU examiner who has offered opinions of a specific velocity of detonation (VOD) of the main explosive of a bombing based on the damage at the crime scene. See Part Three, Section C, n.24, supra, and accompanying text. Williams has done so in two cases, the World Trade Center case and the Oklahoma City case. Williams' September 5, 1995, Oklahoma City report reads as follows:

During initial inspections and subsequent examinations of the crater, explosive damage to the bomb laden vehicle, witness buildings, automobiles, victims and other local witness materials, it is the opinion of this examiner that the explosive utilized as the main charge had a Velocity of Detonation (VOD) of approximately 13,000 feet per second (fps).

In his OIG interview Williams stated that this 13,000 feet per second opinion had a tolerance on either side of 1,000 feet per second.

For the reasons stated in our discussion of the World Trade Center case (see Part Three, Section C, p.118, supra), Williams' specific VOD opinion in the Oklahoma City case lacked an adequate scientific and empirical basis.

Williams also stated in his report that [a] fertilizer base explosive, such as ANFO (ammonium nitrate and fuel oil), among other commercial and improvised explosives, has an approximate VOD of 13,000 fps. Williams thus stated that the approximate VODs of both the main charge and ANFO were each 13,000 feet per second, which supported his theory that the main charge was ANFO.

The statement of the VOD of ANFO, however, is incomplete because ANFO has a broad VOD range. For example, the Dupont Blasters' Handbook (Dupont) shows commercial ANFO products with VODs in the 7,000-15,600 feet-per-second range. When Williams wrote his Oklahoma City report, he was aware of this range:

OIG: . . . [A]t the time of the World Trade Center bomb [February 1993], what did you understand the velocity of detonation of ANFO to be?

AGENT WILLIAMS: About -- about 13,000 feet per second.

OIG: Okay.

AGENT WILLIAMS: And that was the average.

And I did know that ANFO can function as slow as 8,000 feet per second or slower and as fast as, if not faster, than 15,000 feet per second.

Additionally, Williams' working hypothesis in the Oklahoma City case was that the ANFO used by the perpetrators was not produced commercially but was rather improvised -- that is, the offenders mixed the ammonium nitrate and diesel fuel themselves. Presumably the quality control of improvisers would be inferior to that of commercial manufacturers. If the ingredients were not combined in the correct ratio, the VOD of the resulting explosive might be reduced. Accordingly, improvised ANFO would have at least as broad a range of VODs as that of commercial ANFO.

Thus, ANFO can detonate at a VOD of 13,000 feet per second, but it can also detonate at lower (7,000 feet per second) and higher (15,600 feet per second) velocities. By only mentioning an ANFO velocity of 13,000 feet per second, Williams suggested too strongly that there was an exact match between the VOD of ANFO and his reported VOD of the main charge.

## **B. Identification of the Explosive**

Williams testified at his OIG interview that determining that the main charge had a specific VOD of 13,000 feet per second, with a tolerance on either side of 1,000 feet per second, did not limit the main charge to a specific explosive. Williams acknowledged that there are a lot of different explosives in the range of 12-14,000 feet per second. Williams also acknowledged that although ammonium nitrate crystals were found at the post-blast scene, there are many explosives in the range of 12-14,000 feet per second that have ammonium nitrate in them. Nevertheless, Williams concluded in his report ( it is also the opinion of this examiner ) that the main explosive used at Oklahoma City was ANFO. He acknowledged that he reached this conclusion, in part, because Terry Nichols, one of the defendants in the case, purchased ammonium nitrate

and diesel oil prior to the bombing. Without the evidence of these purchases, Williams admitted he would have been unable to conclude that ANFO was used. Indeed, Williams stated that based on the post-blast scene alone [i]t could have been dynamite; I'm suggesting that there could have been other things.

We conclude that it was inappropriate for Williams to render a categorical opinion in his report that the main charge was ANFO. As discussed with reference to the World Trade Center case, it is inappropriate for a forensic Laboratory examiner to identify the main charge based in whole or in part on prior knowledge of the explosive components purchased by a defendant. Such an identification is not based on scientific or technical grounds and appears to tailor the opinion to evidence associated with the defendants.

Moreover, Williams' report does not mention that the defendant's purchases were the basis of the ANFO opinion. The report is presented as an FBI Laboratory report. It begins with the phrase, Results of examination: . The reader is left with the impression that the opinions presented are based on the scientific analyses of the FBI Laboratory. Accordingly, Williams' opinion that the main charge was ANFO appears to be based solely on his technical expertise as an explosives examiner and thus appears to be very incriminating to someone (like defendant Nichols) who allegedly purchased ANFO components before the Oklahoma City explosion. The opinion is thus misleading and presents the case in a way most incriminating to the defendants. Had Williams explicitly stated in his report that the ANFO opinion was based on the defendant's purchases, the opinion could have been appropriately discounted as a non-expert conclusion that seeks to match the characteristics of the explosion with evidence associated with the defendants.

As indicated, Williams told us that the crime scene was consistent with the use of an ammonium nitrate dynamite, which could have had a VOD in the range Williams estimated. The major components of ammonium nitrate dynamite (ammonium nitrate and nitroglycerin) were found at the crime scene. A dynamite wrapper was also found. Williams' report, however, fails to address the possibility that the main charge consisted of dynamite, which an objective report would explicitly have discussed.

We conclude that Williams' categorical conclusion that the main charge was ANFO was not scientifically justified and was based on improper grounds.

### **C. Weight of the Explosive**

We question the basis for Williams' conclusion that the weight of the main charge was approximately 4000 pounds of ANFO.

As discussed in the section on the World Trade Center (see Part Three, Section C, pp. 132-134, supra), Williams' method of determining weight is impressionistic and depends on his VOD estimate, which is itself speculative. As noted in that section, other members of the EU do not routinely estimate the quantity of the explosive from a damage assessment because the placement and confinement of the explosive have a significant effect on the amount of the damage. Nevertheless, we concluded in the Trade Center case that Williams' size estimate of 1,000-1,500 pounds, which he characterized as a ballpark figure, was not, as such, an unreasonable opinion because he offered such a broad range.

With respect to the weight of the explosive, Williams' Oklahoma City report differs from his trial testimony in the Trade Center case in two respects. First, the Oklahoma City report does not offer a broad range but limits the estimate to approximately 4000 pounds of ANFO.

Second, it appears that Williams' opinion was based in part on the recovery of receipts showing that defendant Nichols purchased 4,000 pounds of ammonium nitrate. Williams testified at the OIG interview:



OIG: . . . [Y]our conclusion as to 4,000 pounds, is that based on your observations at the crime scene?

AGENT WILLIAMS: Within this report, yes, it is.

OIG: That's not based on the searches or anything? Your conclusion as to 4,000 pounds, is that based on anything that was recovered in the searches or receipts or what they ordered?

AGENT WILLIAMS: Yes, it is. . . . It's not solely based -- my estimate of 4,000 pounds is not solely based on the receipts. By looking at the crime scene, the crater, looking at this Conwep program<sup>□</sup> and such, all of these things suggest that by the crater size and by the crater size alone with Conwep suggest 4,000 pounds.

By other things, including the crater size, the blast damage, breakage, building damage, I can estimate it's approximately 4,000 pounds.

Saying that his 4,000 pound estimate is not solely based on the receipts implies that the opinion was based on the receipts in part. To this extent, the opinion was flawed for the same reason Williams' ANFO opinion was flawed because it was based on the receipts. Moreover, if Williams' opinion was based, in part, on the receipts, his report should have said so.

We conclude that Williams' weight estimate was flawed because it was more specific than warranted by the application of the forensic science and because it

was based in part on collateral sources unrelated to laboratory or crime scene observations.

#### **D. Other Conclusions Concerning the Explosive Device**

Several other conclusions in Williams' report were overstated and conformed to evidence associated with the defendants.

1. The report concludes that [t]he explosive main charge was contained in 50 gallon size white plastic barrels and white plastic barrels with blue plastic trim. Recovered at the blast site were white, blue, and black plastic fragments. Williams testified at the OIG interview that these fragments showed very unique explosive damage. Assuming the pieces were from a plastic barrel, [y]ou could tell the inside as compared to the outside of the barrel [fragments]. And in many cases, you could see that the explosive force came from inside to outside of the barrels. According to the AE dictation, the markings on one of these plastic fragments are similar to markings on 50 gallon size white plastic barrels and white plastic barrels with blue plastic trim recovered at defendant Nichols' residence.

We think it is unwarranted to render a categorical conclusion that the main charge was contained in plastic barrels of the same description as those found at Nichols' residence. First, Williams assumed that the main charge was ANFO, which would need containers for transport or storage. As explained above, the conclusion that the main charge was definitely ANFO was unwarranted. Second, since the Laboratory apparently has not made measurements such as the radius of curvature of the fragments (assuming they came from containers), it is virtually impossible to know that the containers definitely were 50 gallon barrels that were white or white with blue trim.

We conclude that Williams lacked a proper basis to state categorically that the main charge was contained in 50 gallon size plastic barrels of the description of those found at Nichols' house.

**2.** Williams' report states that [t]he initiator for the booster(s) was either a detonator from a Primadet Delay system or sensitized detonating cord. Primadet systems were found at defendant Nichols' house and an accomplice's house. Detonating cord normally contains PETN, which laboratory examinations associated with defendant McVeigh. No evidence of a Primadet system or sensitized detonating cord was found at the crime scene. As Williams told us at his OIG interview, the device used in the bombing is consistent with a Primadet system or detonating cord. I can't say yes and I can't say no. EU Chief Thurman told us in his interview that the appropriate conclusion was that the Primadet system or sensitized detonating cord could have been used. We conclude that it was improper for Williams to render a categorical conclusion identifying the initiator for the booster.

**3.** Williams' report also states that [t]he initiator for the primadet or the detonating cord was a non electric detonator; [n]on electric, burning type fuse of either hobby fuse or a commercial safety fuse was used as a safe separation and time delay system ; and [t]he time delay for the burning fuse was approximately 2 minutes and 15 seconds. Evidence linked the defendants to a burglary in which non-electric detonators were taken, and the named fuses were found at locations associated with the defendants. No evidence of a non-electric detonator or the named fuses, however, were found at the crime scene. Williams' conclusions were based in part on a videotape showing a Ryder truck appear near the Murrah Federal Building 2 minutes, 15 seconds before the explosion. Based on the tape, Williams posited that a 3 foot burning fuse was used, which he said would correlate with 2 minutes, 15 seconds.

We find that Williams' conclusions are overstated. The scenario he posits is one of many possibilities. For example, as acknowledged by Thurman, the initiator could have been electric, and the fuses named in the report were possibilities but not the only ones. Further, there could have been a longer time delay that was initiated before the truck appeared in the video.

Williams also stated in the OIG interview that his conclusion that the bomber used a 3 foot fuse was based on his assumption that the perpetrator had a military background. (Both defendants have military backgrounds.) It was improper for Williams to make that assumption unless he could do so based on the scientific evidence, and there is nothing in his report suggesting that the evidence indicates that the blast was perpetrated by someone with a military background.

We conclude that the categorical conclusions discussed above were inappropriate.

#### **E. Bases for Conclusions**

Williams' report is twenty-eight pages long and treats many subjects. The last two pages consist of conclusions, many of which are discussed above and most of which are categorical statements. The bases for these conclusions, however, are absent from the report. A reader of the report, for example, does not know why Williams concluded that the main charge was approximately 4,000 pounds of Ammonium Nitrate and Fuel Oil (ANFO) mixture or why the initiator for the primadet or the detonating cord was a non electric detonator. As acknowledged by Thurman, the conclusions in a report should be based on, and flow from, the contents of the report. Williams' report failed to meet that standard. As we discuss in Part Six, *infra*, we recommend that opinions in reports should be reasonably supported by the analysis and data, which should be described in the report.

#### **F. Restatement of AE Dictation**

Although many examiners from different units in the FBI Laboratory may work on a given case, the Laboratory requires one of the examiners (the principal

examiner or PE ) to issue the official Laboratory reports in the case. The other examiners (the auxiliary examiners or AEs ) submit their reports ( dictation ) to the PE for incorporation in the official report. In 1992 Whitehurst complained that Thurman did not incorporate some of his AE dictation verbatim, and the matter was reviewed by the management of the Laboratory. See Section H10, infra. On September 1, 1994, the FBI Laboratory issued a policy memorandum explicitly requiring verbatim inclusion of AE reports. The memorandum purported to be a restate[ment of] long-standing policies. Thus, at the time of Williams' Oklahoma City report (September 5, 1995), he should have been well aware of the policy of verbatim inclusion of AE dictation.

Two passages in Williams' report (concerning specimens Q18 and Q171) raise questions about whether Williams attempted to circumvent the verbatim-inclusion rule with respect to two AE dictations of Steven Burmeister. We are unable to conclude that Williams intentionally violated the rule because Williams told us that Burmeister orally agreed to the modifications and Burmeister cannot recall whether he did so. However, one of the modifications makes no sense, and should at least have been rewritten. Both modifications exemplify the need for strict adherence to the verbatim-inclusion rule and the problems that can arise with oral agreements to modify reports.

## **1. Specimen Q18**

The pertinent part of Burmeister's dictation regarding specimen Q18, the knife seized from defendant McVeigh at the time of his arrest, is as follows:

The results of an instrumental examination of residues removed from the blade portion of specimen Q18 was consistent for the presence of pentaerythritol tetranitrate (PETN). . . . The presence of PETN . . . could not be confirmed in specimen Q18.

Williams reproduced this passage verbatim in a report issued before his September 5, 1995, explosives report. But in the September 5th report Williams stated as follows: Traces of PETN were located on specimen Q18, however could not be confirmed. This statement comes in the section of Williams' report dealing with the booster used in the explosion, and the report states that a booster can take the form of several different high explosives including PETN.

The statement [t]races of PETN were located on specimen Q18, however could not be confirmed is internally inconsistent and nonsensical. Confirmation is a prerequisite for a determination that a substance is located on an exhibit. Without confirmation of PETN, the exact identity of the traces on Q18 is unknown. Because there was no confirmation here, the report should not have said that traces of PETN were located on specimen Q18.

Williams insisted at his OIG interview, despite vigorous questioning on the matter, that the statement was not internally inconsistent. Of the many reasons for the verbatim-inclusion rule, we assume one is that the PE normally will lack expertise in the AE's area, and will therefore lack the competence to review or change the AE's conclusions. That reason may apply here. Because Williams apparently does not understand the role of a confirmation test in determining whether a substance is located on a specimen, he would have been unqualified, on his own, to rephrase Burmeister's AE dictation, and should have reproduced it verbatim in his explosives report.

Williams, however, stated in his OIG interview that Burmeister approved Williams' language [t]wice. Burmeister, however, told us that he did not recall discussing the statement with Williams. In response to a hypothetical question, Burmeister stated:

If Dave [Williams] came and showed me that sentence and I sat and read it like I'm doing now, I would have to tell him, I think it's a little strong. I think it has more implications than what I'd prefer to go with, and what I will be testifying to.

Given the conflict between Williams and Burmeister, we are unable to say whether Burmeister approved Williams' language. If Burmeister did approve the language, he would have erred for the reasons given in his answer to the hypothetical question.

Williams told us that the reason he wrote the statement as he did was to draw attention to the statement so it could be more fully addressed in court. That purported justification, however, is an insufficient basis for including a self-contradictory statement in a report.

We conclude that either Williams (for writing it) or Burmeister (for possibly approving it), or both, erred by including the statement in the report. The better course would have been for Williams simply to have reproduced the AE dictation verbatim.

## **2. Specimen Q171**

The pertinent portion of Burmeister's dictation regarding specimen Q171, an item recovered at a location associated with one of the defendants, is as follows:

The results of an instrumental examination of residues removed from specimen Q171 identified the presence of ammonium and nitrate ions. . . .

Since ammonium and nitrate ions have been found to occur naturally in the environment[,] the source of these two components in the specimen residues can not be determined. □

Williams reproduced this passage verbatim in a report issued May 24, 1995. But in the section of the September 5, 1995, explosives report concerning ANFO, Williams included only the first paragraph of the passage and replaced the second paragraph with: You should refer to the Laboratory report dated May 24, 1995 for additional information and examination techniques concerning specimen Q171.

Williams gave the following reasons for replacing the second paragraph of Burmeister's dictation:

On this particular case and speaking with Steve, Q171 had an unusual configuration of ammonium and nitrate ions<sup>□</sup>, which was more significant than the other ammonium ions or nitrate ions that were found on other specimens.

And the reason that I put it in here was specifically to do exactly what that statement did. It attracted attention . . . .

In Steve's report it says they are found in nature. So one would just brush that away. Here, this is drawing attention so that Steve gets asked more detail about that.

These reasons do not justify replacing the second paragraph of the dictation. As for the first reason, if Burmeister thought the concentration of the ions had significance, the proper way of calling attention to this finding would have been to add it to the dictation. The second reason implies that one purpose of replacing the second paragraph was to, in effect, hide it so that the first paragraph was not brush[ed] away. This would be improper. If the chemist's



conclusion embraces the second paragraph, it is beyond Williams' expertise, and outside his discretion as PE, to discount it.

Williams stated in his OIG interview, however, that Burmeister approved the replacement of the second paragraph. Burmeister did not recall whether or not he approved the replacement. Accordingly, we are unable to confirm Williams' assertion that Burmeister sanctioned the replacement.

During the course of Williams' discussion of Q171, he expressed the following opinion:

[T]his is strictly my opinion -- if we're going to go forward within our laboratory and tell everyone why this stuff could not exist -- okay.

We found ammonium and nitrate ions; it's of no relevance. We found nitrate ions; it's of no relevance. If we keep saying this is of no relevance, why are we even having chemists do examinations?

These are troubling sentiments. A forensic scientist should make his/her best effort to reach accurate conclusions, regardless of their impact on the prosecution's or defense case. It is up to the prosecution or defense to establish, through expert testimony, the relevance or weight that such data should be accorded.

We conclude that Williams should not have replaced the second paragraph of Burmeister's dictation and that Burmeister erred if he agreed to the replacement. If the concentration of the ions was significant, Burmeister should have amended his dictation to include this finding.

## **G. Other Allegations**

In his January 9, 1996, letter, Whitehurst makes numerous additional allegations, most of which lack merit.

- 1.** Whitehurst claims that on several occasions in Williams' report Williams exceeds his expertise (points 1, 3, 6-12, 15, 19). On each occasion, however, Williams relied on other experts, including AEs, whose dictation he included verbatim.
- 2.** Whitehurst questions Williams' conclusion that none of the structural damage evident within the Murrah building was caused by secondary explosive devices or explosions. Whitehurst asserts that Williams cannot test his hypothesis unless he rebuilds the Murrah building and explodes it again with secondary charges to see whether the damage is different. We reject Whitehurst's assertion that the Murrah building must be rebuilt and destroyed again in order to render a valid opinion about secondary explosive devices. We find reasonable support for Williams' opinion. This included the failure to find damage consistent with another seat of an explosion and the opinions of seismologists who concluded that there was a single blast with ancillary or auxiliary blast effects traveling surface and subsurface.
- 3.** Whitehurst questions Williams' conclusion that tire fragments displayed high explosive damage. Williams told us that there is really unique kind of explosive damage, something that in the courtroom someone could see that this tire wasn't a blowout, it wasn't overinflated. We have not viewed the tire fragments. For Williams' opinion to be valid, it should be supported by empirical studies of high explosive damage to tires or substantial experience with such damage.
- 4.** An AE submitted the following dictation, which was reproduced verbatim in Williams' report:

This yellow film [on Q507] and the yellow film from K169 were examined microscopically, microchemically and instrumentally. Based upon the comparison examinations conducted, the yellow film from Q507 was determined to match the Tedlar film from K169 in color, type and composition. Therefore, it was concluded that Q507 could have originated from the box portion of a Ryder truck like that represented by K169.

Whitehurst criticizes this opinion on the ground that the FBI's paint protocol has not been validated.

Although we have not viewed the data or charts underlying the AE's opinion, we have no problem with the opinion's form. In the above passage, the AE stated what he did ( examined [the film] microscopically, microchemically and instrumentally ) and stated that his opinion of a match was [b]ased upon the comparison examinations conducted, which was accurate. Assuming the AE accurately reported his results, his conclusion ( that Q507 could have originated from the box portion of a Ryder truck like that represented by K169 ) does not appear to be overstated.

The FBI's paint protocol should be validated. This could be done through the FBI's own documented tests or by determining that the protocol uses peer-reviewed procedures commonly accepted in the literature or in industry. We were told by James Corby, the former MAU Chief, that at the time of his retirement from the FBI (December 1995) the FBI was in the process of validating the paint protocol for the purpose of ASCLD/LAB accreditation.

Whitehurst asserts:

When I talked with Unit Chief James Corby shortly before his retirement in December 1995, he advised me that he agreed with me, that we do not determine the composition of paint and that

because we have not validated the paint protocol we can not say that the two compositions are the same.

Corby denied Whitehurst's assertion. Corby thought the FBI could analyze paint pursuant to the protocol and render valid opinions, even though the protocol was not yet validated. In any case, the AE did not state categorically that the two compositions were the same, as Whitehurst contends, but merely that based on specified examinations/comparisons, one could have originated from the other.

**5. Williams observed in his report:**

Specimen Q1954 is the rear door latch from the bomb laden truck. The specimen displays extensive high explosive damage, such as pitting and cratering.

Whitehurst contends that Supervisory Special Agent Richard Hahn's testimony about pitting and cratering in the Avianca case (see Section E, supra) constitutes exculpatory evidence relative to the Oklahoma City case.

Whitehurst is incorrect. Hahn testified that the pitting and cratering in Avianca indicated a high explosive with a VOD in the area of 20,000 feet per second. Hahn contends that in this testimony he was not asserting that pitting can only occur at that velocity, but only that the unique pitting in Avianca indicated that VOD. It is well-known that pitting and cratering can result from the detonation of a high explosive with a VOD of 10,000 feet per second or more. Hahn's testimony about pitting and cratering in Avianca is irrelevant to the Oklahoma City case.

**6. Whitehurst faults Williams for failing to mention a contamination study** Whitehurst performed in June 1995 that found PETN contamination in a location in the EU and in an evidence storage area. Certain items of evidence in the Oklahoma City case were examined in the Laboratory in about April or

May 1995 and findings of PETN were made. Any connection between the findings and the contamination is at this point speculative. The findings of PETN were made by the AE (Burmeister). We think the AE rather than Williams was the appropriate examiner to determine whether the AE's conclusions concerning PETN should be modified because of the contamination study.

7. Whitehurst criticizes the following passage on page 19 of Williams' report:

Aluminum powder was identified in specimen Q111 recovered at the residence of JAMES NICHOLS. A mixture of ground ammonium nitrate and aluminum powder, in significant quantities, could be utilized as an explosive main charge or in some cases as a booster.

Whitehurst contends that [a]s an objective scientist, Williams might also have reported that the ammonium nitrate could be used as a fertilizer and the aluminum powder as an additive to paint.

A couple of lines before the above-quoted passage, however, Williams refers to paint grade aluminum powder. Further, when Williams' report discussed ammonium nitrate in connection with Q507, it included part of Burmeister's dictation, which stated, Crystalline particles removed from specimen Q507 identified the presence of ammonium nitrate. Burmeister's dictation also included the sentence, Ammonium nitrate is considered an oxidizer and is used in some fertilizer and explosive compositions. This sentence was omitted from Williams' September 5th report, but it was included verbatim in an earlier report.

Thus, taking all the reports together, information was provided that aluminum powder could be used in paint and ammonium nitrate in fertilizer. Moreover, the alternative uses for aluminum powder and ammonium nitrate are well-

known. Accordingly, although we think generally the better practice is to include, where feasible, common, relevant uses that might reasonably bear on the applicable investigation, and also include the entire AE dictation, in the explosive examiner's report, any error in this aspect of Williams' report was harmless and insignificant.

Along the same lines, Whitehurst criticizes Williams' discussion of binary explosives because Williams fails to mention that nitromethane (recovered in one of the searches) can be used in model airplane engines. Again, although the better practice is to include pertinent alternative uses in the explosives examiner's report, Whitehurst does not suggest, and we are unaware of, any recovered evidence of model airplane engines. Accordingly, any error in this aspect of Williams' report appears to be harmless and insignificant.

**8.** Although not mentioned by Whitehurst, in the paragraph containing the above-quoted passage concerning aluminum powder, Williams states that [g]round ammonium nitrate was identified in certain specimens. The applicable AE report did not contain the word ground and described the substance as powder. Williams told us that he looked at the specimens under a microscope and could tell that they consisted of broken prills, although he did not document this examination in his casenotes. Williams stated that it was significant that the prills were ground to rebut defendant Nichols' claim that he possessed the ammonium nitrate to sell as plant food.

Assuming Williams in fact made the microscopic examination, we nevertheless think a word more neutral than ground should have been used -- for example, broken prills. Ground implies that someone deliberately converted the prills to a use other than fertilizer, which would be incriminating and would apparently rebut a defense. But all Williams would have been able to see under the microscope was that the prills were broken or were in powder form. He would not have been able to tell whether they were broken or crushed intentionally or accidentally. Further, Williams should have maintained casenotes of his microscopic examination.

9. Whitehurst criticizes the following passage in Williams' report:

Specimen Q616 displays all of the observable physical characteristics of a waxed brown paper dynamite wrapper. A physical and chemical analysis was conducted [on] Q616 and no explosives or explosives residues were found.

Whitehurst asserts that Williams should have noted that the explosives analysis protocol is very limited and may have missed residues from such explosives as PYX, Dinitronaphthalene, TATB, DATB, TATP and on and on and on.

The AE dictation, which was reproduced verbatim in an earlier report, states:

The results of an instrumental examination of residues removed from specimen Q616 did not detect any levels of nitroglycerine (NG), ethylene glycol dinitrate (EGDN), cyclotrimethylenetrinitramine (RDX), pentaerythritol tetranitrate (PETN), dinitrotoluene (DNT), or trinitrotoluene (TNT).

The explosives named by Whitehurst are unusual, and we do not think Williams needed to specifically comment on them. However, we think it would have been preferable for Williams to quote the AE dictation verbatim in his explosives report (even though he had already done so in an earlier report) because the dictation states the analytical results more precisely.

### **III. Thurman's Review of Williams' Report**

At the time of the Oklahoma City bombing, Supervisory Special Agent J. Thomas Thurman was the Unit Chief of the EU. Under FBI Laboratory policies, Thurman as Unit Chief was required to conduct a complete supervisory review of Williams' Oklahoma City report. This review should

have included, among other things, [a] review of all PE work notes, graphs, charts, and photographs, and other materials to determine if the examiners conclusions can be supported and have been properly documented.

We conclude that Thurman failed to properly review Williams' report. Thurman's principal failing was to approve a report with unsupported conclusions, with which he disagreed and could not justify. Thurman's approach to his supervisory review was to approve the report if the examiner was comfortable with it. Thurman's OIG interview: as long as he portrays to me that he is in fact comfortable with that, I'm not going to change it. This was an abdication of supervisory responsibilities.

#### **A. Specific Items in the Report**

With respect to Williams' specific VOD opinion of 13,000 feet per second, Thurman acknowledged in his OIG interviews (as noted above and in the section on the World Trade Center) that in his long experience in the unit he never rendered such a specific VOD opinion; rendering such opinions is not normally done in the unit; and it is not part of EU training to give a specific VOD opinion. Thurman stated that he would not have included a specific VOD opinion in the Oklahoma City case if he were the examiner. Thurman should not have approved the VOD opinion without data justifying it, which Williams did not have. For example, Williams told us that his opinion was based in part on the size of the recovered pieces of the Ryder truck: if the VOD had been 16,000 feet per second, according to Williams, the pieces would have been half the size. But Thurman told us that such a specific relationship between debris size and VOD was not a commonly held view, and he knew of no data in the EU supporting it. Accordingly, Thurman should not have approved Williams' VOD opinion.

As to Williams' categorical identification of the main charge as approximately 4,000 pounds of ANFO, Thurman thought he could rule out all commercial explosives because in this country with a blast of this size and quantity of explosives we've never seen anything wherein a commercial high explosive



was used, and this much of explosive. They've been homemade-type mixtures. We think this is an inadequate ground to eliminate the commercial explosives in total. Unless the commercial explosives could have been eliminated scientifically, they remained a possibility. Moreover, Thurman acknowledged that 2,000 pounds of ANFO and 500 pounds of commercial dynamite could have been used in the blast. Therefore, Thurman should not have approved Williams' opinion as to the weight and identity of the main charge.

As for Williams' opinion that the initiator for the booster was either a detonator from a Primadet Delay system or sensitized detonating cord, Thurman acknowledged in his OIG interview that the proper conclusion was that the named initiators could have been used. As noted, Williams reached a categorical conclusion because Primadet systems were recovered from defendant Nichols' and an accomplice's house. Regarding such a basis for an opinion, Thurman said at the OIG interview:

OIG: Well, in your training, do you tell examiners when they're being trained that they can consider what was found at the defendant's house or the suspect's house in determining what was used in the crime?

In other words, if he's got a certain kind of det cord at his house, you can infer from that that that kind of det cord was used in the crime even if there was no residue of that kind of det cord, nothing at the scene of the crime that shows that that kind of det cord was used.

AGENT THURMAN: I see what you're saying. No, no, not -- no, not at all. Not at all, no.

Accordingly, we conclude that Thurman should not have approved Williams' opinion as to the initiator for the booster.

Regarding other conclusions in Williams' report, Williams said the initiator for the primadet or detonating cord was a non-electric detonator. Thurman acknowledged in his OIG interview that this is a possibility, but said that [i]t may not be the absolute one possibility. And Thurman did not see any reason why it could not have been an electric initiator. Williams also concluded that a non-electric burning-type fuse of either hobby fuse or a commercial safety fuse was used. Thurman acknowledged at his OIG interview that this was one of the possibilities [b]ut certainly not the only one. Further, Williams' conclusion that the time delay was 2 minutes, 15 seconds was just one of many possible scenarios. Accordingly, Thurman should not have approved any of these conclusions.

Additionally, we believe Thurman should have recognized the internal inconsistency in the statement Traces of PETN were located on specimen Q18, however could not be confirmed. He should have required that the sentence be rewritten so that it made sense.

## **B. Thurman's Method of Review**

Thurman's method of reviewing Williams' report was deficient. For example, regarding Williams' VOD opinion, Thurman told us in his OIG interview that before approving the report,

I asked him [Williams] specifically about that. . . . I said, Is there a reason that you have for putting this arbitrary figure in there? And he said yes.

And I said, Now, we don't normally do that. . . . I've never done it before.

. . . And he went into an explanation. . . . [H]e felt that anyway he had the expertise to call that at 13,000 feet per second.

. . . I may have told him that I wouldn't do that. I don't remember whether I told him, because I know I would not. . . . I would not be that specific on 13,000 feet per second.

. . . [A]s long as he portrays to me that he is in fact comfortable with that, I'm not going to change it. . . . In this case, you know, there was review and even though . . . I am the direct line supervisor, even though I don't personally in the exam would do that, it's up -- it's up to him as an examiner to do that.

I said, Now, let's don't make an absolute decision today that it's going to have to stay in there. I said, You think about what I have suggested and you go back and you go through your data and you go through your -- not really, it's not a mindset, but what you think that you want to put into this report and then come back and tell me.

And he came back with the -- with the final report. And it was still in there. And I said, Okay, I guess you've decided to leave it in there.

He said, Yeah. I feel that I can support it and it belongs there.

I said, That's your conclusion.

And so the specific VOD opinion remained in the report.

This is an improper way for a supervisor to review an examiner's report. The issue for the supervisor should not be whether the examiner is comfortable with the conclusion but whether the supervisor is. It should not be up to him as an examiner to do that, but up to the supervisor to determine whether the conclusions in the report are valid. By leaving the matter to Williams, Thurman failed to perform an appropriate review.

Throughout his OIG interview, Thurman attempted to justify his approval of the report by saying he based it on the conversation he had with Williams about the report, but then pleaded a lack of memory of the details of the conversation. Thus, in the interview he could not justify some of the conclusions in the report, but he implied that Williams provided justification in the conversation although Thurman could not remember what it was. We find this unsatisfactory. Most of the conclusions criticized above came at the end of the report without explanation, and the preceding pages do not support them. For example, at one point Williams stated that ANFO, among other explosives, has the VOD he estimated for the main charge. Then, suddenly, without explanation, he concludes that the main charge was ANFO. If, in fact, Williams provided to Thurman additional reasons justifying his conclusions, Thurman should have required Williams to include those reasons in the report. Thurman acknowledged in his OIG interview that the conclusions in a report should be based on, and flow from, the contents of the report. Thurman, however, failed to make sure that this was done in this case.

#### **IV. Martz's Examination of Evidence**

Shortly after the Oklahoma City bombing, Martz examined some evidence in the case for explosives residue. The evidence consisted of clothing and a knife seized from one of the defendants. Martz did this as an extra pair of hands while Burmeister was busy outside the Laboratory. Martz's function was to perform instrumental examinations to assist Burmeister who was in charge of the residue analysis. Some issues have arisen concerning Martz's examinations.

A. Supervisory Special Agent Burmeister told us in a 1995 interview that Martz erred in some examinations in the Oklahoma City case. In a 1996 OIG interview, however, Burmeister stated, I don't think he erred in any of these exams. . . . I think he did an acceptable job there. In the later interview Burmeister said that his first interview was based only on Martz's sparse notes and that, between the first and second interview, Martz told Burmeister he did more than what is reflected in the notes. Burmeister told us in 1996, [W]hen I had an opportunity to talk with him [Martz], I didn't find that there was anything wrong with what he did. Burmeister acknowledged in 1996, however, that Martz did not, but should have, followed the provision in the explosives residue protocol that directs examiners to view specimens microscopically before any residue is extracted.

The explosives residue protocol requires the examiner to perform a microscopic examination of the specimen before any residue is extracted from it. Martz failed to do this. He only made a visual examination of the clothing and knife before he vacuumed the former and swabbed the latter. When asked about his failure to perform the microscopic examination, Martz initially told us that the explosives residue protocol does not require microscopic examinations. When we requested a copy of that protocol, Martz stated that [n]o protocol in the Chemistry/Toxicology Unit (CTU) requires any examiner to perform a certain type of analysis, and he failed to send us a copy of a protocol. In a response to the preliminary draft of this Report, Martz stated: My interpretation of visual and microscopic analysis, which was part of the protocol at that time, was that if something was observed by visual examination, that microscopic analysis would be performed and that is what I did in this case. Martz Reply (Feb. 4, 1997) at 3. By this Martz apparently means that because he did not observe anything on the visual examination, he did not do a microscopic examination. Because this is Martz's third explanation for his failure to perform a microscopic examination and is an explanation that is inconsistent with the other two, it lacks credibility. Moreover, Martz's present interpretation of the protocol is unpersuasive, because one of the purposes of the microscopic examination is to detect objects not observed in an unaided visual examination.

As noted, Martz vacuumed the clothing. In his 1995 interview Burmeister, described this as an unqualified technique. In his 1996 interview, however, Burmeister said that vacuuming is a qualified . . . credible technique. As noted by Burmeister, if an examiner finds material through visual or microscopic

examination, the examiner should first remove the material with forceps or a scalpel, before vacuuming, to preserve the integrity of the sample and to avoid commingling two different residues. Although there is no reference to extraction techniques in the explosives residue protocol, the techniques are addressed in the training of explosives residue analysts. Martz had not undergone the one-year training in explosives residue analysis.

Regarding the knife, Burmeister said in 1995 that Martz should have rinsed it rather than used a moistened swab. In 1996 Burmeister said that both swabbing and rinsing were permissible, but added that the decision on which technique to use should be based on a microscopic examination of the knife. The protocol does not address the issue of which technique to use.

We conclude that Martz erred by (1) deviating from the protocol requirement of a microscopic examination without first consulting with Burmeister, (2) initially telling us that such an examination is not part of the protocol, and (3) not including all of his examinations in his notes.

**B.** In a letter to the OIG dated June 18, 1995, Whitehurst stated as follows:

During conversations with Steve Burmeister last Thursday and Friday Steve advised me concerning some of his findings in the investigation of the Oklahoma City bombing matter. He advised me that he has indeed found PETN explosive on the shirt of McVeigh. He advised me again that he did not find PETN on the knife of McVeigh as had Roger Martz but did find nitroglycerine despite the fact that Martz did not find such material. Burmeister also advised me that he did not find PETN on the trousers of McVeigh but he did find nitroglycerine in and around the pockets of the pants. These findings are consistent with though not proof of the fact that these items of evidence could have been contaminated either purposely or innocently by Unit Chief Roger Martz of the FBI's Chemistry/Toxicology Unit during his original unsupervised handling and analysis of these items of evidence

Whitehurst's doubly hedged opinion ( consistent with . . . could have been ) is speculative. Burmeister told us that he was not surprise[d] that he did not find PETN on the knife after Martz had swabbed it. Although Burmeister found nitroglycerine on the clothing after Martz failed to do so, Burmeister told us he performed different examinations. Finally, if there was contamination, it was not necessarily by Martz.

## **V. Conclusion**

Williams' report contains several serious flaws. His opinion as to the VOD of the main charge was unjustifiable; his statement of the VOD of ANFO was incomplete; his categorical identification of the main charge as ANFO was inappropriate; his estimate of the weight of the main charge was too specific and based in part on improper grounds; his conclusion as to the containers for the main charge was unjustifiably categorical; his categorical identification of the initiator for the booster was improper; his conclusions concerning a non-electric detonator, the fuse, and the time delay were scientifically insupportable; his conclusions were not supported by the contents of the report; and he included some AE dictation in a selective or confusing way. These errors were all tilted in such a way as to incriminate the defendants. We are troubled that the opinions in Williams' report may have been tailored to conform to the evidence associated with the defendants. We conclude that Williams failed to present an objective, unbiased, competent report.

We also conclude that Thurman did not properly review Williams' report. Thurman left too much discretion to Williams to include certain opinions, and Thurman allowed several categorical conclusions to stand, although he told us he does not agree with them, he could not justify them, and the conclusions are not supported in the body of the report. Thurman did not perform the complete supervisory review, as required by the policy of the FBI Laboratory, to determine if the examiners conclusions can be supported and have been properly documented. We are deeply troubled that in a case of this importance and magnitude the EU Chief did not take greater care in making his supervisory review.

As to Martz's examinations, we conclude that he erred by failing to perform the microscopic examination required by the applicable protocol without Burmeister's approval, by initially telling us that such an examination is not part of the explosives residue protocol, and by not including all of his examinations in his notes.

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## **SECTION H: OTHER MATTERS**

### **SECTION H1: YU KIKUMURA**

#### **I. Introduction**

In 1988, Yu Kikumura, a member of the Japanese Red Army (JRA) terrorist organization, was found with three homemade bombs in a car in a service area of the New Jersey Turnpike. Kikumura was later indicted on several counts of interstate transportation of explosive devices and passport violations. After a bench trial on stipulated facts, Kikumura was convicted on November 29, 1988. He is currently serving a sentence of 262 months.

Kikumura's first sentencing hearing was held on February 7, 1989. At that hearing, the government offered testimony by J. Thomas Thurman, who was then an examiner in the Explosives Unit (EU). As the principal examiner in this case, Thurman had prepared a Laboratory report, dated June 15, 1988, concerning the bombs and other evidence removed from Kikumura's car.

In a letter to the OIG dated February 17, 1996, Whitehurst alleges that Thurman lied on the stand about examinations done by the Laboratory, violated FBI procedures or protocol by testifying outside his expertise, misled the jury, and incorrectly suggested that the defendant intended to make a large and powerful bomb from ammonium nitrate, aluminum powder, and mercury fulminate.

We reviewed the Laboratory report prepared by Thurman and the related dictation and work papers of other examiners. We also reviewed transcripts from the hearings before the district court related to Kikumura's conviction and

sentencing and the published decisions by the United States District Court and the United States Court of Appeals for the Third Circuit. Finally, we interviewed Thurman and Terry Rudolph concerning their work on the case.

We find no basis for the allegations that Thurman testified falsely or violated FBI policies in this case. In some areas, Thurman's testimony contains ambiguities or minor inaccuracies. We do not believe that his remarks in these areas reflect knowing and intentional misconduct. As with other cases we have reviewed, we think this case illustrates the desirability of clearer guidelines for, and effective monitoring of, examiner testimony. The case is also another example where the Laboratory would have benefitted from more rigorous policies for case work documentation, file review, and record retention.

## **II. Factual Background**

On April 12, 1988, a New Jersey state trooper detained Kikumura after stopping him for a motor vehicle violation. The officer noticed several gunpowder containers and lead shot in a bag on the backseat of Kikumura's car. He also saw a cardboard box containing three red cylinders with black tape and wires on them. Kikumura invited the officer to examine these items. The officer concluded that they might be bombs and arrested Kikumura.

The three red cylinders and other evidence from Kikumura's car were sent to the FBI Laboratory for examination. As the principal examiner, Thurman prepared a report dated June 15, 1988. This report incorporated the work of many other examiners, including Lynn Lasswell in the Chemistry-Toxicology Unit (CTU) and Terry Rudolph in the Materials Analysis Unit (MAU). Among other things, Lasswell confirmed that powder from the red cylinders was a mix of six identifiable types of smokeless powders and one unidentified smokeless powder. Rudolph determined that three pea-sized objects found in a paper bag in the car were prills of ammonium nitrate.

The red cylinders were fire extinguishers that had been emptied and refilled with about three pounds of gunpowder, wadding, about three pounds of lead shot, and a flashbulb connected to some wires running out of the top. On one of the bombs, there was an assembled fusing system made from an electric timer, a toggle switch, some batteries, and jack connectors. This timer, Thurman concluded, would allow the bomb to be detonated up to an hour after it was set. The car also contained materials from which similar fusing systems for the other two bombs could be made.

On October 21, 1988, the district court denied Kikumura's motion to suppress the evidence discovered in his car. On the scheduled trial date of November 28, 1988, Kikumura proposed through his counsel that the parties stipulate to certain facts, waive trial by jury, and have a bench trial on the stipulated facts. For purposes of the bench trial, the parties stipulated that Kikumura had transported the explosives with knowledge that they could be used to damage or destroy property. Kikumura agreed that the government would be free to offer whatever evidence it deemed appropriate at a later sentencing hearing, including evidence of his intent to kill.

On November 29, 1988, the district court convicted Kikumura on all counts based on the stipulated facts. A sentencing hearing was held on February 7, 1989. The government offered two witnesses at this hearing: New Jersey Detective Joseph Fuentes and Thurman. Fuentes described how Kikumura had entered the United States on March 8, 1988, by using a stolen and altered passport. Over the next 30 days, Kikumura traveled some 7,000 miles through at least seventeen different states. During this journey, he bought at various places components of the bombs and other items found in his car. Fuentes described evidence suggesting that when Kikumura was arrested, he was en route to New York City, where he intended to detonate his bombs at a military recruiting office and then depart by plane on April 15, 1988. Fuentes also testified that in a search of Kikumura's car, two brown paper bags had been found that contained residues of what the FBI Laboratory later determined was ammonium nitrate.

Thurman testified about the bombs found in Kikumura's car. After describing their construction and stating that the completed timer was functional, Thurman

discussed the destructive force of the bombs. He said that if the bombs were detonated in an occupied large room with a ten foot ceiling, there would be numerous casualties and significant property damage. He compared the bombs to Claymore mines and opined that, while they were capable of destroying property, they were meant as anti-personnel devices.

At the sentencing hearing, Thurman also testified about the significance of other chemicals found in Kikumura's car: aluminum powder, ammonium nitrate, and mercury. Kikumura possessed two pounds of fine aluminum powder. Thurman testified that if this powder were mixed with the right amount of ammonium nitrate, it could produce a 50-pound bomb capable of producing mass casualties and destruction in a room in which it was exploded. Only traces of ammonium nitrate were found in Kikumura's car, but Thurman testified that it is normally sold in 50-pound bags, and said it was logical to conclude from finding traces that a person likely once had a much larger quantity.

Kikumura also possessed mercury obtained by emptying thermometers. Thurman testified about two possible uses for this mercury. First, when combined with nitric acid and alcohol, it could be converted into mercury fulminate, a high explosive commonly used in blasting caps. Thurman admitted that Kikumura did not have all the chemicals needed to make mercury fulminate. Thurman also said that mercury might be used as a booby-trap to set off a bomb when it was moved.

Through affidavits, the government also introduced evidence at the sentencing hearing that Kikumura, as a member of the JRA, had received training in the manufacture of explosives at a terrorist camp in Lebanon and that he had been arrested in Holland in 1986 after attempting to smuggle over two pounds of TNT into Amsterdam. Kikumura did not call any witnesses or otherwise offer any evidence at his sentencing hearing.

After finding that Kikumura had possessed the bombs with an intent to kill or maim a large number of persons, the district court sentenced him to 360 months

imprisonment. This sentence was reversed in 1990 because the Court of Appeals held that the district court had incorrectly applied the federal sentencing guidelines. On March 1, 1991, the district court resentenced Kikumura to 262 months imprisonment. This sentence was affirmed on October 15, 1991.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst did not do any work on the Kikumura case. During an interview, he told us that he had not reviewed the underlying Laboratory reports or auxiliary examiner dictation, and that he also had not discussed the case with Thurman. Instead, he said that his criticisms were based solely on a review of the transcript of Thurman's testimony at the February 7, 1989, hearing.

The criticisms made by Whitehurst are summarized and discussed below.

#### **A. The Claim that Thurman Misled the Jury or Deprived Kikumura of a Fair Trial**

Since this was a sentencing hearing, we find no basis for Whitehurst's assertions that Thurman by his testimony misled the jury or otherwise deprived Kikumura of a fair trial. Because Thurman testified at a sentencing hearing, the Federal Rules of Evidence did not strictly apply. More importantly, for the reasons presented in the following sections, we do not believe that Thurman's testimony at the sentencing hearing was materially misleading.

#### **B. The Claim that Thurman Improperly Failed to Disclose Aspects of His Education or Training**

Whitehurst maintains that Thurman should have stated during his direct examination that his undergraduate degree was in political science and that he had no formal training in various areas on which he testified.

Thurman was asked on direct examination what formal education he had received that prepared him for his opinions in this case. He replied that he had received a master's degree in forensic science from George Washington University. He also was asked about his experience in the military and in the FBI Laboratory. Before the court accepted Thurman as qualified as an expert in the identification, construction, operation and the capabilities of explosive devices, defense counsel was allowed to conduct voir dire questioning.

Defense counsel did not ask Thurman any questions about his undergraduate education or his formal training beyond what Thurman described on direct examination. Given the questions asked during the direct examination and the voir dire, we do not think Thurman was obliged to volunteer additional information about his educational background.

### **C. Claims that Thurman Improperly Testified Outside His Expertise**

Whitehurst complains that Thurman violated FBI protocols and procedures by testifying outside his expertise with regard to matters involving chemistry, electrical engineering, and the composition or manufacture of certain explosives.

As noted earlier in this Report, the FBI did not have any clearly stated policy concerning the permissible scope of testimony by a principal examiner about work done by auxiliary examiners. The unwritten practice described by many whom we interviewed was that, in their testimony, principal examiners could restate conclusions reached by others who contributed to the Laboratory report. Moreover, we note that a principal examiner may properly base his or her own

opinion on analytical work done by other examiners. Similarly, expert opinions may sometimes properly rest on experience, as distinct from formal education or analytical tests specific to a particular case.

With that background, we do not think that Thurman improperly testified outside his expertise with regard to the identified matters. Thurman was asked if, after seeing the ingredients of the bombs, he later conduct[ed] a more thorough and scientific examination of the materials that were found in the defendant's car. After Thurman replied he did, he was asked if he had formed an opinion about the composition of the bombs taken from Kikumura's car. Thurman again answered affirmatively and said that the main charge was a combination of seven types of smokeless powder. Whitehurst asserts that Thurman simply lied on the stand because he did not conduct the examinations and has no training in chemistry.

We do not think Thurman lied by his use of the phrase I did when asked if he later conducted a more thorough and scientific examination. Thurman did in fact conduct additional examinations of the evidence. He also enlisted others to work on the case as auxiliary examiners. As for his opinion about the composition of the bombs, Thurman correctly restated the conclusions set forth in his Laboratory report, which in turn reflected analytical work done by chemist Lynn Lasswell. The report itself was introduced as an exhibit, and Thurman stated on cross-examination that he helped prepare the report. To avoid any possible misunderstanding about who did the work, Thurman should have said that the laboratory had conducted a more thorough examination of the items or that his conclusions reflected work done by others.

With respect to the discussion of smokeless powder, Whitehurst also asserts that the only Laboratory personnel who were deemed competent to render opinions about the chemical analysis of explosives were individuals in the MAU. We have discussed this issue previously with regard to the VANPAC case. When the work was done on the Kikumura case, the CTU also was analyzing materials to identify smokeless powders. We find no basis to conclude that Thurman violated FBI policies or procedures in having Lasswell analyze the powders found in the bombs or in restating the conclusions of the Laboratory report in testifying at the sentencing hearing.

Whitehurst also contends that Thurman is not an electronics expert and therefore should not have testified that he thought that the person who constructed the bombs, including the fusing system, had a very high level of expertise. This criticism fails to note that Thurman then explained, without any objection by defense counsel, the basis for his conclusion. Thurman explained that the fusing system had 14 soldered connections, including leads into the circuit board of the clock, insulated connections, and a safety switch. Thurman observed that the bomb maker would have to have considerable electrical experience and knowledge to effectively solder the leads to the circuit board. He also noted that a voltmeter was found in Kikumura's car, that a voltmeter is used to determine that there is a complete circuit, and that no instruction manuals were found in the car.

On cross-examination, defense counsel returned to the issue of Thurman's opinion concerning the bomb maker's expertise. Thurman agreed with the defense counsel that Kikumura was a very skilled bomb maker compared with the average citizen on the street. In response to further questioning, he also said that he thought Kikumura was more than a high intermediate when compared with people skilled in making bombs.

We do not think Thurman testified improperly in stating his opinion that Kikumura had a high degree of skill or expertise in bomb making. The construction of explosive devices is well within the expertise of an explosives examiner. The views stated by Thurman seem to have a reasonable basis in the evidence otherwise described in his testimony and Laboratory report. Thurman did not claim that his opinion was based on his being an electronics expert. After stating his opinion, Thurman discussed its basis during both his direct and cross-examination.

Whitehurst complains that Thurman was not qualified to testify about the identification of traces of ammonium nitrate found in Kikumura's car. Thurman testified, [t]he type of ammonium nitrate that we found here is commonly the type of ammonium nitrate agricultural-grade, that you would find in hardware stores, farm supply houses, but it's an agricultural-grade of ammonium nitrate.



The Laboratory report stated that physical and instrumental analysis had determined white prills were agricultural-grade ammonium nitrate, which is a common ingredient in the clandestine manufacture of high explosives.

Thurman's testimony about the identification of the traces of ammonium nitrate was based on an auxiliary examination by Terry Rudolph. Dictation prepared by Rudolph stated that prills removed from a paper bag were identified as ammonium nitrate. The dictation also stated that, [t]hese prills were coated with diatomaceous earth and are probably of agricultural origin. The dictation further noted, as did the Laboratory report, that no residues or traces of explosives or ammonium nitrate were found on various other items. Rudolph's conclusions were reviewed and approved by Jerry Butler, who was then chief of the MAU.

Thurman further testified that agricultural grade ammonium nitrate could be found in farm supply houses and hardware stores. On cross-examination, defense counsel asked Thurman to confirm that the defendant had only three prills of ammonium nitrate and to explain how large a quantity that was. Thurman responded that ammonium nitrate normally comes in 50-pound bags and a prill is about the size of a pea. On re-direct, he again stated that ammonium nitrate in this form normally is sold in 50-pound quantities.

The statements by Thurman about where ammonium nitrate can be purchased and the quantity in which it usually is sold are not based on language in the Laboratory report. Thurman believes that he received this information from talking with Rudolph. The latter could not recall if he discussed these matters with Thurman. After reviewing Thurman's testimony, Rudolph also told us he thought it was accurate. Our own contacts with fertilizer manufacturers and distributors confirmed that agricultural grade ammonium nitrate is usually sold in 50-pound bags.

We do not find that Thurman testified improperly about the identification of ammonium nitrate, where it can be purchased, and the quantity in which it is usually sold. Thurman could properly testify to these matters based on the

analytical work done by the MAU and information he obtained from talking with Rudolph or others. Moreover, for reasons previously discussed, we do not think Thurman violated any FBI protocols or policies by testifying on this subject.

Thurman in his report and testimony did not use the same language contained in the auxiliary examiner dictation concerning the agricultural origin of the ammonium nitrate. As noted above, Rudolph's dictation states that the ammonium nitrate was probably of agricultural origin, while Thurman's report and testimony state more positively that the prills were agricultural grade ammonium nitrate. Thurman told us he thought Rudolph approved the language used in the report. Rudolph cannot recall that conversation, but thinks it may have occurred. In these circumstances, we cannot conclude that Thurman intentionally overstated Rudolph's conclusions about the ammonium nitrate. This case, like others, illustrates the importance of principal examiners accurately reporting, whether in Laboratory reports or trial testimony, conclusions reached by other examiners. Moreover, if an auxiliary examiner agrees to a later modification or rewording of his or her conclusions, the file should reflect the basis for that action.

#### **D. Claims that Thurman Improperly Testified about the Possible Use of Other Materials in Explosive Devices**

During his direct examination, Thurman testified that Kikumura had additional materials in his car that are commonly used in the manufacture of explosive devices. These materials were ammonium nitrate, aluminum powder, and mercury. He explained that with ammonium nitrate and the two pounds of aluminum powder found in the car one could make at least a 50-pound bomb. He also explained that mercury is an ingredient of mercury fulminate, a high explosive, and can also be used to make a booby trap for a bomb.

Whitehurst complains that Thurman left the jury with the incorrect impression that the defendant may have intended to construct a large and powerful bomb

composed of ammonium nitrate and aluminum powder which was to be initiated with a mercury fulminate blasting cap. Based on Thurman's testimony, one could certainly conclude that Kikumura intended to make another bomb having a mercury fulminate detonator or a mercury switch and a charge made from a mixture of ammonium nitrate and aluminum powder. We do not agree, however, that this impression would be incorrect because Thurman's testimony was biased or otherwise flawed.

During his cross-examination, Thurman acknowledged that Kikumura did not have in his possession any bombs made from ammonium nitrate and aluminum powder. Thurman stated that only three pills of ammonium nitrate had been found in the car and agreed that a bomb could not be made with that amount. He further conceded that, based on the materials in the car, Kikumura could not detonate or even make a 50-pound bomb of aluminum and ammonium nitrate.

Defense counsel also asked Thurman if mercury fulminate was the same as mercury. Thurman replied, No sir. It starts with mercury and it is converted through a chemical process into mercury fulminate. The attorney asked him to explain the chemical process, and Thurman said two other ingredients, nitric acid and alcohol, are added. Thurman then explained, You add the nitric acid to the mercury fulminate. After that ceases its reaction and then you put in the alcohol. Thurman acknowledged that no nitric acid was found on Kikumura. Defense counsel then asked if there was any alcohol, and Thurman stated that common variety rubbing alcohol had been found. He also agreed that mercury mixed with alcohol would not produce mercury fulminate or a detonator.

Two aspects of Thurman's testimony about the manufacture of mercury fulminate merit comment. First, he misspoke in stating that nitric acid would be added to mercury fulminate as part of the chemical process. He apparently meant to say that nitric acid would be added to mercury, and after that reaction ceased, alcohol would be added to the mixture to produce mercury fulminate. Second, the isopropyl alcohol found in Kikumura's possession could not be used to make mercury fulminate. Whitehurst complains that by failing to note this point, Thurman misled the jury. That claim is unfounded: Thurman accurately answered the specific questions that defense counsel asked about the alcohol, which was an issue raised initially on cross-examination. In order to

avoid the possibility that his testimony would be misunderstood, Thurman could have expressly stated that mercury fulminate could not be made from the rubbing alcohol found with Kikumura.

Whitehurst complains that Thurman failed to acknowledge that ammonium nitrate could be picked up from a lawn or an agricultural community and transported in Kikumura's shoes. The prills were found in the car inside a paper bag. We reject Whitehurst's suggestion that Thurman was obliged to volunteer that prills can be picked up in a person's shoes.

During his cross-examination, Thurman acknowledged that an explosive device could not be made with the three little peas of ammonium nitrate found in Kikumura's possession. On redirect, Thurman again said that ammonium nitrate prills are normally found in 50-pound quantities. The prosecutor then asked, And if you find traces of ammonium nitrate prills in someone's automobile, that's an indication that the person who is responsible for putting those prills there is also or likely had a much larger quantity of ammonium nitrate. Is that correct? After the court overruled an objection by the defense counsel, Thurman responded, That's the logical conclusion.

Whitehurst asserts that through this testimony, Thurman rendered an opinion that is too categorical and reached a logical conclusion that is obviously being presented to establish guilt. Whitehurst argues that prills can be picked up in a person's shoes from walking over a fertilized area and that ammonium nitrate can be purchased in small quantities. In making his criticisms, Whitehurst apparently did not recognize that the prills were found inside a paper bag, rather than on Kikumura's shoes or the floor of the car. Whitehurst also evidently misunderstood the nature of the sentencing hearing, which did not involve a jury or a finding of guilt, since guilt had already been determined. We do think Thurman should have been more careful in phrasing his response to the prosecutor's question. Thurman should have said that it was possible that whoever placed the prills in the automobile also had a much larger quantity of ammonium nitrate.

## **E. Other Aspects of Thurman's Testimony**

Thurman stated during his direct examination that he did not know the exact number of investigations in which he had been involved since joining the EU, but that it was in the hundreds. Whitehurst alleged that Thurman may have exaggerated the number of cases he had worked. Thurman joined the Laboratory in February 1981. In our investigation, we reviewed records from the FBI which indicated that Thurman worked on 129 cases between November 1984 and February 1989. We did not determine the number of cases on which he worked from the time he first joined the Laboratory in 1981 through October 1984. The FBI records indicate that Thurman accurately stated the number of examinations in which he had been involved.

Whitehurst contends that Thurman falsely testified that he had not attempted to force three pounds of powder back into one of the fire extinguisher cylinders because he did not want to take a chance of it exploding. Members of the EU, Whitehurst states, make pipe bombs by hand at the FBI bomb range at Quantico, Virginia, and thereby expose themselves to explosions. For this reason, Whitehurst says he does not believe Thurman had any concern about blast damage from the smokeless powder in the Kikumura case. In an interview with the OIG, Thurman again recalled that he did not attempt to force the powder into the cylinder because of the possibility of explosion. We found no basis to question the truthfulness of his testimony in this regard.

We did find minor inaccuracies or ambiguities in four aspects of Thurman's testimony that were not the subject of complaints by Whitehurst. First, in discussing the explosion that would result from the bombs found in Kikumura's car, Thurman described a fireball in somewhat ambiguous terms that might suggest the explosion would produce two fireballs when it likely would create only one.

Second, Thurman testified that mercury fulminate is commonly used in the manufacture of blasting caps. Although mercury fulminate was once so used, we question whether by early 1989 it was still commonly used in commercially

manufactured blasting caps in North America. We think this is a relatively minor point, particularly because Thurman accurately stated that mercury fulminate can be used in a blasting cap for high explosives.

Thurman observed that the bombs found in Kikumura's car did not have as much directional capability as a Claymore mine. He explained that a Claymore mine would release steel balls in an arc of approximately 180 degrees, while in contrast the bombs would release lead shot in about a 360 degree arc. The bombs were described at the sentencing hearing as having lead shot at the top end of each cylinder. As described, they would release the shot in a manner similar to a shotgun shell. Thurman's testimony was incorrect or at least ambiguous insofar as it suggested that shot would be released in all directions from the bombs. If he intended to say that the bombs would release shot in a forward direction in a 360-degree circular pattern, he could have done so more clearly.

Finally, Thurman was technically incorrect in distinguishing high and low explosives based on their detonating velocities. Thurman correctly testified that high explosives have a detonating velocity of over 3200 feet per second, but he erred in stating that low explosives have a detonating velocity of less than 3200 feet per second. As discussed in Attachment C, *infra*, low explosives burn rather than detonate. By attempting to distinguish high and low explosives by detonating velocity, Thurman implied that both detonate, which is not normally the case.

#### **IV. Conclusion**

We do not find that Thurman testified falsely in the Kikumura case. Nor do we find that he violated FBI policies or improperly gave biased or speculative testimony. To the extent we noted ambiguities or inaccuracies in his testimony, we think they illustrate the importance of having effective guidelines concerning the scope and monitoring of testimony by Laboratory examiners. The case also provides yet another example where the Laboratory should have

improved its policies for the documentation of case work, file review, and record retention.

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## **SECTION H2: NORFOLK TANK FARMS**

### **I. Introduction**

In 1991, Whitehurst analyzed flash powders from two pipe bombs found in fuel storage tanks at a marine terminal in Norfolk, Virginia. He concluded that they could have come from the same source. He alleges that EU examiner Richard Hahn improperly pressured or bullied him to state his conclusions more strongly. According to Whitehurst, Hahn threatened to have him replaced with a bright high school kid when Whitehurst refused to change his auxiliary examiner dictation. Whitehurst asserts that Hahn's actions were subornation of perjury.

To investigate Whitehurst's allegations, we interviewed Whitehurst, Hahn, and James Corby, and we reviewed the Laboratory reports, auxiliary examiner dictation, and other documents from the case file. We also asked other examiners if they knew about this matter or of any instances where examiners were pressured to change their conclusions.

We find no basis to conclude that Hahn suborned perjury or improperly pressured Whitehurst to change his conclusions. Hahn's report set forth Whitehurst's conclusions in the exact language drafted by Whitehurst. More generally, while some in the Laboratory believed that examiners from the EU pressured others to reach certain conclusions, no one identified an instance in which the reported results were changed because one examiner improperly pressured or influenced another.

The case does illustrate that Laboratory examiners should understand that disagreements about methodology or the interpretation of data must be resolved professionally based on pertinent scientific knowledge. As noted in the



recommendations that appear in Part Six of this Report, if the examiners involved cannot resolve such disputes among themselves, then the unit chief or chiefs with sufficient expertise should address the issue, with further resolution by the section chief if necessary. Whatever resolution is reached should be clearly communicated to the examiners involved.

## **II. Factual Background**

On February 4, 1991, two unexploded pipe bombs were found on fuel storage tanks at the Allied Marine Terminals in Norfolk, Virginia. The attempted bombing was later determined to be part of an insurance fraud scheme. During the investigation, the pipe bombs were disarmed and later delivered to the FBI Laboratory for examination. Richard Hahn worked on the case as the principal examiner, and Whitehurst analyzed evidence for explosives residue as an auxiliary examiner.

After examining certain evidence, Whitehurst prepared auxiliary examiner dictation stating:

Based upon quantitative and qualitative chemical and physical analyses it is also the opinion of this examiner that flash powders identified in specimen K10 and in specimens Q56 and Q70 of FBI Laboratory matter 10206017 are significantly the same and could have originated from the same source.

Whitehurst contends that Hahn pressured him to change the word could to make it stronger. Whitehurst acknowledges that the final report accurately reflected the language Whitehurst used to state his conclusions. Whitehurst further asserts that Hahn improperly threatened to replace him with a bright high school kid and suborned perjury in urging Whitehurst to strengthen his conclusions. We discuss these allegations further below.

### **III. Analysis of Whitehurst's Allegations**

Our investigation did not corroborate Whitehurst's allegations about this matter. Whitehurst recalls that Hahn told him that the conclusion that flash powders could have come from the same source should be stated more strongly because the defense might make some trouble with, or otherwise be assisted by, Whitehurst's language. Whitehurst says that he lost his temper, that both examiners began shouting, that Hahn made the remark about a bright high school student, and that MAU Chief James Corby had to break up the argument between Hahn and Whitehurst.

Hahn gives a different account. According to Hahn, he had no dispute with Whitehurst in the Norfolk case and denies ever threatening Whitehurst. Hahn acknowledges making a remark about a bright high school kid to Whitehurst, but says it was in a different case and in a different context than described by Whitehurst. By Hahn's account, he had talked with Whitehurst about analyses for a 1989 attempted bombing of a dormitory at the University of Arkansas. Hahn says Whitehurst stated, All you're going to get out of me is what I get out of those instruments, and that Hahn in turn responded, if that's all you're going to do for this laboratory, we could get some good high school chemistry students to do that. Hahn says that Whitehurst stood up from his desk and started screaming, shaking his finger, and calling Hahn names. Hahn recalled that Whitehurst's unit chief came running in to see what had happened.

James Corby confirmed in an interview with us that he had once broken up a disagreement between Hahn and Whitehurst, but Corby was not sure if it concerned the Norfolk case. He said that he heard yelling and screaming and found Hahn and Whitehurst in an argument that was disrupting the entire unit. Corby further said that he thought the argument concerned the strength of Whitehurst's conclusions. According to Corby, Hahn was doing most of the shouting and was trying to intimidate Whitehurst without success. Corby said that examiners generally resolved between themselves any disputes over dictation, but he intervened in this instance because the shouting match was inappropriate.

Corby observed that EU examiners had tried to pressure other examiners, but did not identify any instance where this had changed the reported results. Corby said that after Steven Burmeister was qualified to examine explosives residue, members of the EU tried to get Burmeister to change his wording, but that Burmeister would not do so. Burmeister denies being pressured in this way and recalls his interactions with the EU as open discussions. Metallurgist William Tobin told the OIG during his first interview that the EU constantly pressured scientists in other units, including himself, to produce conclusions that were consistent with EU theories. Tobin later indicated, however, that he had been pressured to come to some conclusion, rather than to reach a particular result.

Given the conflicting statements by the witnesses, we cannot precisely determine what occurred almost five years ago in the dispute between Whitehurst and Hahn. The Laboratory report for the Norfolk Tank Farms case accurately restates Whitehurst's dictation. Whether the dispute between Whitehurst and Hahn concerned the Norfolk Tank Farms case or the Arkansas dormitory case, we find no basis to conclude that Hahn suborned perjury or improperly threatened Whitehurst. Even accepting Whitehurst's version of events, we do not think that Hahn's actions can be said to evidence an attempt to cause Whitehurst knowingly to make a materially false statement in his reported conclusions. Nor do we think Whitehurst reasonably could have understood Hahn's remark about a bright high school kid to be a serious threat. Hahn was not Whitehurst's supervisor and had no authority to replace Whitehurst.

There is nothing generally improper in one examiner raising questions with another examiner about report language, methodology or the interpretation of data. Such questions should be motivated by the goal of presenting objective and reliable forensic results in a clear and concise manner. Where examiners differ, the issue should be resolved based on relevant scientific knowledge. In this respect, both Whitehurst and Hahn can be faulted for engaging in a verbal altercation over report language. If they could not resolve their differences professionally among themselves, they should have involved their unit chiefs. It goes without saying that no examiner should attempt to influence another examiner to alter his conclusions by the use of threats or improper pressure. If

an examiner believes he or she has been subject to such treatment, the incident should be reported to supervisors and appropriate discipline should be imposed.

#### **IV. Conclusion**

We conclude that Hahn did not suborn[] perjury or improperly pressure Whitehurst with regard to the Norfolk Tank Farms matter. Rather than engaging in a heated argument, each examiner should have based his position on relevant scientific knowledge and, if they were unable to reach agreement, they should have sought resolution from their supervisors. Although we did not identify any particular case where EU examiners affected the reported results of examinations by pressuring others, the Laboratory should reemphasize that no examiner should use threats or improper pressure to attempt to influence another and that such misconduct will result in appropriate discipline.

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## **SECTION H3: MELISSA BRANNEN**

### **I. Introduction**

This case concerns a young girl who disappeared from a Christmas party in Fairfax County, Virginia in 1989 and who is believed to have been murdered. Her body has never been found. In December 1989, the FBI examined blood and fiber evidence found in the defendant's car.

Whitehurst alleges that Alan T. Robillard, as acting unit chief of the Hairs and Fibers Unit, pressured serology examiner Robert Grispino to change his results to agree with those of DNA examiner Dwight Adams. In a November 27, 1994, letter to the OIG, Whitehurst wrote:

Bob [Grispino] told me that his serology exams did not give enough information to go as far as Adams' opinion went and that had caused an embarrassment for someone in the chain. Then Bob found himself being pressured by Robillard to change his results to agree with Adams because of Adams' data and Bob refused and he then was taken before Hicks.

We investigated this allegation by interviewing Whitehurst, Grispino, Adams, Robillard, and Douglas Deedrick and reviewing the pertinent Laboratory reports and related documents from the case files.

We conclude that neither Robillard nor anyone else improperly pressured Grispino to change his results in this case.

## II. Factual Background

After Melissa Brannen disappeared, a man named Caleb Daniel Hughes who worked as a groundskeeper in her apartment complex was identified as a suspect. When the FBI Laboratory was asked to collect evidence, Grispino was working as an examiner in the Serology Unit. Grispino participated in searches of Hughes' house and car and collected evidence to analyze for the presence of body fluids. After examining some paper tissues found in the car, Grispino concluded that they contained blood stains and that Melissa Brannen was a possible source. He noted that 40% of the population could also be a possible source. Grispino's findings were included in a Laboratory report dated January 18, 1990. The principal examiner on this case was Douglas Deedrick of the Hairs and Fibers Unit.

Dwight Adams, an examiner in the DNA Unit, performed DNA tests that excluded Melissa Brannen as a source of the blood stains on the paper tissues found in the car. These results were reported to the prosecutor, who supplied them to the defense in the case before the trial. Grispino recalls that he learned of the DNA test results the day before he was to testify at trial.

The Commonwealth of Virginia charged Hughes with abduction with the intent to defile, and the case was tried in 1991. The Virginia prosecutor, Robert Horan, called Grispino to testify about his serology findings. Consistent with his results, Grispino testified that he could not exclude Brannen as a possible source of the blood stains.

The prosecutor did not call Adams as a witness. Instead, the prosecutor argued to the court that [t]he D.N.A. man generally didn't have enough material to really do any type -- I mean, that was the conclusion of the D.N.A., he just didn't have enough to do it. Adams later testified as a witness for the defense. Consistent with his analyses, Adams testified that he could exclude Brannen as a possible source of the blood. After the conclusion of the evidence, the jury convicted Hughes.

The Brannen case received substantial publicity at the time of trial. Grispino and others said there was a media uproar based on the seemingly contradictory results from the DNA and serology tests and the fact that Adams testified for the defense. One newspaper article contained the headline, Two FBI experts' testimony at odds.

An April 14, 1991, article in The Washington Post noted that some attorneys thought that Horan tried to mislead the jury by presenting testimony that suggested Melissa's blood could have been on the tissues found in Hughes' car when Horan knew a more specific DNA test showed the blood samples could not have been from the girl. The same article quoted Horan as saying that the blood in this case was a non-issue and that he did not believe the DNA specialist because the agent had limited experience.

In his interview with the OIG, Adams said that his results were accurate, that Horan knew about the DNA results before trial and never asked Adams to explain them, and that he thought that Horan should have called him to testify. Horan's conduct is beyond the scope of our investigation, and we have not attempted to review its propriety.

### **III. Analysis of Whitehurst's Allegations**

In an interview with the OIG, Grispino emphatically stated that he was never pressured to change, alter, or slant his report in any manner by anyone in this case or in any other case. With regard to the Brannen case, Grispino explained that his results did not in fact conflict with the conclusions reached by Adams, because the serology tests he performed were only a screening method and the DNA tests were far more specific.

Grispino recalled that Alan Robillard, who was then the acting chief of the Hairs and Fibers Unit, did not understand the difference in the level of specificity between the two examinations. According to Grispino, Robillard and other supervisors in the Laboratory were concerned about the seeming contradiction in testimony by Adams and Grispino and the related media reports. Grispino said that both Robillard and Hicks called him into their offices to discuss their concerns, but these were resolved once he explained the science to them.

In his interview with the OIG, Grispino denied telling Whitehurst that he had been pressured to slant reports or, specifically, that Robillard had pressured Grispino in the Brannen case. Whitehurst acknowledged in an OIG interview that he had not worked on the case and that he might have misunderstood Grispino. Adams also stated that he was never, under any circumstances, asked, pressured, or instructed to change any of his results in this case or any other case.

Robillard addressed the Brannen case in an interview with the OIG. He denied that he had pressured either Adams or Grispino to conform their results. Robillard also acknowledged that the serology tests in this case were less specific than the DNA tests, and that the latter should have superseded the serology results. He said the case prompted the Laboratory to combine the Serology and DNA Units into one unit and to decide not to issue preliminary serology reports before DNA testing was completed.

#### **IV. Conclusion**

We conclude that neither Robillard nor anyone else pressured Grispino to conform his opinions to those of Adams in this case.

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## **SECTION H4: PAOLO BORSELLINO**

### **I. Introduction**

In July 1992, Italian judge-prosecutor Paolo Borsellino and five police escorts died in a car bombing in Palermo, Sicily. At the request of Italian authorities, FBI personnel, including Explosives Unit examiner Robert Heckman and Whitehurst, traveled to Sicily to participate in the investigation. Whitehurst examined various items from the explosion scene and reported residues consistent with RDX explosive. Heckman later testified in Sicily at the trial of several individuals charged with the bombing. Upon his return to the United States, Heckman described his testimony to Whitehurst and Burmeister.

Based on that conversation, Whitehurst claims that Heckman may have testified outside of his area of expertise and improperly rendered an opinion concerning the explosives residue analysis. Specifically, Whitehurst reports that the Italian prosecutor asked Heckman whether Whitehurst's findings were consistent with the use of Semtex, an explosive containing both RDX and PETN. According to Whitehurst, Heckman responded that he lacked the expertise to testify about that subject; however, the prosecutor reportedly requested that Heckman testify about the subject anyway. Thus, Whitehurst said that Heckman testified that the presence of RDX residues would be consistent with the use of Semtex because different energetic components in the same explosive material could deposit themselves in a nonhomogeneous manner throughout the crime scene. Whitehurst charges that this testimony, in addition to being outside of Heckman's area of expertise, was unreliable because of the potential for contamination at the scene.

We obtained from Italian authorities a videotape of Heckman's testimony at the trial in Italy. We further reviewed the Laboratory reports and dictation and pertinent work papers in the case. Finally, we interviewed a number of FBI personnel involved in the investigation, including Explosives Unit examiners

Robert Heckman and Wallace Higgins, Explosives residue examiner Steven Burmeister, FBI Special Agent Jack Barrett of the Organized Crime/Drug Operations Section, FBI Special Agent and Rome Legal Attaché Joseph Genovese, and Whitehurst.

We conclude that Heckman did not testify outside his area of expertise or improperly render an opinion in this case. Nor do we find that Heckman's testimony was unreliable due to his failure to consider potential contamination. As with other cases, we conclude that this case illustrates the need for clearer guidelines for examiner testimony, particularly when a principal examiner is asked to report the findings of another examiner.

## **II. Factual Background**

On July 19, 1992, Italian judge-prosecutor Paolo Borsellino and five police escorts died in a car bombing in Palermo, Sicily. The bomb inflicted significant structural damage on buildings in the area and damaged or destroyed some 20 to 25 cars nearby. Italian authorities believed that an organized crime group planted the bomb as a reprisal for Borsellino's investigation of that organization. Following this bombing, the Italian authorities requested assistance from the FBI's Organized Crime/Drug Operations Section and the FBI Laboratory.

In response to that request, various FBI personnel including FBI Special Agents Jack Barrett of the Organized Crime/Drug Operations Section, Explosives Unit examiner Robert Heckman, and explosives residue examiners Frederic Whitehurst and Steven Burmeister traveled to Sicily to assist in the investigation. Whitehurst brought to Sicily a Barringer Ion Mobility Spectrometer (IMS) and conducted on-scene explosives residue analysis. Whitehurst intended to confirm any on-scene preliminary findings from the IMS through later Laboratory testing with a mass spectrometer.

After several days of sifting through the evidence, the FBI identified and marked 85 questioned specimens, including fragments of wire, metal, magnets, cable, circuit boards, batteries, and other items. Whitehurst prepared acetone extracts from these specimens and left the specimens for further testing by Italian authorities. Several weeks later, Italian authorities sent Whitehurst approximately half of the specimens, specimens Q41 through Q85, for examination at the FBI Laboratory in Washington, D.C. After receiving the specimens, Whitehurst conducted examinations using gas chromatograph/mass spectrometry. Whitehurst reported that he found residues consistent with RDX on three of the specimens, Q46, Q69, and Q72. Whitehurst's dictation states in pertinent part:

The results of these analyses are consistent with the presence of RDX on the samples as follows:

Q46 (Your item A5)

Q69 (Your item C8)

Q72 (Marked as item 32 at the crime scene)

Chemical and physical analyses of specimens Q41 through Q45 and Q47 through Q68 did not locate the presence of explosives residues. Specimens Q74 through Q85 were not analyzed for the presence of explosive residues.

In mid-May 1995, Italian authorities asked Heckman to testify at trial in Palermo, Sicily. Shortly before his testimony, Heckman met for several hours with Italian prosecutors in Sicily. Also present were Joseph Genovese of the FBI Legal Attache Office in Rome and FBI Special Agent Jack Barrett. Heckman reportedly told the prosecutor during this meeting that Whitehurst had conducted the explosives residue examinations and that he could not interpret Whitehurst's findings. The prosecutor asked Heckman to introduce those findings at trial anyway. Heckman told us:

I said, if you want, we can have Mr. Whitehurst over here; we can get him over on the next flight to testify. They said, no, we don't want him, we don't need him. He said, under our law -- this is being translated -- under our law, you as the man in charge of the team that was here and the one that wrote the report giving the results from another individual can testify to those results -- basically read them out of the report. . . . Basically, that's what I told him that, you know, I am not an expert in that area; that's not my work; I cannot testify as a an expert in the analysis of explosive residues. They said, no problem, no problem; we still want you to testify.

Barrett also reported that Heckman made clear to the Italian prosecutor that Heckman was not responsible for Whitehurst's findings and was not comfortable testifying about those findings. Genovese also recalled that Heckman expressed concern about testifying about the chemical analysis.

On May 17, 1995, Heckman, along with Barrett and Genovese, testified for approximately one and one-half hours. According to the videotaped testimony, Barrett and Genovese testified about the role played by the FBI during the investigation. Following this testimony, Heckman testified concerning his own forensic examinations of the evidence and his conclusions concerning the approximate size and placement of the bomb based on the damage.

In the course of that testimony, Heckman also testified about the explosives residue examinations by Whitehurst. Specifically, Heckman testified that the FBI collected vials of acetone extracts from swabbings at the scene and analyzed the vials using the Ion Mobility Spectrometer. Heckman noted that in selecting items for examination, they looked for debris that showed the effects of the explosion. When asked if the FBI found any traces of explosives, Heckman testified that specimens Q41 through Q72 in particular gave indications on the mass spectrometer of RDX. Heckman added that those findings required confirmation in the United States. Heckman said that after a second analysis in the United States, specimens Q46, Q69 and Q72 gave

confirmation of RDX. Heckman further testified that the FBI did not find traces of any other explosives, but that did not necessarily mean that other explosives were not used.

In response to further questions, Heckman stated that RDX can be used alone or with other explosives. Heckman stated that one such explosive is PETN. When asked what kind of explosive would result from a combination of RDX and PETN, Heckman said that the most common kind is Semtex. Heckman also testified that in the United States, RDX is mixed with a plasticizing compound to create C-4. Heckman testified that C-4 is primarily a military explosive, but is becoming more common in the commercial sector for use in quarry operations, mining, and building demolition. Heckman also stated that RDX usually takes solid block form as a crystalline substance, but can be pulverized into a powder. When asked whether the RDX traces could have come from the detonator, Heckman responded that most detonators use RDX as a charge.

At the conclusion of this testimony, the prosecutor excused Barrett, Genovese, and Heckman. As of April 1997, the trial in Italy is continuing.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst alleges that Heckman testified outside of his area of expertise.

Our review of the videotape of Heckman's testimony did not support Whitehurst's allegation. Heckman did report the results obtained by Whitehurst. He also testified that RDX can be used alone or with other explosives, including PETN; that RDX can be mixed with plasticizers to make C-4; that the most common explosive combining RDX and PETN is Semtex; and that the FBI Laboratory's failure to find other residue does not exclude the possibility that other explosives were used. Heckman did not testify that Whitehurst's results were consistent with the use of Semtex, as suggested by Whitehurst. Nor

did he testify that components of Semtex, such as RDX, might have deposited themselves in a nonhomogeneous manner at the explosion site.

The testimony given by Heckman was accurate and was not outside the knowledge and experience of an FBI explosives examiner. Explosive examiners are expected to be familiar with the composition of prominent explosives, to maintain and use specific product data sheets, and to generally understand compositional characteristics. Heckman did not testify improperly in this regard.

Although Heckman did not testify beyond his expertise, it is noteworthy that Heckman did make several minor misstatements during his testimony. Because these errors were not significant, they do not change our conclusions about Heckman's conduct. Specifically, Heckman testified that it is becoming increasingly common for C-4 to be used commercially in quarry and mining operations. In fact, C-4 is not generally used for such purposes because it is so expensive. Heckman also stated that RDX usually appears as a solid block, but can be pulverized into a powder. This statement could be misleading, in that RDX initially is manufactured as a powder. Heckman further testified that most detonators use RDX in the charge. This is not correct; rather PETN is most commonly used for this purpose. Finally, Heckman testified that the FBI had electronically examined fragments of electronic components and determined that they were part of a transmitter/receiver. During our interview Heckman acknowledged that he was mistaken, in that the FBI only visually examined the circuit board fragments. The foregoing examples highlight the importance of examiners testifying accurately even within their own areas of expertise.

Whitehurst also claims that Heckman should have refused to testify concerning Whitehurst's results, because Heckman was not an expert in the area of explosives residue analysis. We do not agree. The evidence shows that Heckman made clear to the Italian prosecutors that he did not conduct the explosives residue analysis in the case and did not have the expertise to interpret those findings. In response, the Italian prosecutor asked Heckman to recite Whitehurst's results from the Laboratory report. Laboratory policy permitted a principal examiner to accurately recite the results of an auxiliary examiner at trial, as long as the principal examiner did not attempt to interpret those results. Given these circumstances, it was appropriate for Heckman to report the explosives residue findings.

Although Heckman was permitted to report Whitehurst's findings, Heckman should have been more precise in reciting those results. Heckman mistakenly testified that during initial examinations in Italy, explosives residue examiners detected traces of explosives using a mass spectrometer. In fact, Whitehurst and Burmeister used an Ion Mobility Spectrometer to initially screen these specimens. More importantly, Heckman testified that Whitehurst later examined specimens Q46, Q69, and Q72 at the FBI Laboratory and that those samples gave confirmation of RDX. By using this phrase, Heckman erroneously suggested that Whitehurst had actually identified RDX on those specimens. In fact, Whitehurst reported that residues from these specimens were consistent with the presence of RDX on those specimens, a somewhat weaker finding.

Finally, Whitehurst charges that Heckman's testimony was unreliable in view of the potential for contamination in this case. We do not agree that concerns about contamination precluded Heckman from reporting the explosives residue results. The evidence shows that the FBI personnel at the explosion scene were aware of the potential for contamination because the site was so large and so many people were present. FBI personnel told us that they recognized that the Italian authorities were not as well trained in crime scene preservation and evidence collection as their FBI counterparts. Moreover, FBI personnel arrived two days after the bombing and could not be sure that all precautions against contamination had been taken by Italian authorities. Heckman told us that in view of these facts, he considered the potential for contamination at the explosion scene. However, Heckman knew of no specific reasons to be concerned that the explosives residues gathered and analyzed by Whitehurst had been affected by contamination. Notably, Whitehurst also failed to reflect any such concern in dictations that he prepared in this case.

In view of the foregoing, Whitehurst's non-specific concerns about possible contamination were not a sufficient reason to preclude Heckman from reporting the explosives residue results. If the prosecutor had asked Heckman to discuss or interpret those findings, or more specifically the effect of contamination on those findings, our conclusion might be different. Here, however, the Italian prosecutor did not ask Heckman to testify concerning the potential for contamination. The videotape of the testimony shows that the prosecutor

simply asked whether the FBI had found traces of any explosives. In response, Heckman was permitted to report the results from the explosives residue examinations.

#### **IV. Conclusion**

The evidence does not support Whitehurst's allegations that Heckman testified beyond his expertise or rendered unreliable testimony due to the potential for contamination. Under the circumstances of this case, Heckman was permitted to report Whitehurst's findings while testifying at trial.

As in other cases we have reviewed, however, this case illustrates the importance of principal examiners accurately reporting the results of other examiners. Heckman attempted to paraphrase the explosives residue results at trial, and in so doing, suggested that Whitehurst confirmed the presence of RDX, when in fact Whitehurst found residues consistent with RDX. Guidelines should direct examiners to be accurate in describing analyses or conclusions made by others and to be careful not to stray beyond their own expertise.

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## **SECTION H5: GINO NEGRETTI**

### **I. Introduction**

In December 1989, a car bomb exploded, seriously injuring Miami criminal defense attorney Gino Negretti. In 1994, Florida authorities arrested and tried Victor Seijas for the attempted murder of Negretti. Seijas was ultimately acquitted by the jury. EU examiner Alan R. Jordan examined the debris from the explosion and reported finding remains of a pipe bomb and damage consistent with a high explosive main charge. Whitehurst conducted explosives residue examinations and reported finding RDX, residues consistent with HMX, and residues consistent with a potassium nitrate/sulfur based low explosive. Shortly before trial, the prosecution and defense entered into a stipulation that permitted Jordan to testify to Whitehurst's results.

Whitehurst claims that Jordan may have changed or misreported his dictation while testifying at trial. Whitehurst also alleges that the prosecutor in the Seijas case may have stipulated to allow Jordan to present Whitehurst's results because she sought to alter or misrepresent those results at trial.

We reviewed a transcript of Jordan's testimony at trial, along with pertinent Laboratory reports, dictation, work notes, and memoranda. We also interviewed various individuals involved in the Seijas case, including the prosecutor, Florida Assistant State Attorney Catherine Vogel, defense counsel Jack Blumenfeld, FBI Explosives Unit examiner Alan Jordan, Explosives Unit technicians Keith Rogers and Wynn Warren, and Whitehurst.

We conclude that Jordan did not change or misreport Whitehurst's results while testifying in this case. We likewise find no basis to conclude that the prosecutor stipulated to Whitehurst's results because she sought to misreport those results

at trial through Jordan. Although Jordan's testimony contains a minor inaccuracy, we find that this inaccuracy does not reflect conscious misreporting or knowing misconduct. As with other cases we have reviewed, however, this case illustrates that the Laboratory would benefit from written guidelines for examiner testimony that, among other things, require examiners to be accurate in describing the analyses and conclusions of other examiners.

## **II. Factual Background**

On December 15, 1989, a bomb exploded under the car being driven by Miami criminal defense attorney Gino Negretti. Negretti survived the explosion, but sustained a broken arm and fragmentation injuries to his hands, arms, and upper body. In 1994, Florida authorities tried Victor Seijas for the attempted murder of Negretti. The jury ultimately acquitted Seijas of those charges.

The FBI assisted in the investigation of the crime scene. Preliminary crime scene examination indicated that the explosive device was a pipe bomb, at least six inches in length, containing a high explosive main charge. Investigators shipped seven boxes of evidence to the FBI Laboratory for examination.

Explosives Unit examiner Alan R. Jordan and Whitehurst conducted examinations for the Laboratory. After examining several items from the crime scene, Whitehurst reported in his dictation that he found residues consistent with black powder and potassium nitrate/sulfur based low explosives. Jordan issued a December 17, 1990, Laboratory report, which reported these findings verbatim.

Some time later, Jordan told Whitehurst that notwithstanding the finding of low explosives residue, Jordan believed the damage was consistent with the use of a high explosive. In particular, Jordan formed the opinion that a low explosive could not have caused the type of damage he had observed in certain pipe fragments. Therefore, Jordan asked Whitehurst to examine other items for

possible high explosives residue. Whitehurst examined several additional items of evidence, including a combined specimen taken from two metal fragments, Q44 and Q69. In that specimen, Whitehurst identified RDX and residues consistent with HMX, both high explosives, and stated in his dictation:

The results of chemical and physical analyses of specimens Q44 and Q69 identified the presence of RDX and are consistent with the presence of HMX. The combination of these two explosives is found in C-4 plastic explosive manufactured in the United States.

Jordan subsequently issued another Laboratory report, dated July 9, 1991, which incorporated Whitehurst's dictation although without any reference to specimen Q44.

Florida authorities later identified Victor Seijas and Richard Wolfferts as suspects. Wolfferts subsequently agreed to cooperate and told authorities that Seijas had hired him to manufacture and install the explosive device. In 1994, the Florida State Attorney's Office charged Seijas with the attempted murder of Negretti.

In June 1994, the prosecutor Assistant State Attorney Catherine Vogel and defense counsel Jack Blumenfeld traveled to Washington, D.C. to take the depositions of Jordan and Whitehurst. Before the depositions, Vogel met with Whitehurst and Jordan. During that conversation, Vogel asked Whitehurst to explain his findings. After listening to Whitehurst, Vogel found Whitehurst to be difficult to understand and therefore decided to ask Blumenfeld to stipulate to allow Jordan to testify to Whitehurst's findings. Blumenfeld agreed, and Whitehurst's deposition was canceled. Shortly thereafter, Vogel and Blumenfeld entered into a written stipulation, which provided in part:

Special Agent Allen [sic] Jordan shall be allowed to testify to the results of the chemical analysis performed by Fred Whitehurst on metal fragments from the scene.

At trial in October 1994, Vogel asked Jordan about Whitehurst's findings and Jordan responded as follows:

Q. Okay. Was this evidence sent to Fred Whitehurst for chemical analysis?

A. Yes, ma'am.

Q. I am going to show you I believe Q-69, which is the long length of pipe fragment. I mean pipe nipple, which is marked as state's exhibit number 173. Was this sent to Mr. Whitehurst for chemical analysis?

A. Yes, ma'am. I recall sending this to Mr. Whitehurst.

Q. And did Mr. Whitehurst send you back a positive chemical analysis on this piece of evidence?

A. What he sent back was his findings of materials, residues consistent with RDX and HMX. Both of which are explosive material. HMX is a by product of RDX.

Q. Now, sir, would the presence of RDX and the HMX on this nipple fragment be consistent with the explosive that was used having been a booster?

A. Yes, ma'am. Both are high explosives. And high explosives were used in this particular device. Those are the certain characteristics that are imported to metal and other pieces, I knew that it had to be a high explosive material and it is consistent with that.

During cross-examination, Blumenfeld also asked Jordan about Whitehurst findings and Jordan responded as follows:

Q. Mr. Jordan, you talked about RDX and HMX. It sounds like a commercial for Hooked on Phonics. RDX and HMX are components, is that correct?

A. Yes, sir.

Q. They are components found in a number of different explosives?

A. Yes, sir.

Q. They are found in C-4

A. Yes, sir.

Q. C-4 is a plastic explosive?

A. Yes, sir.

Q. This is a -- it is a plastics form like a play dough.

A. It is a molded type of explosive and generally characterized as a military explosive when someone talks about a plastic explosive.

Q. If RDX was found in one of these ammo cans that has been shown to you, it would be consistent also with C-4 being in that ammo can?

A. Yes, sir.

Q. Was C-4 used in that device?

A. No, sir. I don't believe so.

Q. RDX is also found in military dynamite?

A. Yes, sir.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst claims that Jordan may have misreported Whitehurst's findings at trial. As observed above, Jordan testified on direct examination that Whitehurst found residues consistent with RDX and HMX. Jordan later testified on cross-examination that RDX and HMX are components of C-4, a plastic explosive. Whitehurst, by comparison, reported that his results identified the presence of RDX residues and are consistent with the presence of HMX. Whitehurst further reported that, [t]he combination of these two explosives is found in C-4 plastic explosive manufactured in the United States.

We find that contrary to Whitehurst's suggestion, Jordan did not purposely misreport Whitehurst's results. While Jordan failed to make clear that Whitehurst actually identified RDX, there is no evidence that Jordan acted intentionally or that his lack of precision was material. Vogel observed that in the context of this case, it was not important whether the residue was identified as or merely consistent with RDX. According to Vogel, the outcome of the trial had nothing to do with the kinds of explosives used in the bomb. Additionally, Jordan denied any intention to understate the strength of Whitehurst's findings. Even Whitehurst acknowledged that he was not left ill at ease with Jordan's testimony since if it's identical to RDX it's, of course, consistent with RDX.

Although Jordan did not misreport Whitehurst's findings, Jordan's failure to distinguish between identified and consistent with does highlight the importance of accurately reporting the dictation of other examiners. Jordan told us that in his view, this distinction was not a big deal. We do not agree. Although the distinction was not especially meaningful in this case, such a distinction may be important in another case. Thus, where the parties stipulate to permit one examiner to testify to the findings of another examiner, the Laboratory should encourage the testifying examiner to accurately recite those findings.

We also find no basis for Whitehurst's suggestion that prosecutor Catherine Vogel stipulated to Whitehurst's results because she sought to alter or misreport those results at trial. Vogel told us that she decided to stipulate to Whitehurst's testimony based primarily on her conversation with Whitehurst before the deposition. Vogel explained that she thought Whitehurst was intelligent but difficult to understand. Vogel stated that Whitehurst used terms that were hard to comprehend. Vogel recalled that she thought the jury would be overwhelmed by Whitehurst's testimony, noting that prospective jurors in Dade County, Florida were not especially well-educated. Jordan, who was present during the conversation between Whitehurst and Vogel, also told us that Whitehurst's explanation was confusing:

[Whitehurst] might as well have been talking Chinese -- she had no clue as to what he was saying. And I had very little clue. And when Fred left, I remember her making some kind of a comment, and then I said I couldn't help because I didn't know what he said either. And I can remember -- I can remember her not wanting to use him as a witness.

Although Vogel reported that her primary reason for not calling Whitehurst was her belief that he might confuse the jury, she also concluded that Whitehurst's testimony was not especially important to the case. Vogel explained that the principal issue at trial was whether the State's informant witness, Richard Wolfferts, was telling the truth in implicating Seijas. Whitehurst's testimony about the explosives used was not especially probative of that issue, according to Vogel. Vogel explained that Wolfferts was imprecise in describing the explosives and recalled only that the explosives resembled dynamite. Because Wolfferts' description was so vague, Whitehurst was not in a position to corroborate Wolfferts. She therefore decided to forego calling Whitehurst to further explain his results. In sum, the evidence does not support Whitehurst's allegation that the prosecutor stipulated in order to misreport his finding at trial.

Likewise, we find no basis to conclude that Jordan sought to testify in place of Whitehurst, contrary to Whitehurst's suggestion. Vogel told us that she made the decision not to call Whitehurst; Jordan did not discourage her from using



Whitehurst at trial. Defense counsel Jack Blumenfeld also told us that he made the decision not to call Whitehurst for his own reasons. Blumenfeld recalled that the Laboratory report containing Whitehurst's results was clear, and therefore it was not necessary to depose Whitehurst or to call him as a witness.

Whitehurst raised an additional issue during our interview. Whitehurst questioned the basis for Jordan's testimony on cross-examination that Jordan did not believe that C-4 was used in the device. When we asked Jordan about this conclusion, Jordan stated that he based his testimony on his observations of the damage. Jordan said that he did not see the type of damage to metal fragments consistent with the use of C-4 explosive. Jordan also stated that based on the estimated size of the device under Negretti's car, a pipe bomb composed of C-4 explosive would have caused greater damage to the car. We find no reason to take exception to Jordan's testimony.

Finally, during our interview, Whitehurst reported that other auxiliary examiners had also complained that their findings had been stipulated to and possibly misreported. When we asked Whitehurst to identify these other examiners, Whitehurst stated that he did not recall specifically which examiners voiced these concerns. Whitehurst added that MAU Chief James Corby and metallurgical examiner William Tobin had commented that Explosives Unit examiners frequently testified to the results of other examiners. During our interviews, we routinely asked other auxiliary examiners from the MAU, CTU, and EU whether their results were altered or misstated. No other examiner voiced the concern that stipulations were being used for the purpose of misreporting forensic results at trial. We conclude that Whitehurst's allegations in this regard are unfounded.

#### **IV. Conclusion**

We conclude that Jordan did not misreport Whitehurst's results in the Seijas case. The evidence also did not support Whitehurst's allegations that the prosecutor stipulated to allow Jordan to report Whitehurst's results because she sought to alter or misrepresent those results at trial. Notably, Whitehurst

himself reviewed the transcript of Jordan's testimony at trial and acknowledged that his concerns did not prove to be the case with the Negretti matter. To the extent that we noted an inaccuracy in Jordan's testimony, we think that it illustrates the need for written guidelines that ensure that examiners accurately report the conclusions by others in the Laboratory.

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## **SECTION H6: CONLON CASE**

### **I. Introduction**

In 1992, James Conlon, a hydraulic crane operator, died in an explosion while working at a scrap metal yard in New Jersey. New Jersey authorities suspected that the explosion might have been caused by an explosive device sold as scrap metal by the nearby military base. New Jersey authorities asked the FBI Laboratory to attempt to determine the origins of the explosive device. Explosives Unit examiner Robert Heckman and Whitehurst conducted examinations in the case. Heckman prepared a Laboratory report in which he concluded that the explosion was caused by a very brisant high explosive consistent with those used by the military.

In letters to the OIG, Whitehurst alleges that Heckman made unauthorized additions to Whitehurst's dictation in the Laboratory report. Whitehurst claims that Heckman made statements about Ion Mobility Spectrometer (IMS) results and sample degradation that were outside of Heckman's expertise. Whitehurst also criticizes Heckman's reported conclusion that the explosion was caused by an explosive consistent with a military explosive. Whitehurst maintains that commercial and industrial explosives also could have caused the explosion, and therefore Heckman's conclusion was too narrow and categorical.

We reviewed the Laboratory reports, police reports, memoranda written by various personnel in this matter, and depositions in the underlying case. We also interviewed Assistant United States Attorney Irene Dowdy, who represented the government in the Conlon civil case, FBI Assistant General Counsel Laura Blumenfeld, former SAS Section Chief James Kearney, former MAU Unit Chief James Corby, former EU Unit Chief J. Christopher Ronay, EU examiner Robert Heckman, and Whitehurst.

We conclude that Heckman made improper additions to Whitehurst's dictation by adding statements outside his area of expertise to the section of the report designated Instrumental Analysis. This case illustrates the need for Laboratory policies that ensure that examiners prepare separate Laboratory reports, that reports receive meaningful and substantive review, and that disputes between examiners are effectively addressed and resolved. Finally, we note that Whitehurst acted inappropriately by accusing SAS Section Chief Kearney of seeking to suppress a memorandum Whitehurst wrote in this case.

## **II. Factual Background**

On November 8, 1992, James Conlon died in an explosion at the Beacon scrap metal recycling yard in Freehold Borough, New Jersey. At the time of his death, Conlon was operating a hydraulic crane with a pincher arm designed to cut scrap metal. New Jersey State Police believed that Conlon may have detonated an explosive device hidden in a container in the scrap yard. Conlon died from injuries from the resulting metal fragmentation. Conlon's wife, Denise Conlon, subsequently filed a civil wrongful death action against the United States, Denise Conlon v. United States, Civ. No. 94-3140 (D.N.J.). In that lawsuit, Denise Conlon claimed that the explosion was caused by a military ordnance sold as scrap by the nearby Earle Naval Weapon Station.

In November 1992, New Jersey authorities sent the FBI Laboratory various fragments and items from the scene of the explosion. In their correspondence, they asked the Laboratory to [a]nalyze [the items] and identify any explosive residue, in an attempt to establish explosive device/item. Explosives Unit examiner Robert Heckman reported that he later spoke by telephone with one of the New Jersey Police bomb technicians. In that conversation, Heckman learned that the Beacon scrap yard may have accepted a live military explosive round as scrap metal from the adjacent military base. Thus, according to Heckman, the bomb technician asked him to determine if this was or could have been a military piece of ordnance [sic].

Heckman examined fragments from the explosion scene, but reported that he was unable to find any casing fragments that permitted him to identify the explosive device. Thus, he submitted the fragments and debris to Whitehurst for explosives residue analysis. When Whitehurst received this evidence, he also received the results of explosives residue analyses conducted at the explosion scene using a Barringer IMS. According to those analyses, the IMS detected the presence of explosives residue consistent with tetrytol, a military explosive containing tetryl and TNT.

After receiving the samples, Whitehurst conducted examination using the Barringer IMS as a screening test and the gas chromatograph/mass spectrometer (GC/MS) for confirmation. Whitehurst also conducted x-ray powder diffraction analysis. In his resulting dictation, Whitehurst reported that the IMS results were consistent with TNT, but because he could not confirm those results using GC/MS, he was unable to say that any explosives residue was present:

Gas chromatograph/mass spectrometric analysis of acetone extracts of specimens Q1, Q3 through Q5, Q10 through Q12, Q14 from Laboratory Number 21113027 and Q18 of Laboratory Number 21218030 did not detect the presence of explosives residues. The results of ion mobility spectrometric analysis of specimens Q1, Q3 through Q5, Q10 through Q12 and Q14 were consistent with the presence of trinitrotoluene (TNT) but because the TNT could not be confirmed by mass spectrometry a conclusion concerning the presence of TNT could not be rendered.

The results of x-ray powder diffraction analysis of specimen Q19 of Laboratory Number 21218030 are consistent with the presence of magnesium sulfate hexahydrate.

Heckman reported these results verbatim in the January 29, 1993, Laboratory report. Heckman, however, added his own observations about the IMS results from the explosion scene, as indicated in italics:

## INSTRUMENTAL ANALYSIS:

Gas chromatograph/mass spectrometric analysis of acetone extracts of specimens Q1, Q3 through Q5, Q10 through Q12, Q14 from Laboratory Number 21113027 and Q18 of Laboratory Number 21218030 did not detect the presence of explosives residues. The results of ion mobility spectrometric analysis of specimens Q1, Q3 through Q5, Q10 through Q12 and Q14 were consistent with the presence of trinitrotoluene (TNT) but because the TNT could not be confirmed by mass spectrometry a conclusion concerning the presence of TNT could not be rendered.

The results of x-ray powder diffraction analysis of specimen Q19 of Laboratory Number 21218030 are consistent with the presence of magnesium sulfate hexahydrate.

*It is known to this Laboratory that an Ion Mobility Spectrometer (IMS) was utilized by crime scene personnel during the crime scene investigation and an indication of Tetryl, TNT. [sic] It must be noted that an IMS is merely a screening indicator and non-confirmatory. Additional more specific instrumental examinations must be conducted in order to confirm the IMS results.*

*It is also known to this Laboratory that residues of many explosives degrade rapidly over time and may result in a negative finding even though the residues were originally present. Water, sunlight and temperature are the most common causes of sample degradation.*

*Therefore the results of the IMS test conducted at the crime scene may well have been true. However, without additional positive instrumental results this Laboratory cannot confirm the presence of these explosives.*

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CONCLUSIONS:

*Based upon the destruction observed at the crime scene which was caused by the explosion and a physical analysis of several fragments submitted to this Laboratory it is the opinion of this examiner that the explosion was caused by a very brisant high explosive consistent with those used by the military.*

In February 1995, counsel for plaintiff Denise Conlon subpoenaed Robert Heckman and Frederic Whitehurst for depositions on March 30, 1995. The purpose of these depositions was to explore statements in the Laboratory report that the explosion had been caused by a very brisant high explosive consistent with a military explosive. In preparation, Whitehurst read Heckman's Laboratory report for the first time and discovered Heckman's additions. Whitehurst wrote a ten-page memorandum to MAU Unit Chief James Corby, dated February 13, 1995, setting forth his objections to the Laboratory report. That memorandum stated in part:

I have reviewed the report that was written by SSA Heckman and found that he added some statements to the Instrumental Analysis Section of the report which though, I am sure, were an attempt to clarify my report, I do not agree with. SSA Heckman's addition of those statements also places him in a position of having to defend them given the new rules of discovery in civil procedure. Bob has noted that the IMS is merely a screening device; degradation of many explosives residues is rapid; water, sunlight and temperature are the most common causes of sample degradation, and that the IMS results from the other analyst may very well have been true but can not be confirmed. He is on his own on those statements.

Heckman has also noted that it is his opinion that the explosion was caused by a very brisant high explosive consistent with those used by the military. I agree with the statement however believe that it is too categorical, tending to narrow down the blast damage as originating from a military explosive. . . . [T]hough one may be able to say from blast damage that the explosive was a high explosive, one can not say what type of high explosive. I would have rendered an opinion that the damage was consistent with both military and industrial types of explosives.

Whitehurst also expressed other concerns and raised the possibility that individuals at the explosion scene may have contaminated the evidence.

After Corby received Whitehurst's memorandum, he brought it to the attention of SAS Section Chief James Kearney. Corby told Kearney that Heckman's conclusion was unsupportable and that Heckman was not in a position to interpret IMS data. Kearney agreed, but also criticized Whitehurst for preparing the memorandum in an unofficial format, for failing to provide a copy to Heckman, and for including personal opinion and comments in the memorandum. Kearney reportedly told Corby that he did not want the memorandum floating around to the attorneys unless necessary or requested. Corby reportedly passed on Kearney's statements to Whitehurst.

Kearney subsequently met with Whitehurst and Heckman. During that meeting, Heckman acknowledged that he should have concluded that the results were consistent with both a military and commercial explosive. Heckman, however, also maintained that he had not written the additional paragraphs under the Instrumental Analysis section, according to Kearney. Kearney instructed Heckman and Whitehurst to figure out who wrote the questioned paragraphs and to work out their remaining differences. The next day, Heckman sent a memorandum to Kearney acknowledging that he had written the questioned paragraphs. Heckman added that the paragraphs were not part of Whitehurst's dictation and should have appeared under a separate heading.



Following this meeting, Whitehurst revised the February 13, 1995, memorandum. The day before the deposition, Whitehurst showed this revised memorandum, dated March 29, 1995, to Corby and Laura Blumenfeld of the FBI Office of General Counsel (OGC). Corby reportedly told Whitehurst that he had no problems with the March 29, 1995, memorandum. Blumenfeld acknowledged to Whitehurst that the March 29, 1995, memorandum would be discoverable under the terms of the subpoena.

On March 30, 1995, plaintiff's counsel took Heckman's deposition. During the deposition Heckman stated that he had written the paragraphs under Instrumental Analysis based on information from the New Jersey State Police bomb technician. Heckman acknowledged that he should not have placed the paragraphs under that heading because their placement made them appear to be part of Whitehurst's dictation. Heckman also testified that he reached the conclusion that the explosion was caused by an explosive consistent with those used by the military based on the high explosive damage at the scene, including evidence of metal thinning and deformation. He conceded that an equal number of commercial explosives could have caused the damage, but stated that he sought to answer the specific question posed by the New Jersey bomb technician.

In his own deposition, Whitehurst testified that Heckman should have said that the explosion was caused by a high explosive consistent with those used by the military and industry. Whitehurst also stated that he had become so concerned about contamination from bomb technicians on the scene that he could no longer render an opinion in the case. Whitehurst then disclosed that he had written the March 29, 1995, memorandum, along with an earlier version. Whitehurst testified that he did not bring the earlier version with him, because he understood that his section chief wanted him to suppress that information. When asked to explain his use of the word suppressed, Whitehurst responded that there was a desire not to publish. And in my opinion, that is suppression.

Following the deposition, Whitehurst wrote a memorandum explaining his conduct in the case. In that memorandum, Whitehurst stated that Kearney did not order or suggest that Whitehurst withhold the memorandum. Laboratory

Director Milton Ahlerich reviewed the matter and determined that Whitehurst's suppression allegation did not warrant further investigation.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst alleges that Heckman improperly added three paragraphs to the Instrumental Analysis section of the Laboratory report.

We agree that the paragraphs added by Heckman were inappropriate for inclusion anywhere in the Laboratory report, much less in the Instrumental Analysis section. By referring to the IMS results, Heckman suggested that TNT and Tetryl may have been present, even though Whitehurst expressly declined to render such a conclusion. Heckman's statement that the IMS results from the explosion scene may well have been true undercut the conclusion reached by Whitehurst. Although Heckman was apparently motivated by an intention to provide helpful information, the addition of these paragraphs made the report less, not more, clear.

Heckman's additions to the Instrumental Analysis section of the report also were improper because the information was clearly outside of Heckman's area of expertise. Heckman told us that he obtained information about the causes of sample degradation from Whitehurst, Steven Burmeister, and reading different books on the subject of explosives, explosive residue and so forth . . . . He said he believed that he was qualified because of his background, training, and experience to conclude that water, sunlight and temperatures are common causes of sample degradation. Contrary to his suggestion, Heckman was not qualified to interpret the unconfirmed results of explosives residue analysis from the Barringer IMS. Nor was he qualified to render an opinion about sample degradation and its causes. These areas were within the expertise of the explosives residue examiner. As an Explosives Unit examiner, Heckman was qualified to testify concerning his own forensic examinations of explosive devices and the reconstruction of explosive devices. Heckman should have left any discussion of the significance of unconfirmed IMS results to the explosives residue examiner.

Whitehurst also complains that Heckman's placement of these paragraphs under the heading Instrumental Analysis erroneously suggested the Whitehurst had rendered the opinion. Again, we agree with Whitehurst's criticism. During our interview with Heckman, he acknowledged that he should not have placed these paragraphs under that heading for this reason. Heckman explained that inclusion of these paragraphs under this heading was an oversight. We considered but rejected the idea that Heckman purposely sought to mislead the reader concerning authorship of the questioned paragraphs. We became concerned about this issue when we learned that Heckman initially denied even writing these paragraphs. After Whitehurst questioned these paragraphs, however, Heckman quickly acknowledged his authorship. He also told us that he did not intend to mislead the reader on this point.

Whitehurst also claims that Heckman's conclusion -- that the explosion was caused by a very brisant high explosive consistent with those used by the military -- was too narrow and categorical. While Heckman's conclusion was not inaccurate, Heckman could have been more clear and complete if he had acknowledged in his report, as he did in his deposition, that the explosive could have been of military or commercial origin. There are several high explosives used in both commercial and military applications that have similar threshold detonation velocities, brisance, and capacity to inflict site damage. Heckman, by referring only to an explosive used by the military, risked conveying the erroneous impression that he had some basis for identifying the origins of the explosive as military in particular. An examiner should avoid phrasing conclusions in a way that might be misconstrued.

In defense of his conclusion, Heckman explained that he tailored his conclusion to the specific question asked by investigators, namely, whether the explosive device could have been a military ordnance. We agree that a forensic scientist should seek to answer the specific question asked by investigators. However, examiners also should recognize when investigators have requested a conclusion or explanation that may be open to misinterpretation. In such cases, the examiner may choose to limit the conclusion to one directly supported by the data. Alternatively, the examiner may decide to provide other reasonable explanations to ensure that the significance of the conclusion is not misinterpreted. In this case, for example, Heckman could have limited his

conclusion to a finding that the explosion was caused by a very brisant high explosive, or added that the explosion was consistent with both a military or commercial explosive.

We think this case illustrates the need for clearer Laboratory guidelines in several respects. First, Laboratory policy should have ensured that the auxiliary examiner received a copy of the Laboratory report for review before release. Such a practice would have allowed Whitehurst to discover the improper additions before Heckman distributed the report. Both Heckman and Explosives Unit Chief Ronay indicated that at the time of these events, each principal examiner decided whether to provide the final version of the Laboratory report to the auxiliary examiner. Later, in the fall of 1994, the Laboratory issued written guidelines requiring that auxiliary examiners receive tickler copies of the Laboratory report when released. However, even this policy would not have ensured review by the auxiliary examiner before distribution of the report. Thus, in our recommendations in Part Six, we recommend that the auxiliary examiner prepare and release his or her own separate report.

The Explosives Unit also would have benefitted from a practice of meaningful review by Unit Chief Ronay. The evidence shows that Ronay generally conducted administrative and grammatical reviews of reports, but not substantive reviews of the conclusions. Such a practice is not acceptable in a modern Laboratory. Ronay should have questioned Heckman's conclusion that the explosive was consistent with those used by the military, since the explosives residue results were inconclusive and the report provided little basis for distinguishing between a military and a commercial explosive. Ronay also should have questioned Heckman's statement that the on-scene IMS results may well have been true, inasmuch as those results had not been confirmed. The evidence shows that Ronay's review of this Laboratory report was inadequate.

Additionally, the Laboratory should have had clearer guidelines in place for addressing disputes between the principal and auxiliary examiners. Those guidelines should have required that Whitehurst and Heckman discuss their differences and prepare a supplemental Laboratory report if necessary. The unit

chiefs for both examiners could have reviewed that supplemental report and resolved any remaining disagreements. In the absence of such guidelines, Whitehurst initially failed to share his concerns with Heckman. Rather, he prepared a memorandum for Corby, who immediately elevated the matter to the level of Section Chief Kearney. Because Whitehurst prepared an informal memorandum, there were no procedures in place to ensure that it found its way to Heckman, the Explosives Unit Chief, or the parties in the case. The foregoing demonstrates an uncooperative atmosphere within the Laboratory that complicated this dispute and ultimately placed the Laboratory in a bad light.

Finally, we observe that Whitehurst unnecessarily inflamed the situation by testifying that Kearney sought to suppress his original memorandum. The evidence did not support that assertion by Whitehurst. Whitehurst testified that he made this statement based on his conversations with Corby. Corby, however, told us that he never told Whitehurst that Kearney wanted to suppress the memorandum. Corby reportedly told Whitehurst that Kearney did not want to produce the original version of the memorandum at the deposition unless requested or necessary. Thus, Whitehurst later acknowledged that Kearney had not pressured him to suppress the document. Whitehurst added, I am not an attorney and therefore can not be expected to understand all of the legal meanings of all of the words in my otherwise normal vocabulary.

It is difficult to credit Whitehurst's assertion that he did not understand the implications of the word suppress. Even in its ordinary sense, the word suggested that Kearney improperly sought to withhold this information. In any event, Whitehurst was both a third year law student and an experienced law enforcement witness who should have understood the implications of using the word suppress. In the opinion of Laura Blumenfeld of the FBI OGC, who attended the deposition, Whitehurst appeared to use that word to incite. The evidence supports the conclusion that Whitehurst purposely used the word suppress, aware of its implications.

#### **IV. Conclusion**

We find that Heckman made improper additions to Whitehurst's dictation by adding statements outside his area of expertise to the section of the report designated Instrumental Analysis. This case illustrates the need for Laboratory policies that ensure that examiners prepare separate Laboratory reports, that reports receive meaningful and substantive review, and that disputes between examiners are effectively addressed and resolved. Finally, the evidence shows that Whitehurst acted inappropriately by accusing SAS Section Chief Kearney of seeking to suppress a memorandum Whitehurst wrote in this case.

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## **SECTION H7: JUDGE JOHN SHAW**

### **I. Introduction**

In a letter to the OIG dated April 8, 1995, Whitehurst alleged that CTU examiner Ronald Kelly, without being properly qualified, had prepared a report that identified smokeless powder in a pipe bomb sent to a federal judge. Whitehurst further contended that the analysis in the case was flawed because it did not determine if materials other than smokeless powder were present in the bomb. He also suggested that Roger Martz, as chief of the CTU, violated FBI policies by assigning the case to Kelly.

To investigate the allegations, we reviewed the Laboratory report and Kelly's notes and other work papers. We also interviewed Kelly, Roger Martz, Steven Burmeister, and Robert Heckman.

We conclude that Kelly did not violate any FBI policies or procedures through his work on the case. His identification of smokeless powder appears to be technically correct and is supported by his notes and analytical data. We also conclude that Martz did not violate any FBI policy in assigning Kelly to work on the case.

Whitehurst makes a valid point in noting that the analysis performed may not have identified all substances present in the bomb. Our investigation revealed that Laboratory personnel had different understandings concerning the applicable protocols for this type of analysis.

The case illustrates the need to integrate the CTU's different protocols for the identification of explosives and to clarify the respective roles of the EU and CTU examiners in determining the type of analysis to be done.

## **II. Factual Background**

Ronald Kelly became qualified as a forensic chemist examiner in the FBI Laboratory in February 1995. Before then, he had worked in the CTU since September 1978 as a physical science technician. Because Kelly is not an FBI agent, he was not eligible to become an examiner until relatively recently. Kelly told us that his particular expertise is in arson and fire examinations. He also has worked on the analysis of smokeless powders since 1985. During 1995, he was training to become qualified as an explosives residue examiner.

On March 18, 1995, the FBI Laboratory received evidence related to an improvised explosive device found on March 16, 1995, at the offices of United States District Judge John Shaw in Lafayette, Louisiana. EU examiner Robert Heckman was the principal examiner on the case. The evidence included samples of what appeared to be smokeless powder that had been taken from the unexploded device. By this time, Steven Burmeister had been reassigned to the CTU, where he was performing explosives residue examinations. Roger Martz, chief of the CTU, recalled assigning the case to Ronald Kelly because Burmeister was unavailable.

Kelly did not think there was anything unusual about the analysis in the case, as he had previously worked on many smokeless powder cases. Heckman, Kelly stated, asked him only to identify, by brand name if possible, the suspected smokeless powder in the device. Accordingly, Kelly did not understand Heckman to have requested a comprehensive analysis of the materials to determine if substances other than smokeless powder may have been present. Heckman's recollection was slightly different. He initially stated that he had sent the sample for an explosive analysis in general, and he thought that Kelly had made the decision to conduct only the smokeless powder analysis. Heckman added that because the bomb had not exploded and there was an



intact powder sample, it would be logical to follow the smokeless powder protocol, and he did not think Kelly should have followed the more comprehensive protocol. Heckman also acknowledged that he may have asked Kelly only to confirm and identify the smokeless powder.

On receiving the evidence, Kelly followed the CTU's written protocol for the identification of smokeless powders. Initially, he examined the samples with a microscope and measured and otherwise noted the physical characteristics of the powder, which in this case included the presence of yellow dots. Kelly then prepared an extraction with methylene chloride and conducted an analysis on the Gas Chromatograph/Mass Spectrometer (GC/MS). The results indicated that particular samples were double base smokeless powder. He also confirmed the presence of nitrocellulose, a component of smokeless powder, in one sample through the use of Fourier Transform Infrared Spectroscopy (FTIR).

Based on his examination of the evidence, Kelly prepared dictation for a Laboratory report dated March 18, 1995. That report notes that, [s]pecimens Q1, Q2, Q4, and Q7 were identified as double base smokeless powders suitable for future comparison. After performing some additional work on the GC/MS, Kelly prepared a second dictation on April 6, 1995, noting that the identified specimens were physically and chemically consistent with Hi-Skor 700-x smokeless powder.

No suspect was identified in the Shaw case. We understand that no further analytical work has been done by the Laboratory since April 1995.

### **III. Analysis of Whitehurst's Allegations**

Whitehurst contends that Kelly should not have examined the evidence because Kelly had not been qualified as an examiner of explosives residue. Whitehurst also maintains that the analysis was flawed because it may have overlooked certain materials present in addition to smokeless powders. Finally, he suggests

that Roger Martz violated Laboratory policies in assigning the case to Kelly. Whitehurst did not work on the Shaw case himself, and he did not discuss any of his concerns with either Kelly or Heckman.

We do not find that Kelly performed the analysis without qualifications then required within the Laboratory. Kelly became qualified as an examiner in forensic chemistry in February 1995. Forensic chemist examiners in the CTU had been analyzing smokeless powders since the 1980s. When Kelly worked on the Shaw case, there was no stated FBI policy that the analysis of smokeless powders had to be done by explosives residue examiners as distinct from forensic chemists such as Kelly.

Nor do we find that Martz violated any Laboratory policies in assigning the case to Kelly. We do think that Martz as unit chief should have taken additional steps to integrate the protocols for the analysis of explosives and smokeless powders and to assure that examiners properly understood the role of such protocols. Before the analysis of explosives residue was transferred from the MAU to the CTU in the summer of 1994, the Laboratory had identified the need to develop guidelines for the respective roles of the two units in explosives cases. In a memorandum to MAU Chief James Corby dated January 24, 1994, Scientific Analysis Section Chief James Kearney directed Corby to meet with Martz and to develop written guidelines concerning the roles of the two units by March 4, 1994.

No written guidelines were prepared in response to Kearney's memorandum. Corby recalled that he and Martz verbally agreed that all explosives residue cases would be handled by the MAU. Corby said that he understood the CTU might continue to attempt to identify smokeless powder, but that the MAU would be responsible for combining such results with any other work done by the MAU. Martz similarly recalled that, at Corby's urging, all explosives cases were to be sent first to the MAU during an interim period in 1994.

As discussed elsewhere in this Report, the explosives residue program within the MAU was transferred to the CTU in the summer of 1994. Some time thereafter, the CTU added the MAU's explosives residue protocol to the CTU's collection of protocols. At the same time, the CTU retained its separate

protocol for the identification of smokeless powders. Consequently, in early 1995 the CTU had written protocols for both explosives residue analysis and smokeless powder analysis, but there was no clear statement of the relationship between these protocols. Thus, despite the transfer of the explosives residue program to the CTU, the basic issue of integrating the protocols remained unresolved.

The protocol for the analysis of explosives residue is more comprehensive than the protocol for smokeless powders. Steven Burmeister, who in March 1995 was the only examiner in the CTU qualified in the field of explosives residue examinations, told us he believed that the explosives residue protocol should be followed in all cases involving suspected explosive materials, including cases where the device is unexploded and apparently contains smokeless powder. Kelly, when interviewed in December 1995, said he understood the explosives residue protocol to apply to the examination of residues from exploded devices. Kelly maintained that the smokeless powder protocol would be sufficient in particular cases, such as Shaw, where the auxiliary examiner is asked merely to identify smokeless powder.

Martz, as unit chief, should have assured that the protocols were integrated. Moreover, he should have confirmed that his examiners understood that the identified protocols were not merely guidelines to be followed at the examiner's discretion. Standardized protocols, by their nature, should normally be followed in cases to which they apply. If for some reason a departure from those protocols is appropriate, that fact and its underlying rationale should be recorded in the case file.

We also find that Whitehurst makes a valid point in noting that the analysis done in the Shaw case may not have identified substances present in addition to smokeless powder. This point relates to our comments concerning the relation between the smokeless powder protocol and the protocol for the analysis of explosives residue. Under the latter protocol, a water extraction would be made and analyzed by high performance liquid chromatography (HPLC) and capillary electrophoresis to identify inorganic materials that may be present. Inorganic materials might not be detected by the GC/MS and FTIR analyses called for under the smokeless powder protocol.

In analyzing the smokeless powder in the Shaw case, Kelly did examine the material with a microscope. He told us that he did not observe anything other than the particles of what appeared to be smokeless powder. It is conceivable, however, that some other inorganic materials were present which, if not identified in the microscopic examination, might also have escaped detection through the GC/MS and FTIR analyses that Kelly performed.

On a related point, we think the Shaw case suggests a general need to clarify the respective roles of the CTU examiner, in this case Kelly, and the EU examiner in identifying procedures to followed. Kelly recalled that he understood Heckman to have requested only a confirmation that smokeless powder was present and a possible identification of its manufacturer. Heckman, although agreeing that he might have made this request, said that he thought the auxiliary examiner generally should determine the range of tests to perform, as that person has the appropriate expertise.

In the area of explosives residue analysis, we think the auxiliary examiner must take responsibility and make the final decision on the procedures necessary for the case. A principal examiner from the EU, or other units for that matter, generally will lack the specialized knowledge to decide what particular analyses should be done. The principal examiner should of course participate in that decision by providing appropriate information to the explosives residue examiner.

#### **IV. Conclusion**

We conclude that Kelly did not violate FBI policies by his work on the Shaw case. Nor do we find that Martz violated any policy by assigning Kelly to work on the case.

The case does suggest that the Laboratory should improve its practices in the following ways:

(1) the protocols within the CTU for explosives residue analysis and smokeless powder analysis should be integrated;

(2) the CTU should assure that its examiners recognize that standardized protocols are to be followed in applicable cases, unless there is a noted reason for departure; and

(3) the roles of examiners in the EU and the CTU should be clarified to state that it is the explosives residue examiner who remains ultimately responsible for deciding the particular procedures to use in analyzing explosives residue.

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## **SECTION H8: GHOST SHADOW GANG**

### **I. Introduction**

In a June 27, 1995, letter to the OIG, Whitehurst complained that EU examiner David Williams had prepared a Laboratory report related to the investigation into the criminal activities of the Ghost Shadow Gang -- a gang active in the Chinatown area of Manhattan -- in which Williams improperly presented an expert opinion concerning the main charge in an improvised explosive device (IED). Whitehurst alleged that Williams stated opinions for which he lacked qualifications or analytical support and that he fabricated evidence.

To evaluate these allegations, we reviewed the pertinent Laboratory reports and the related work papers and data. We also interviewed Williams and Steven Burmeister, who worked on the case as an auxiliary examiner.

We conclude that Whitehurst's allegations in this matter are unfounded.

### **II. Factual Background**

On June 7, 1995, the Laboratory received components of an IED recovered during an FBI search in New York City. David Williams was the principal examiner assigned to the case. On June 14, 1995, Williams completed a Laboratory report describing certain examinations performed on the evidence. Under the heading, Explosive Main Charge, the report stated:

Specimen Q3 is a grey colored powder with particles approximately 3/16 in diameter. A sample of the grey powder was test burned in the Laboratory and reacts with rapid flash. Physical observable characteristics of the grey powder suggests [sic] that it resembles pyrotechnic flash powder. The larger particles within the grey powder mixture appear to be a filler mixture. Additional chemical and physical examinations are continuing to confirm the identity of the grey powder and your office will be advised of these results upon its completion. Pyrotechnic mixtures similar to the submitted specimen have been experienced in this Laboratory as having originated from both commercial and homemade M-80 and M-100 type pyrotechnics.

Steven Burmeister subsequently completed the chemical and physical examinations identified in the June 14, 1995, report. A second report was prepared by Williams, dated July 18, 1995, which contained the results of Burmeister's work. Under the heading Explosive Analysis the report notes:

The results of a physical and instrumental examination of specimen Q3 identified the presence of potassium perchlorate and aluminum. Also present in the mixture were particles of an unidentified organic material. A combination of these materials have been found in some flash powder mixtures.

The second report further described the particular tests Burmeister performed.

During our investigation, we asked Burmeister to review the June 14, 1995, report and the July 18, 1995, report. He stated in his sworn interview that he did not see any problems with anything in the reports and that the July 18, 1995, report accurately incorporated his dictation.

### **III. Analysis of Whitehurst's Allegations**

In his June 27, 1995, letter, Whitehurst complained about various aspects of the passage quoted above from the June 14, 1995, report. Obviously, his June 27, 1995, letter did not address the conclusions reached by Burmeister that were set forth in the subsequent July 18, 1995, report.

Whitehurst first noted that in the June 14, 1995, report, Williams stated that a sample of the grey powder had been test burned and reacted with a flash. Whitehurst speculated that if the grey powder was not homogenous, Williams may have destroyed evidence from the test burn before it could be examined by Burmeister. We think this complaint is unwarranted. Burmeister's notes indicate that he himself performed a burn test on a sample of the powder, which also produced a flash.

The initial report also stated that the physical observable characteristics of the grey powder suggests [sic] that it resembles pyrotechnic flash powder. Whitehurst complains that Williams was not qualified to make this statement. Insofar as Williams simply described the observable characteristics of the powder, we think his training and experience in the EU qualified him to express the stated opinion.

Williams also stated that larger particles within the grey powder mixture appeared to be a filler mixture. Whitehurst complains that Williams could not make this statement without having analyzed the particles. In the very next sentence of the original report, however, Williams stated that additional chemical and physical examinations were continuing to confirm the identity of the grey powder. We do not think Williams lacked the qualifications necessary to state that certain particles appeared to be a filler mixture. In light of the following sentence, he also did not incorrectly suggest that this observation reflected some chemical examination.

Williams also observed in the first report that pyrotechnic mixtures similar to the submitted specimen have been experienced in the Laboratory as having



originated from commercial and homemade M-80 and M-100 type pyrotechnics. Whitehurst asserts that this was fabricated evidence because no analysis had yet been conducted and Williams had absolutely no idea what the mixture contained. Whitehurst's criticism here ignores the fact that Williams notes earlier in the dictation that chemical and physical examinations are continuing to confirm the identity of the grey powder. When read in context, the statement by Williams comparing the specimen to mixtures from M-80 and M-100 type pyrotechnics evidently rested on observation of the physical characteristics of the evidence.

Whitehurst in his June 27, 1995, letter stated that Burmeister expressed concerns to him about the initial report by Williams. As noted above, Burmeister told us that he did not have problems with the June 14, 1995, report or the July 18, 1995, report. During his interview with us, Whitehurst said he did not recall ever reviewing the second report and said that he would defer to Burmeister if he thought the two reports did not present any problems.

#### **IV. Conclusion**

We conclude that David Williams was qualified to give the opinions in the June 14, 1995, report, that the opinions did not lack proper analytical support, and that the report did not constitute fabricated evidence.

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## **SECTION H9: THE UNABOM ARTICLE**

### **I. Introduction**

The July 1994 issue of the Crime Laboratory Digest contained an article by EU examiner Thomas Mohnal describing fourteen explosive devices attributed to the so-called Unabomber. The characteristics of the bombs as described in the article were based on forensic examinations that had been performed over several years by the FBI Laboratory and the laboratories of the Bureau of Alcohol, Tobacco and Firearms (ATF) and the U.S. Postal Inspection Service (USPIS). Some statements made in the article were based on work done by Terry Rudolph when he was conducting explosives residue examinations in the Laboratory in the 1980s. The article was published in an effort to develop investigative leads by describing the devices used by the Unabomber and disseminating this information to crime laboratories throughout the world.

Shortly after the article appeared, Whitehurst wrote to the OIG complaining that it contained false information and that, before it was published, the Laboratory should have addressed concerns raised by Steven Burmeister about the validity of conclusions reached earlier by Rudolph. He repeated this allegation in later correspondence and in an interview in this investigation. Whitehurst alleged that, when Burmeister attempted to raise his concerns, he was rebuffed by Mohnal and Christopher Ronay, the chief of the EU. Finally, Whitehurst maintained that work done some years ago by the ATF or the USPIS should be reevaluated in light of current scientific knowledge.

To evaluate Whitehurst's allegations, we reviewed documents provided by the FBI related to the article and to Burmeister's review of work done by Rudolph on the UNABOM investigation. We also interviewed Whitehurst, Burmeister, Mohnal, Tom Roberts, Ronay, and Rudolph.

Based on our investigation, we conclude that neither Mohnal nor others in the Laboratory acted improperly in publishing the UNABOM article in July 1994 without first addressing Burmeister's concerns. This conclusion reflects both the limited purpose of the article and our inability to determine if Mohnal knew of Burmeister's concerns before the article was published. In retrospect, given the significance of this case and the fact that by July 1994 the Laboratory was on notice of possible deficiencies in Rudolph's work, it would have been desirable to review Rudolph's findings and confirm them before they were described in the article.

Furthermore, the concerns raised by Burmeister about Rudolph's conclusions appear in several instances to be well-founded. These concerns were brought to the attention of Mohnal and Laboratory management not later than September 1995. Mohnal then attempted to prepare a response based on information he obtained from Rudolph. As set forth below, the response does not adequately address Burmeister's concerns. Nor did we find that Rudolph persuasively addressed those concerns in his OIG interview. Accordingly, we recommend that a qualified explosives residue examiner undertake a detailed review of all of Rudolph's UNABOM work before it is used further in the case.

Neither Whitehurst nor Burmeister has reviewed the examinations done by the ATF or the USPIS in this matter. The thoroughness of those examinations and the validity of any resulting conclusions are beyond the scope of this Report, and we do not address them here.

## **II. Factual Background**

EU examiner Thomas Mohnal became the Laboratory's principal examiner (PE) in the UNABOM investigation in June 1993. Before then, Ronay had been the PE. As the PE, Mohnal began writing an article about the case for an FBI-published periodical, the Crime Laboratory Digest.

Mohnal intended to describe features of the fourteen explosive devices attributed to the Unabomber in the hope that investigative leads might develop after the article was disseminated to crime laboratories around the country. In preparing the article, Mohnal relied on Laboratory reports prepared by the ATF, the USPIS, and the FBI. For many of the earlier bombings, the ATF and the USPIS had done all the forensic work. In the instances where the FBI had examined the explosive devices, former MAU examiner Terry Rudolph had done the explosives residue analysis.

After becoming involved in the case, Mohnal also asked Burmeister in the MAU to assist with explosives residue analysis of the UNABOM evidence. In the summer of 1993, Mohnal asked Burmeister to review the files reflecting the Laboratory's prior explosives residue analyses on the case. Mohnal and Burmeister agreed that such a review was desirable to see whether there was any pattern developing over time that could tie the bombings together.

Burmeister reviewed the UNABOM case files and, sometime in the spring of 1994, summarized his conclusions in an informal memorandum entitled UNABOM review by SSA Steven Burmeister. As reflected in this memorandum, Burmeister found that certain files lacked documentation such as work notes or any information on how the Laboratory had processed the evidence. In several of the files, Burmeister criticized Rudolph's previous work for failing to include sufficient standards, to perform confirmatory tests, to address all significant substances found, or to include data sufficient to support the stated conclusions.

Mohnal and Burmeister have conflicting recollections about any discussion of Burmeister's memorandum. Burmeister remembers giving it to Mohnal and says he most likely discussed it with him shortly after preparing it in the spring of 1994. In contrast, Mohnal denies that Burmeister gave him the memorandum or discussed it with him. Mohnal told us during an interview that he did not know of the memorandum until September 1995, when it was given to him by Tom Roberts, a prosecutor from the Department of Justice who then headed the UNABOM Task Force. In May 1994, Burmeister did give a copy of his UNABOM memorandum to John Sylvester, an Assistant General Counsel in the FBI's Office of General Counsel (FBI OGC). Sylvester was one of the

attorneys then working on the FBI OGC investigation of allegations made by Whitehurst concerning Rudolph and other matters within the Laboratory. In an interview, Sylvester asked Burmeister if he had seen any of Rudolph's work. Burmeister responded by describing his review of Rudolph's UNABOM examinations. On May 31, 1994, Burmeister sent Sylvester a copy of the memorandum.

About a month later, Mohnal's article appeared in the July 1994 issue of the Crime Laboratory Digest. Burmeister said he had not seen drafts of the article before its publication, and when he read the published article, he questioned its statement that the person making the bombs was using potassium chlorate, AN and AL [sic] as constituent chemicals for the explosive charge. Burmeister thought this statement incorrectly implied that all the mentioned chemicals were found in the later bombs, and he thought that he should have reviewed the article before its publication.

Mohnal and Burmeister also differ in their recollections of conversations after the article appeared. Burmeister said he told Mohnal his concerns, and Mohnal responded that the article was already published and there was little to be done. In an OIG interview Mohnal said that he did not recall telling Burmeister this and that, in any event, Burmeister's concerns did not really affect the information being presented in the article. Mohnal said that while the article may not have been worded as precisely as it could have been, there was no harm insofar as it was intended to disseminate general information about the devices to develop investigative leads.

More than a year after the article appeared, Mohnal was contacted by UNABOM prosecutor Roberts concerning allegations by Whitehurst that the article contained questionable information. Roberts gave Mohnal an excerpt from a July 13, 1994, letter from Whitehurst to the OIG. Enclosed with Whitehurst's letter were copies of the article and Burmeister's memorandum. Whitehurst in his letter compared statements from Burmeister's memorandum with statements in the article and observed, The data concerning the type of charge used in the bombs that SSA Mohnal reported in the article is either in question or there appears to be no hard data to back it up.

After receiving the Whitehurst letter and Burmeister memorandum from Roberts, Mohnal approached Laboratory Director Milton Ahlerich to discuss what should be done. Ahlerich told Mohnal to draft a written response. Mohnal prepared a memorandum dated October 3, 1995, that addressed allegations made by Whitehurst as well as certain concerns raised by Burmeister in his review. In his memorandum, Mohnal noted that in some instances where Whitehurst had asserted there was a lack of hard data to support statements in the article, the statements were in fact supported by forensic examinations done by the ATF or USPIS. With regard to the accuracy of certain conclusions reached by the FBI Laboratory, Mohnal attempted to describe the underlying examinations. To prepare the memorandum, Mohnal talked with Rudolph about his explosives residue work, although Mohnal's memorandum does not mention this fact.

Mohnal recalls that Ahlerich, EU Examiner J. Thomas Thurman, and Randall Murch, who then was chief of the SAS, each reviewed a draft of his memorandum. He also believes that each of them knew he had consulted with Rudolph in preparing it. Neither Burmeister nor Whitehurst was asked to review Mohnal's memorandum, and no explosives residue examiner other than Rudolph provided information to Mohnal for the memorandum. Mohnal told us that his primary objective in preparing the memorandum was to rebut Whitehurst's accusations that he had deliberately included incorrect information in the article, and Mohnal said he was less concerned about responding to issues raised by Burmeister.

After completing his memorandum, Mohnal gave a copy to Roberts and further discussed Whitehurst's allegations with the prosecutor. Roberts concluded the allegations were not substantiated because Whitehurst had not worked on the case himself, he was applying current Laboratory practices to criticize examinations done years before, certain conclusions reached by the FBI Laboratory had been independently corroborated, and the Unabomber's writings themselves supported conclusions reached by the Laboratory. Roberts said he knew Rudolph had been criticized for sloppy work habits, but he did not think Rudolph had been found to have fabricated conclusions.

In a letter dated October 5, 1995, James Maddock of the FBI OGC advised the OIG that Roberts had apparently concluded that Whitehurst's allegations were unsubstantiated. Maddock further stated, This information is being provided because it bears on the credibility of Mr. Whitehurst and also illustrates the disruptive impact that his allegations have had on FBI operations.

### **III. Discussion**

In this discussion we evaluate Whitehurst's allegations about the article and concerns raised by Burmeister about Rudolph's work on the case.

#### **A. Publication of the Article**

Whitehurst alleges that the Laboratory improperly failed to address the concerns raised by Burmeister before the article was published. Mohnal, as noted above, said he was unaware of Burmeister's concerns until September 1995 -- more than a year after the article was released. Moreover, Mohnal noted in his October 3, 1995, memorandum:

This article was approved for release by the UNABOM Task Force, as well as it was peer reviewed by SSA James Kearney, Section Chief, Scientific Analysis Section and SSA J.C. Ronay, Unit Chief, Explosive Unit and was also the Primary Examiner assigned to the UNABOM case from November 1979 through 1989. This article was also peer reviewed independently of me at the direction of the staff of the Crime Laboratory Digest. Peer review is a universal method of determining acceptability of articles in professional and scientific journals.

We are unable to find that Mohnal or others in the Laboratory deliberately ignored Burmeister's concerns in publishing the article in July 1994. Mohnal and Burmeister have conflicting recollections of whether they discussed Burmeister's concerns, and we cannot conclude that Mohnal knew of them before the article was released. We also recognize that the article was intended as a general summary of the devices in order to develop investigative leads.

In retrospect, however, given the significance of this case and the fact that by July 1994 the Laboratory was on notice of possible deficiencies in Rudolph's work, it would have been desirable to review Rudolph's findings and confirm them before they were described in the article. Mohnal acknowledges that he had asked Burmeister to work on UNABOM before the article was released, and we find it astonishing that Mohnal would publish an article purporting to summarize the features of the different bombs without soliciting input from Burmeister, the explosives residue examiner then assigned to the case.

Moreover, we think Mohnal erred in his statement that the article was subject to peer review before its publication. Insofar as the article described conclusions based on the examination of explosives residue, a peer review would involve substantive review by someone knowledgeable in that field. Neither Kearney nor Ronay had such expertise. Moreover, neither could specifically recall reviewing the article, and Kearney noted that if he had done so, his review would have been purely administrative. Similarly, any review directed by the staff of the Crime Laboratory Digest would have been largely administrative, because the reviewer would not have had access to the case files or scientific data.

## **B. The Allegation that Mohnal and Ronay Rebuffed Burmeister**

Whitehurst alleges that Mohnal blew . . . off Burmeister when the latter first expressed his concerns about Rudolph's work on UNABOM. Our investigation did not substantiate this allegation. Burmeister told us he did not recall Mohnal reacting negatively or expressing a lack of concern. Burmeister also said he did



not recall telling Whitehurst that Mohnal had been unreceptive to Burmeister's findings.

Whitehurst also alleges that Burmeister told him about a conversation involving Ronay, Thurman, and Burmeister, in which they recognized that there were some problems in previous analyses in the case and Ronay said, [D]on't open that can of worms, don't open it. In an interview with the OIG, Burmeister said that he did not recall this conversation and that the alleged phrase about a can of worms would be out of character for Ronay. Burmeister also said that he could not recall discussing his review of Rudolph's UNABOM work with Ronay or Thurman, although he had discussed it with MAU Chief James Corby and Whitehurst.

### **C. The Laboratory's 1995 Response to Burmeister's Concerns**

In 1995, after Roberts gave Mohnal copies of Whitehurst's July 13, 1994, letter and Burmeister's memorandum, the Laboratory failed to respond adequately to the concerns raised by Burmeister. By this time, Laboratory Director Ahlerich was aware that serious questions had been raised about the quality of Rudolph's work and a review of all of that work was under way. Mohnal at the least knew that Burmeister, who then was the Laboratory's only examiner working in the field of explosives residue analysis, had raised serious questions about Rudolph's work on the UNABOM case in particular. Mohnal was not himself qualified to evaluate the criticisms raised by Burmeister or Rudolph's response. In these circumstances, the Laboratory should have sought a thorough review of Rudolph's work by a qualified explosives examiner. Mohnal's October 3, 1995, memorandum -- prepared with Rudolph's input without any opportunity for Burmeister to comment further -- was not an adequate response.

We do not criticize Roberts for concluding, based on his discussions with Mohnal, that Whitehurst's allegations were not substantiated. Roberts evidently relied on the principal examiner (Mohnal) for guidance on the scientific issues. In contrast, we find that the OGC was not justified in concluding, as was stated in Maddock's letter to the OIG, that Roberts' conclusions bore on Whitehurst's

credibility and Whitehurst's disruptive effect on the FBI. The OGC had received Burmeister's review in May 1994, questioning Rudolph's work on UNABOM, and the OGC was also aware of general concerns about Rudolph's work. Given these facts, we do not think the OGC could justifiably rely on conclusions from a non-scientist prosecutor to evaluate the merits of the allegations raised by Whitehurst, who had largely repeated the concerns noted by Burmeister.

During the OIG investigation, Burmeister for the first time reviewed Mohnal's October 3, 1995, memorandum. Burmeister observed that Mohnal himself was not qualified to comment on explosives residue analyses, and that Rudolph should have responded himself. Moreover, Burmeister thought some statements in Mohnal's October 3, 1995, memorandum were incorrect, failed to account for missing notes and charts, or did not address why standards and confirmations were not run on particular samples. We also interviewed Rudolph regarding his work on the UNABOM case. Rudolph strongly disagreed with Burmeister's criticisms, defended the statements in Mohnal's October 3, 1995, memorandum, and acknowledged he had supplied the underlying information to Mohnal.

For purposes of this investigation, we considered the comments in Burmeister's initial review; Mohnal's response in the October 3, 1995, memorandum; Burmeister's further comments in an OIG interview, and Rudolph's defense of Mohnal's statements in an OIG interview. The remainder of this section summarizes their respective views with regard to six of the devices attributed to the Unabomber. In most instances, we find that Burmeister's concerns are well founded. As a result, we conclude that a qualified explosives examiner should review all of Rudolph's work on UNABOM before it is used further in the case.

## **1. The November 15, 1979, Device**

Burmeister wrote in his review that Rudolph's findings indicated smokeless powder was removed from the device and that the ATF had found smokeless powder and match heads, but there was no data in the files to review.

Burmeister also noted that there was no information on how the FBI processed the evidence.

Mohnal wrote the following in his response to Burmeister's comments:

Smokeless powder was identified in this device based on physical observable characteristics of smokeless powder and on instrumental technique (See FBI Laboratory report dated March 7, 1980). In 1979 this was the primary technique SSA Rudolph had available. Several years later the FBI laboratory used a liquid chromatography technique for smokeless powder identification, but in 1979 it had not yet been developed. Furthermore, in confirmation of the FBI Laboratory, SSA Rudolph, smokeless powder was also identified in this IED by Dupont Explosive Company, manufacturer of smokeless powder.

Burmeister stated in his OIG interview that the information cited by Mohnal was not in the case file. If instrumental analysis was used in this instance, Burmeister questioned why it was not used in the examination of some later devices in which Mohnal stated smokeless powder was identified by physical characteristics alone.

In an OIG interview, Rudolph could not recall what instrumental techniques were used, but he speculated that it could have been infrared spectrometry (IR). Rudolph could not explain the absence of charts relating to the alleged instrumental tests. Rudolph also could not explain why he would have used instrumental analysis to identify smokeless powder in this device, when it evidently was not used to make such an identification in a later device. Rudolph said that when this work was done, there was no set protocol for identifying smokeless powder and that he pretty much left it up to Bender [his technician], who Rudolph said was the expert in the lab for such work.

Rudolph's responses are unpersuasive, and his performance in this case lacks competence. The case files do not contain sufficient information to identify the analyses performed, if any, or to understand the basis for the stated conclusions. Rudolph, as the examiner, was responsible for determining what tests were performed, and he cannot excuse the inadequacy of the file by saying he simply left things to his technician.

## **2. The October 8, 1981, Device**

Burmeister's review noted that smokeless powder was provided to the FBI but there was no data in the file to review and no information describing how the evidence was processed.

Mohnal's response stated:

Instrumental analysis by the FBI Laboratory, SSA Rudolph, of a powder found in the debris of the IED determined it was composed of a match-type formulation (See FBI Laboratory report dated November 17, 1982). This analysis was also conducted by ATF and determined it to be commercial safety match powder (See ATF Laboratory report dated November 3, 1981).

Mohnal also noted that the FBI Laboratory had not conducted instrumental analysis of unconsumed smokeless powder.

In his OIG interview, Burmeister stated that Mohnal's response referred to analyses that were not contained in the case file. Rudolph said that Mohnal's response was not based on anything Rudolph had located in the file, but instead

was based on Rudolph's recollection. Rudolph wasn't sure what tests he conducted but thought it was probably x-ray powder diffraction (XRD).

Again, Rudolph's answers strongly suggest a lack of competence. Rudolph's response illustrates the general problem with his inadequate case documentation that was discussed in Part Three, Section A, *supra*. His work is of little value if the files do not document the basis for the stated conclusions and Rudolph must rely only on his uncertain memory of what he probably did in the particular case.

### **3. The July 2, 1982, Device**

Burmeister's review noted that there was no data in the file concerning a finding of smokeless powder in the debris. With regard to certain ion chromatography (IC) results, Burmeister observed that Rudolph had failed to mention the presence of sulfate, that no standards were run, that there were some unidentified peaks, and that there were no confirmations.

Mohnal responded with the following:

Smokeless powder was identified in this IED based on physical observable characteristics of smokeless powder. Examinations of this powder were conducted by the FBI Laboratory (See FBI Laboratory report dated June 15, 1983). This unconsumed smokeless powder was also compared to the manufacturers specifications provided by Dupont Explosive Company, and physical comparisons with known standards and unconsumed smokeless powder from previously examined UNABOM IEDs (See FBI Laboratory report dated June 15, 1983.)

In his OIG interview, Burmeister stated that there were no notes or data in the case file to establish how smokeless powder was identified. He also noted that Mohnal had not addressed the comments about the lack of standards, confirmations, and peak identifications.

Rudolph addressed the issue of lack of standards and peak identification as follows:

Typically we ran a standard for the day, and if we changed solutions or a column, we would run another standard. We didn't run a standard after every run. That standard wouldn't necessarily -- if I only ran one standard and I had five cases that I used it on, I wouldn't necessarily put one standard in there. I mean, this was stuff that I had such experience in that I knew what I had and I didn't necessarily have to refer to a standard every time I run one of these to see, you know, what things I had, such as chloride and sulfate.

Rudolph added, So it was not uncommon not to have a standard in the file, and it was not uncommon not to identify those peaks. I mean, I just run the chart and throw it in there. I mean, I'm only going to be -- the only person that's going to identify them.

With regard to confirmations, Rudolph stated that, given his expertise, he at the time didn't think it was necessary to do a confirmation like they do today. He also said that his failure to identify sulfate and other substances in his report was not significant in my view.

Rudolph's approach to the use of standards and confirmations was flawed, measured by the generally accepted procedures used in forensic science at that time. Without a protocol, Rudolph had no guide to determine when a standard or confirmation was required, and his failure to document his work means his

conclusions cannot be verified. Here, a confirmation test was a necessary prerequisite to a positive identification. Rudolph's shortcomings in this case, including his misplaced reliance on his expertise as a substitute for confirmatory tests, were also displayed in the Psinakis case. Rudolph's responses to Burmeister's concerns are similar to his response to Corby's 1995 file review of Rudolph's cases. As previously noted in Part Three, Section A, we find Rudolph's reasoning unacceptable and unprofessional.

#### **4. The May 15, 1985, Device**

Burmeister's review noted that Rudolph should have run additional tests to confirm an identification of ammonium nitrate based on x-ray powder diffraction (XRD). Burmeister also questioned why a confirmatory test had not been done for the identification of aluminum with a scanning electron microscope (SEM) and why no organic extraction had been done to test for the presence of organic explosives.

Mohnal's October 3, 1995, memorandum observed:

Analysis of specimen Q237 was conducted by the FBI Laboratory, which revealed Ammonium Nitrate by x-ray powder diffraction, which has long been considered a positive form of identification. The presence of Aluminum was confirmed by SEM, again a strong technique at this time (See FBI laboratory report dated December 5, 1985). Based on these two analyses and SSA Rudolph's experience and his research everything was consistent with being an Ammonium Nitrate device. In numerous analysis of this evidence, SSA Rudolph never found fuel oil. In examining hundreds of cases by this time and being aware of hundreds of others done by ATF and other law enforcement laboratories, SSA Rudolph never saw an ANFO/smokeless powder mixture. Therefore no organic extraction was conducted. Although current FBI laboratory protocol calls for organic

extraction during residue examination, the protocol used in 1985 did not require such an examination.

In reviewing Mohnal's memorandum, Burmeister strongly disagreed with the statement that x-ray powder diffraction has long been considered a positive form of identification. Burmeister said, I don't believe that XRD by itself is a confirmational tool. You have to have backup. Burmeister indicated that SEM/EDXA would be used at bare minimum . . . but I personally would back that up one more step with ion chromatography which I do. Burmeister also noted that Rudolph wrote a paper in 1983 in which he described organic extraction during residue examination yet he failed to conduct one in this case.

Rudolph maintained that XRD has long been a positive form of identification, and disputed Burmeister's statement that use of an SEM was necessary to confirm the identification of ammonium nitrate.

In principle, XRD can be used to obtain a positive identification. However, because of the characteristics of ammonium nitrate, we accept that an examiner may feel it is appropriate to confirm its presence with a second test.

## **5. The May 18, 1985, Device**

In his review, Burmeister indicated that Rudolph could not conclude from the presence of potassium sulfate that the explosive device contained black powder. He also questioned how Rudolph had identified aluminum on specimen Q5, as the results were not in the file.

Mohnal's response referred to this device as the 6-13-85 device. He stated the following regarding SSA Rudolph's analysis of the evidence:



Potassium sulfate was found on two specimens. Potassium sulfate is the main combustion product of black powder and for many years its presence in explosive devices was considered indicative of black powder. SSA Rudolph never found potassium sulfate in an explosive device that it was not the result of a black powder or related explosive. In fact, SSA Rudolph can never remember finding potassium sulfate other than in an explosive related case.

Mohnal admitted that no SEM chart could be located to confirm the aluminum on specimen Q5. He stated that [d]ue to the amount of unsolicited and unauthorized reviews of these enclosures, this chart could have been misfiled and additional reviews are underway to locate this chart.

Burmeister maintained that the presence of potassium sulfate does not in itself establish that explosives residue came from black powder. In a later interview, Rudolph stated that Burmeister was dead wrong in this respect. Rudolph stated that [t]here is no chemist that I know that when they're dealing with pipe fragments, explosive-type residues, if they don't find potassium sulfate, would not make a finding of black powder or black powder-related. Rudolph also informed the OIG that he did not look for the missing chart.

We agree with Burmeister's reasoning in this instance. Rudolph is incorrect in thinking that black powder can be identified solely by the presence of potassium sulfate. Even Mohnal's response only says potassium sulfate is indicative of black powder. Moreover, we find unpersuasive the suggestion in Mohnal's memorandum that Rudolph could identify black powder based on the presence of potassium sulfate because in Rudolph's experience the latter substance was not found except in black powder-related explosives. As we have observed earlier, an examiner's subjective or impressionistic experience is no substitute for scientifically valid procedures. Finally, assuming Rudolph in fact used the SEM, either Rudolph erred by failing to include the SEM/EDXA chart in the file, or this case provides another example of inadequacies in the Laboratory's system for the storage and retrieval of case files.

## 6. The December 11, 1985, Device

Burmeister criticized the results for specimens Q23 and Q28 in his review. He stated that Rudolph should have done tests in addition to XRD before identifying ammonium nitrate on these specimens, and noted that Rudolph had failed to mention the presence of sulfates. Burmeister further stated, Data not complete and hard to review, no confirmations. Burmeister also noted that certain IC charts were not labeled.

Mohnal wrote that [a]mmonium nitrate and Aluminum powder were found on specimen Q91 by x-ray powder diffraction. Again this is considered a positive form of confirmation and in 1985 the FBI Laboratory protocol did not require conducting any other analyses. It is unclear why Mohnal addressed specimen Q91 rather than the specimens criticized by Burmeister.

After reviewing Mohnal's memorandum, Burmeister reiterated that based on the information in the case file he could not see how ammonium nitrate was identified through XRD and that IC charts were not labeled and therefore could not be matched with specimens.

Rudolph could not explain why specimen Q91 was addressed by Mohnal. With respect to the unlabeled charts Rudolph stated, I mean, just like I mentioned before, the peaks were not labeled. I mean, I could take this, this is nitrate and sulfate, and I would know that. I'm going to be the guy testifying to it. Rudolph further opined, I mean, I just felt -- nobody ever told me that, you know, 15 years later I was going to have a review, that people needed to know in the review what those things were. Rudolph also stated that [h]e [Burmeister] comments I do not address sulfates. Again, I didn't see the significance, like before.

We conclude that Burmeister's criticisms are well founded. Because the XRD chart was unclear, a confirmation was needed to make a positive identification. Moreover, the lack of documentation is unacceptable and is consistent with the pattern that we have seen in Rudolph's cases.

#### **IV. Conclusion**

We do not find that Mohnal or others in the Laboratory acted improperly in publishing the UNABOM article in July 1994 without first addressing Burmeister's concerns. Given the significance of this case and the fact that the Laboratory was on notice of possible deficiencies in Rudolph's work, it would have been desirable to review Rudolph's findings and confirm them before they were described in the Crime Laboratory Digest article.

Furthermore, the concerns raised by Burmeister about Rudolph's conclusions appear in several instances to be well-founded. The Laboratory did not adequately address these concerns after they were brought to the attention of Mohnal and Laboratory management in September 1995. Rudolph's work on UNABOM displays the same problems of inadequate documentation and conclusions not supported by sufficient data that we noted in the more general discussion in Part Three, Section A above.

A qualified explosives residue examiner should undertake a detailed review of all of Rudolph's UNABOM work before it is used further in the case. In response to a draft of this section of the report, Robert Cleary, a Special Attorney to the U.S. Attorney General, advised the OIG that the Government would not be relying upon any of Rudolph's work in the UNABOM case as part of the prosecution of Theodore J. Kaczyski, who has been indicted on charges related to bombings attributed to the Unabomber. Cleary stated that to the extent the Government will offer explosive residue evidence in the Kaczyski case, it will be relying upon the conclusions of Burmeister and other, non-FBI laboratories.

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## **SECTION H10: THURMAN'S ALLEGED ALTERATION OF DICTATION**

### **I. Introduction**

**As explained in Part Two, supra, although many examiners from different units in the FBI Laboratory may work on a given case, the Laboratory requires one of the examiners (the principal examiner or APE ) to issue the official Laboratory reports in the case. The other examiners (the auxiliary examiners or AAEs ) submit their reports (Adictation ) to the PE for incorporation in the official report. Whitehurst alleges that during the period 1987-92 SSA J. Thomas Thurman, as PE, presented altered versions of Whitehurst's AE dictation in some of the reports. Also, SSA Steven Burmeister alleges that Thurman, as PE, included inappropriate conclusions in a report on a 1993 case in which Burmeister was AE.**

**To investigate these allegations, we interviewed Thurman, Whitehurst, Burmeister, James Corby (former MAU Unit Chief), J. Christopher Ronay (EU Unit Chief 1987-94), Kenneth Nimmich (SAS Chief 1987-93), James J. Kearney (SAS Chief 1993-95), and other FBI Laboratory personnel. Additionally, we reviewed applicable FBI documents.**

**It is undisputed that many of Whitehurst's dictations were not included verbatim in Thurman's reports during the period 1987-92. Thurman maintains that before 1993 there was no firm policy requiring verbatim inclusion of AE dictation, that he had no sinister motive in writing the reports as he did, and that his only intent was Ato try to make the reports more understandable by lay people. As explained below, we conclude that Thurman did not engage in willful misconduct with respect to Whitehurst's dictation, but we do find that some of Thurman's reports contained ambiguities and other errors. We also conclude that Unit Chief**

**Ronay failed to enforce the FBI policy of requiring verbatim inclusion of AE dictation in reports.**

**With respect to Burmeister's allegation, we conclude that Thurman should have revised his report in accordance with Burmeister's objections and that Kearney was remiss in failing to take action once he learned of the objections.**

**We address the Whitehurst (Section II) and Burmeister (Section III) issues in turn, and then state our conclusions (Section IV).**

## **II. Alteration of Whitehurst's Dictation**

### **A. Background**

**On November 27, 1992, Laboratory examiner Kelly Mount (formerly Hargadon) told Whitehurst that Thurman told her that Thurman, as PE, had changed Whitehurst's AE dictations before including them in the official reports. Mount told the OIG that Thurman said he had Astreamlined the dictations. In December 1992 Whitehurst obtained sixteen reports Thurman had written with Whitehurst as the AE, and found that many of the reports did not include Whitehurst's dictation verbatim. He wrote a memorandum containing his findings and submitted it to Corby, his Unit Chief. The memorandum asserted that several of the reports Achanged the meaning or significantly altered the content of the dictations.**

**Corby discussed the matter with SAS Chief Nimmich, who asked Corby to meet with Ronay and Thurman and resolve the matter at the unit chief level. On December 10, 1992, Corby personally told Thurman not to alter**

**any MAU dictation. On December 14, 1992, Corby reported back to Nimmich. At his OIG interview, Corby could not recall any further action taken with respect to Whitehurst's memorandum.**

**On February 7, 1994, Whitehurst's personal attorney wrote a letter to the FBI Office of General Counsel (FBI OGC) setting forth numerous allegations against the FBI Laboratory, including the claim that Thurman had altered Whitehurst's dictation. The FBI OGC completed a preliminary review of the allegations on May 26, 1994. The Director of the FBI concurred in the FBI OGC's recommendations, which were transmitted to the head of the Laboratory on June 8, 1994. With respect to the claim of alterations of dictation, the FBI OGC recommended that all of the past dictations of Whitehurst and Burmeister be compared to the applicable final reports to ensure there were no changes. If changes were made, appropriate action should be taken to correct any substantive errors in the reports.**

**In response to the FBI OGC recommendations, SAS Chief Kearney assigned Corby to review all of the dictations and reports in which Thurman was the PE and Whitehurst the AE. On September 7, 1994, Kearney wrote a memorandum to Laboratory Director Milton Ahlerich, in which Kearney stated that the review had begun and would be completed by October 15, 1994. Kearney stated that A[following some review, it appears that the practice [of altering AE dictations] is isolated to one Explosives Unit Examiner, SSA James T. (Tom) Thurman.**

**On November 4, 1994, Kearney wrote another memorandum to Ahlerich stating that Corby's review of Thurman's reports had been completed, with the following findings: Of the fifty-two reports in which Thurman was the PE and Whitehurst the AE, twenty dictations were found to be unaltered; eighteen were altered but not significantly; thirteen were altered resulting in a change of the meaning of the dictation; and one report did not contain an altered dictation but did have another mistake.**

**In December 1994 and January 1995, Kearney, SSA Steven P. Allen, and Corby independently analyzed the thirteen cases with altered dictations, and wrote memorandums of their findings. Kearney concluded that the alterations made to SSA Whitehurst's dictation by SSA Thurman were not done to bias the reports in favor of the prosecutions but were done simpl[y] to clarify the reports by integrating the findings of SSA Whitehurst into the full context of the report. Kearney recommended no administrative action other than the oral counseling of Thurman not to alter the dictations of AE examiners. Allen also concluded that no administrative action was warranted. Corby, on the other hand, recommended that Thurman be held accountable for the unauthorized changes . . . by administrative action to include both oral reprimand and a letter of censure.**

**On April 12, 1995, Thurman responded to the allegations in a memorandum, asserting that he did not willfully violate FBI policy and that his Unit Chief was aware of what he did.**

**On May 22, 1995, Kearney submitted a memorandum to Ahlerich. Kearney wrote that the three reviewers recommended: (1) that the policy of not changing dictation be re-emphasize[d] with the Explosives Unit; (2) that the OGC review the matter to determine what should be done with the altered Laboratory reports; and (3) that the FBI Office of Professional Responsibility (OPR) review the matter for any appropriate action. Corby told the OIG that he agreed to this memorandum without recommending an oral reprimand or letter of censure because Kearney told him that such recommendations would be inappropriate.**

**Ahlerich and the FBI General Counsel approved the recommendations in Kearney's May 22, 1995, memorandum.**

## **B. Analysis**

**Kearney stated in his May 22, 1995, memorandum to Ahlerich that, of the fifty-two cases in which Thurman was the PE and Whitehurst the AE, Ait was determined that in twelve (12) case reports, SSA Thurman significantly altered SSA Whitehurst's dictation. In one other report, SSA Thurman reported technical results without supporting laboratory analysis. We have reviewed the reports and dictation in these thirteen cases, and we present our analysis of them below. First, however, we discuss the FBI policy that AE dictations be included verbatim in the PE's official report.**

## **1. The Verbatim Inclusion Rule**

**The evidence establishes that during the applicable period (1987-92) the policy of the Laboratory was to include AE dictation verbatim in the official Laboratory reports, but Unit Chief Ronay did not always enforce the policy in the EU.**

**On September 1, 1994, the Director of the Laboratory issued a memorandum explicitly requiring verbatim inclusion of AE dictation in the official reports. Although there was nothing in writing on the subject before this, the memorandum purported to be a restatement of long-standing policies. Before September 1, 1994, the policy of verbatim inclusion of AE dictation was, in the words of the OGC, an unwritten LD [Laboratory Division] rule. See also October 7, 1994, letter by Associate General Counsel John T. Sylvester (AOGC contacted the LD management regarding this allegation who advised that the LD had a longstanding policy prohibiting any changes in AE dictation by the PE without the express permission of the AE ); December 15, 1994, memorandum from Kearney (Ain October 1994, the longtime understood practice of not altering AE dictation without the permission from the AE examiner was stated as policy for the entire Laboratory Division ); January 13, 1995, memorandum from Corby (AIt has always been understood practice (perhaps not written policy) that PEs do not change/alter/reword/revise AE dictation without consulting with and receiving permission from the AE, or their respective Unit chief in combination with the AE ) (emphasis in original). Nimmich, the SAS Chief during the pertinent period (1987-**



**93), stated that SAS policy was to incorporate auxiliary examiner reports verbatim; the policy was ingrained in the Laboratory.**

**In his OIG interview, Ronay testified that throughout his career in the FBI Laboratory (1977-94) it was a general policy that the dictation by any auxiliary examiner or AE would stand on its own and would not be changed without his knowledge or his permission. He continued:**

**OIG: . . . Just your own understanding. It has always been the policy that you do not change the findings of an AE.**

**RONAY: Right.**

**OIG: You put them in there exactly the way he wrote it?**

**RONAY: Right.**

**OIG: Exactly the way he wrote it --**

**RONAY: Well, yes.**

**OIG: -- or do you change it around, I mean, just to make it sound better.**

**RONAY: No. You wouldn't do that. Well, that would be ridiculous, wouldn't it.**

**Ronay believed that Nimmich did not allow the changing of dictation: AHe enforced the policy as it was. A[T]he management, according to Ronay, Anever gave us permission to . . . unilaterally eliminate something.**

**Ronay was equivocal as to the propriety of omitting dictation from a report. At one point in the interview he acknowledged A[t]hat it would not be proper to leave it out in its entirety. Ronay, however, also stated:**

**[A] confirmatory type of test, you might not even include it.**

**That was something that was, I say, allowed, was normally -- it was acceptable depending on what, you know, what it was. Now, if it was a scientific test that had to go towards something you knew was discoverable type scientific material, you put it in there. . . . [T]he policy on it or the enforcement on it were a little drifty over the years.**

**Ronay often approved omitting portions of AE dictation that Awere not substantive to the findings, but did not think he would have approved leaving out a dictation in its entirety. Ronay stated that he allowed all the examiners in the EU to change Whitehurst's dictation, but he could not recall allowing anyone to change the dictation of another AE. Ronay stated that the reason he allowed Whitehurst's dictation to be changed was that he thought the dictation sometimes included a description of the instrumental analysis that was Aconfusing and the dictation sometimes included matters outside Whitehurst's area of expertise.**

## 2. The Cases

**An analysis of the thirteen cases identified by Kearney show that Whitehurst's dictation was not included verbatim, and in some cases Thurman's reports were ambiguous and contained other errors.**

### **a. Case 20624009 (1992)**

**Laboratory Case 20624009, written in 1992, is illustrative. In that case Whitehurst's dictation stated:**

**RESULTS : The results of chemical and physical analyses of specimen Q1 are consistent with the presence of ammonium nitrate. Ammonium nitrate is one of the two components used in binary high explosives.**

**The results of chemical and physical analyses of specimen Q2 are consistent with the presence of nitromethane. Nitromethane is one of the two components used in binary high explosives.**

**The results of chemical and physical analyses of specimen Q4 are consistent with the presence of pentaerythritol tetranitrate (PETN) high explosive. PETN is used in detonation cord.**

**(Emphasis added). Thurman's report stated:**

**Present in specimens Q1 and Q2 are the two components which comprise the Kinestik two-component explosive system. The white powder, which was identified as ammonium nitrate, for this explosive is contained within a white plastic container in specimen Q1 and is labeled by the manufacturer AKinestik 1 Solid . . . .**

**The second part (liquid) of this two-component system is present in specimen Q2 and contained in a clear plastic tube and labeled by the manufacturer as Akinapouch Kinestik 1 Liquid . This liquid, which is red in color, was identified as nitromethane. . . .**

**Present in specimen Q[4] is a 28 1/4 length of Austin AA-Cord detonating cord having a high explosive core load of 25 grains per foot of PETN.**

**(Emphasis added). No further mention of Whitehurst's dictation is in the report.**

**The difference between the dictation and the report is significant. When an examiner concludes that results are Aconsistent with the presence of a substance, he is expressing an expert opinion that the substance may be present in the specimen, but not necessarily (because he has not confirmed it). Such a conclusion is equivocal. When an examiner Aidentifie[s] the presence of a substance, or states that the specimen Aha[s] a substance, he is expressing an expert opinion that the substance is definitely in the specimen.**

**Obviously, Whitehurst's dictation was not included in Thurman's report verbatim, and it appears that Thurman misreported or changed the analytical conclusions Whitehurst had reached.**

**Thurman's response is that the opinions expressed in his report were his own. He chose to omit Whitehurst's dictation entirely.**

**Thurman explained that Specimens Q1 and Q2 were the two components which**

**comprise the Kinestik two-component explosive system, were in their original packaging, and showed no signs of tampering. Based on his 25+ years of explosive experience, touring factories where these actual materials were manufactured, and the manufacturer literature in the unit Explosive Reference Files (ERF), he knew what the specimens contained, and thus he could identify the substances in the specimens. Thurman stated that he referred the specimens to the AE only to confirm[] conclusions he had already drawn. He felt the inconsistent with results did confirm those conclusions, and thus he wrote his report as he did.**

**Thurman stated that during this period he had an arrangement with Whitehurst for confirmatory exams in which Whitehurst would not perform all the tests necessary to make an identification. When Whitehurst reached a conclusion of inconsistent with in these exams, Thurman assumed the reason was that Whitehurst had not run all the tests necessary for an identification. Whitehurst, however, did not recall having such an arrangement.**

**Thurman acknowledged in his OIG interview that in retrospect it would have been better to include the AE dictation even though it was only confirmatory, but he thought he could do it the way he did because his Unit Chief approved of it.**

**Thurman also acknowledged that the phrase which was identified was ambiguous because it did not indicate who made the identification and because it could have been misconstrued as an instrumental identification.**

**Thurman insisted, however, that in all the cases, including this one, there was no attempt, absolutely, on my part whatsoever to mislead anyone.**

**Thurman also acknowledged Aon hindsight and with the standards that we have today that it is inappropriate to positively identify a substance, as he did in this case, solely from the physical characteristics and the fact that the substance was in its original packaging.**

**Thurman's response is basically the same with respect to Specimen Q4, the detonating cord. From its physical appearance Thurman recognized the specimen as a particular detonating cord manufactured by Austin Powder Company, which uses PETN in this particular cord according to the ERF. Hence, he believed, as an expert in explosives, he could say that the cord Aha[d] PETN, when Whitehurst found the instrumental results Aconsistent with PETN.**

**Based on the packaging, absence of evidence of tampering, physical characteristics, and Thurman's experience, we conclude that he could reasonably and properly presume that the specimens were what they appeared to be. Nevertheless, as Thurman largely acknowledged, his report was poorly drafted in several respects. First, it not only failed to include the AE dictation verbatim, it omitted it entirely. This was contrary to an unwritten FBI rule, but was apparently sanctioned by Thurman's unit chief.**

**Second, the report was misleading. We cannot reject Thurman's OIG testimony that he had no intent to mislead, but the reader could easily assume that when the report said a substance was Aidentified, this meant the substance was identified scientifically. Thurman should have stated explicitly in the report that the Aidentification was made from the packaging and physical characteristics.**

**Third, it was imprecise for Thurman to say he had identified the substances. In a forensic science sense, the only way to identify a chemical material is by some defensible form of analysis. Just recognizing the packaging and physical characteristics is insufficient.**

**Fourth, the arrangement that Thurman claims he had with Whitehurst, in which Whitehurst would not perform all the tests necessary to reach a positive identification, was inadvisable. Because Whitehurst presumably did not run all appropriate tests and could only say the results were consistent with the presence of the substances, he did not really confirm Thurman's understanding as to the substances' identities. Had Whitehurst conducted a full analysis, he presumably could have made positive identifications, which would have mooted the issues raised by this case.**

**Finally, Thurman acknowledged that his report, in part, did not meet the standards that we have today. We note that the report here was written in 1992 and that the standards then were not significantly different from the standards now.**

**b. Case 80803018**

**In this case the dictation stated that the results for certain specimens were chemically consistent with PETN and TNT. Thurman's report stated that one specimen contained a powder identified as PETN and the other specimen contain[ed] TNT. Thurman explained that his language was based on reports from a Spanish laboratory. He acknowledged that he should have stated the source of his identifications in the report.**

**The report also stated that two specimens are from the same source, although the dictation only says one sample resembles the other. The two samples had some common characteristics (same waxes and percentage of aluminum), but there is no basis in the reports to conclude**

**that they were necessarily from the same source. In his OIG interview, Thurman could offer no explanation for his statement that the specimens came from the same source.**

**We conclude that this report is deficient because it failed to mention the Spanish laboratory and because it contained an unsubstantiated conclusion that two of the specimens came from the same source. Additionally, Thurman erred in his 1995 response to the allegations when he stated that the meaning of the dictation was not changed.**

### **c. Other Cases**

**The other eleven cases present issues similar to those presented above.**

**In Case 70928045 (1987) the dictation stated that A Specimen Q4 has the chemical and physical characteristics of C-4 and A White powder found in specimen Q6 has the physical and chemical characteristics of . . . PETN. The report stated that C-4 was A identified and Q6 A contain[ed] PETN. Thurman felt he could use this language because he recognized both specimens from their distinctive physical characteristics--specimen Q4 was labeled A Demolition M112 and specimen Q6 was a particular detonating cord made by the Coast Fuse Company.**

**In Case 90823043 (1989) the dictation stated, A It is the opinion of this examiner that the residues in Q6 originated from a low explosive mixture which contained Pyrodex. The report stated, A Present in specimen Q6 are explosive residues which chemical analysis show to have originated from a low explosive mixture which contained Pyrodex. Thurman insisted that he did not eliminate the language concerning the AE's opinion to avoid the suggestion that there was an examiner, in addition to the EU examiner, that might have to testify.**



**In Case 81108029 (1988) Thurman replaced the phrase Aconsistent with TNT with Adetermined to be TNT because he recognized distinctive flakes of TNT. Thurman acknowledged that based on his 1996 standards he would not make a positive identification solely on the physical appearance of the TNT.**

**In Case 20416043 (1992) reference to Achemical and physical analyses and the chemical name for RDX were eliminated. Both the dictation and report used the word Aidentified. The changes here were not material.**

**In Case 20618039 (1992) Thurman identified the specimen as a particular military blasting cap and stated in the report that it contained lead styphnate and lead azide, although the AE did not test for these substances. Thurman acknowledged that Alogically it would have been better only to say that such chemicals Anormally are in the particular blasting cap.**

**In Case 80217150 (1988) the dictation stated that the specimen, from a blasting cap, had the Achemical and physical characteristics of a mixture of certain chemicals, while the report stated that the specimen was a blasting cap Acontaining the chemicals. Thurman explained that when he extracted the chemicals from the cap they Acommingled. Thurman acknowledged as a Apoint[] well taken that he could have stated that the AE found a Amixture but that the mixture occurred in the extraction process.**

**Case 90623042 (1989) involved, according to Thurman, Aan oversight by him, in which he stated that the analytical results were Aconsistent with the presence of PETN when the AE stated that the results Aidentified the presence of PETN. Of the thirteen cases analyzed in this subsection, this is the only one in which Thurman Aaltered the dictation to make the findings less definite. On the surface, the change here would seem to rebut the**

notion that there was a pattern of overstating the significance of the AE's dictation. Upon analysis, however, this case seems to be the exception that proves the rule. According to Thurman, all the alterations except this one were intentional. But for Thurman's oversight, the pattern would be unvarying.

In Case 91207016 (1989) the dictation stated (1) that the results of the analyses were consistent with residues of certain chemicals and (2) that it is the opinion of this examiner that the explosive was most likely a homemade mixture of those chemicals and an undetermined fuel. The report stated that the results of the analyses were consistent with residues of the chemicals and an undetermined fuel. By combining the two sentences in the dictation into one sentence in the report, Thurman implied that the AE found residues of the undetermined fuel, which was incorrect. Additionally, the report stated that the absence of identifiable remains could indicate that a non-electric means of main charge initiation was used. Explosives residue examiners maintain that such initiators do leave identifiable remains. Thurman now reports that no construction materials can be recovered from such initiators. The problem here may have derived from the word remains, which Thurman used to mean unconsumed materials and the explosives residue examiners interpreted to include residue from consumed materials.

In Case 71224001 (1987) the discrepancy between Whitehurst's dictation and the report was explained by the fact that Thurman also used an AE from the CTU in addition to Whitehurst. Also, Whitehurst's language (the specimen had the chemical and physical characteristics of a substance) was changed to the specimen was determined to be the substance. Thurman claimed not to believe he was changing the meaning of the dictation.

In Case 91130017 (1989) Thurman supervised an agent-in-training who wrote a report that substantially altered the AE dictation in several respects (e.g., consistent with residue of certain powder was changed without authorization or justification to originated from the powder). Thurman acknowledged his responsibility for these errors. Thurman also erred in his 1995 response to the allegations when he stated that the AE dictation was not changed.

**In Case 21118013 (1992) Thurman stated that the only explosive constituent of U.S. military C-4 is RDX. This is incorrect. HMX is also a component. Thurman stated he omitted mention of HMX Also that it would not be misunderstood by the reader -- a reason we find unpersuasive.**

### **III. Burmeister's Allegation**

**Case 30422012 involved the explosion of a pipe bomb in the school library of the William Wirt Middle School. Burmeister, as AE, examined wood and book fragments that were struck by the bomb, and he found residues that he subjected to instrumental analysis. His results were Aconsistent with residues Aformed upon the initiation of some black powders. Burmeister did not examine the recovered metal fragments (which were presumably from the pipe of the pipe bomb) apparently because Thurman sent them to the fingerprint section instead of to Burmeister.**

**Thurman, as PE, stated in his report:**

**Present in the submitted specimens are the fragmented remains of an exploded Improvised Explosive Device/pipe bomb (IED) which utilized a low explosive main charge, consistent with black powder, that was contained within a sealed length of metal tubing. Although not present in the submitted specimens, this device was logically initiated through a nonelectrical fuzing system consisting of a length of burning-type fuse. Fuse of this type, such as, hobby or fireworks fuse, consumes its length when burning and leaves little, if any, residues or unburned fuse which can be recovered following the explosion of the IED.**

**Before this report was issued, Burmeister complained to Thurman about two aspects of the passage quoted above. First, Burmeister disagreed with the statement that the main charge was Aconsistent with black powder, since Burmeister did not examine the pipe fragments and the residue on the wood and books could have come from the fuse. Second, Burmeister disagreed with the statement that a Aburning-type fuse . . . leaves little, if any, residues. Thurman, however, chose not to change the report. Burmeister also complained to Kearney about these matters. Nevertheless, the report went out unchanged, and nothing was ever done about it.**

**As to the issue concerning the main charge, Thurman acknowledged in his OIG interview that the residue found by Burmeister could have come from the fuse. As to the issue concerning the fuse, Thurman stated that he only meant that such fuses do not leave any Aunconsumed fuse, not that they would not leave Arecoverable explosive residue. Thurman acknowledged he should have said Aconstruction materials instead of residue.**

**We conclude that Burmeister's objections were valid and Thurman should have revised the report accordingly. We further conclude that Kearney erred when he took no corrective action after Burmeister informed him of the objections.**

#### **IV. Conclusion**

**We conclude that Ronay improperly allowed EU examiners to revise dictation without consulting the AE. Kearney recognized that Ronay's inadequate review of reports contributed to the problem of Thurman's revision of Whitehurst's dictation. We also note that during Ronay's tenure as EU Chief, another EU examiner (Higgins) also altered Whitehurst's dictation in many of the same ways Thurman did. See Part Three, Section H11, *infra*. Ronay, however, had already left the FBI by the time Corby finished his review of Thurman's reports. During Ronay's last month in the FBI, Kearney authored a memorandum issued by Ahlerich**

**requiring thorough substantive review of reports by unit chiefs and verbatim inclusion of AE dictation.**

**Of the fifty-two reports written by Thurman in which Whitehurst was the AE, only twenty included the dictation verbatim. This violation of the Aunwritten LD rule is attributable largely to Ronay. We conclude that Thurman is also responsible (1) for ambiguities and errors in his reports and (2) for not revising his report in the William Wirt Middle School case in accordance with Burmeister's objections.**

**Although there seems to be a pattern here of overstating AE dictation, which normally would be favorable to the prosecution, we do not find that Thurman intended to write reports with a prosecutorial bias. We recognize the responsibility of the PE to produce a report to the submitting agency for investigative purposes providing as much information as possible within the constraints of reasonable scientific principles. The report should convey an expert opinion based upon all information available in a form that is understandable to the layperson and scientifically accurate. Thurman asserts that his only intent was to fulfill this responsibility, and there is no concrete evidence to the contrary. Nevertheless, the alterations to the dictation that we have identified were inappropriate and could have misled the finder of fact.**

**We also conclude that it would have been preferable for Nimmich to have done in 1992 what was later done in 1994-95 -- namely, (1) requiring a review of all of Thurman's reports in which Whitehurst was the AE, and (2) putting in writing the rule requiring verbatim inclusion of dictation.**

**As to Kearney, we conclude that he should have directed that a revised report be issued in the William Wirt Middle School case. We do not find fault with his handling of the Whitehurst allegations because the main person responsible was Ronay who had already left the FBI by the time the review was completed. On the other hand, it appears that Kearney was**

**incorrect in his conclusion that the practice of altering AE dictation was isolated to Thurman. See, e.g., Part Three, Section H11, infra.**

**Finally, as discussed in Part Six, infra, we recommend that each examiner submit and sign his or her own report. Adoption of this recommendation would alleviate the problems identified in this section.**

**#####**

## **SECTION H11: HIGGINS' ALLEGED ALTERATION OF DICTATION**

### **I. Introduction**

In late June 1996, we asked Whitehurst about differences that we had observed between Whitehurst's dictations and the Laboratory reports prepared by Explosives Unit examiner Wallace Higgins in certain cases. Whitehurst subsequently wrote to the OIG expressing concern that Higgins may have improperly changed his dictations in these cases as well as other Laboratory cases. According to Whitehurst, these unauthorized changes to his dictations violated FBI Laboratory policy. At the time, the unwritten policy in the Laboratory required that principal examiners incorporate auxiliary examiner dictations into reports verbatim unless the auxiliary examiner agreed to the changes.

To determine the extent and significance of any changes, we obtained Laboratory reports prepared by Higgins in 69 Laboratory cases in which Whitehurst served as the auxiliary examiner. We also reviewed the corresponding dictations where available, along with work papers, notes, and charts where appropriate. We also interviewed former Materials Analysis Unit Chief James Corby, former Explosives Unit Chief J. Christopher Ronay, Chemistry-Toxicology examiner Ronald Kelly, former Materials Analysis Unit examiner Mary Tungol, former Explosives Unit secretary LaTonya Gadson, Whitehurst, and Higgins. During our first interview about these alleged changes, Higgins terminated the interview early and refused to voluntarily complete the interview. As a result, we had to administratively compel Higgins to appear and complete the interview.

We find that in 29 Laboratory cases, Higgins included Whitehurst's dictations verbatim or made insignificant transcription errors. In six Laboratory cases, Higgins altered Whitehurst's dictations without Whitehurst's authorization, but did not materially change the meaning of the dictations. In 13 Laboratory cases,

Higgins prepared Laboratory reports that contained substantive changes to the meaning of Whitehurst's dictations without Whitehurst's authorization. Specifically, Higgins misreported the number of specimens that Whitehurst had examined, omitted important qualifying language from the dictations, eliminated Whitehurst's forensic opinion altogether, changed Whitehurst's findings, or identified the presence or absence of chemical compounds not identified by Whitehurst. Finally, in 21 Laboratory cases, we could not reach a conclusion as to whether Higgins changed Whitehurst's dictations because the FBI could not locate and provide Whitehurst's dictations for comparison purposes.

In the body and conclusion of this section, we provide the bases for our conclusions that Higgins did not have authorization to change these reports. We also make further findings and recommendations in the conclusion of this section.

## **II. Factual Background**

As explained in Part Two of this Report, although many examiners from different units in the FBI Laboratory may work on a given Laboratory case, only one examiner, the principal examiner, issues the final Laboratory report. The auxiliary examiners submit their reports or dictations to the principal examiner for inclusion in the final Laboratory report. Before submitting their dictations to the principal examiners, auxiliary examiners provide the dictations to their unit chiefs, who edit and approve the dictations. Similarly, before issuing the final Laboratory report, the principal examiner submits the Laboratory report to his or her unit chief for review and approval. When the principal examiner issues the final Laboratory report, he or she is supposed to send the report, dictation, and accompanying workpapers to the official FBI case file.

In order to compare Whitehurst's dictations as approved by his unit chief with the final Laboratory reports prepared by Higgins, we asked the FBI to provide copies of Laboratory reports, approved dictations and, in some cases, the entire



official FBI case file. The FBI produced Laboratory reports prepared by Higgins in 69 Laboratory cases, but could not locate Whitehurst's dictations in 21 of those Laboratory cases. With respect to many of these 21 Laboratory cases, Whitehurst furnished copies of the dictations, which he reprinted from his computer hard drive. However, because Whitehurst prepared these computer versions of the dictations before editing and review by his unit chief, we determined that we could not rely on these computer versions of the dictations as the final, approved dictations in these cases. Therefore, we did not reach any conclusion as to whether Higgins altered Whitehurst's dictations without permission in these 21 cases.

In addition to gathering these documents, we interviewed Whitehurst, Higgins, Corby, and Ronay at length about their practice with respect to documenting changes to auxiliary examiner dictations. Whitehurst stated that if he agreed to any such changes, he would edit the dictations in his computer and reissue the dictations to his unit chief for approval. Whitehurst made clear that he would generate a new dictation for even minor changes. Corby confirmed that when MAU examiners agreed to change their dictations, they were supposed to initial the changes or prepare new dictations incorporating the changes. Corby added that he also asked his examiners to send substantial changes to him for review, although he did not recall any particular case in which Whitehurst sent such revisions to him. Corby added that he believed that when Whitehurst agreed to change his dictations, Whitehurst would generate new dictations or initial the dictations and bring them to Corby for review.

Higgins told us that during this period, he frequently asked Whitehurst to clarify his dictations and then incorporated the resulting changes directly in the Laboratory report. Higgins denied that he ever changed Whitehurst's dictations in substance without Whitehurst's permission. Higgins said that he would not necessarily document his conversations with Whitehurst or send Whitehurst a copy of the final Laboratory report containing the changes. Higgins observed that there was no Laboratory policy that required such documentation of these changes.

Ronay stated that during this time period, however, he told Explosives Unit examiners to create a record whenever Whitehurst agreed to make changes.

Ronay added that to the best of his recollection, Explosives Unit examiners would document such changes by making a notation on the dictations or the Laboratory worksheets. Ronay also recalled that in 1992 or 1993, he met with Corby and SAS Chief James Kearney and agreed that examiners in the Explosives Unit would incorporate Whitehurst's reports verbatim. According to Ronay, as part of that agreement, Whitehurst was supposed to re-issue his dictations initialed by Corby if Whitehurst agreed to any changes.

### **III. Analysis of Laboratory Reports**

The FBI produced 69 Laboratory reports prepared by Higgins between August 1990 and May 1994 in cases in which Whitehurst provided dictations. For the purpose of our analysis, we assigned sequential numbers to those Laboratory reports and grouped the reports in three categories:

Category One includes all Laboratory cases in which Higgins did not alter Whitehurst's dictations or made an insignificant transcription error.

Category Two includes all Laboratory cases in which Higgins altered Whitehurst's dictations without Whitehurst's authorization, but did not materially change the meaning of the dictations.

Category Three includes all Laboratory cases in which Higgins altered Whitehurst's dictations without Whitehurst's authorization and materially changed the meaning of the dictations.

As noted above, we did not attempt to analyze or categorize Laboratory reports in the 21 Laboratory cases in which the official FBI case files did not contain Whitehurst's dictations.

We list the 69 Laboratory reports, their dates, and their categories in Chart A at the end of this section. We set forth our findings in the following sections.

### **A. Category One**

Twenty-nine Laboratory case reports fall under Category One. In most of those Laboratory case reports, Higgins presented verbatim versions of Whitehurst's dictations in the Laboratory reports. In three of the Laboratory reports, Higgins reproduced the dictations with a transcription error. See Report Nos. 19, 27, and 44. In two of these Laboratory reports, Higgins did not incorporate Whitehurst's dictations and thus did not change the dictations in any fashion. See Report Nos. 8 and 50.

### **B. Category Two**

Six Laboratory case reports fall under Category Two, which includes Laboratory reports containing grammatical changes to Whitehurst's dictations that did not materially change the meaning of the dictations.

In Report No. 2, Higgins' Laboratory report reordered two sentences from Whitehurst's dictation. In Report Nos. 5 and 43, Higgins' Laboratory reports added the words specimen and specimens before the questioned sample numbers. In Report No. 15, Higgins added the words in the cans in place of in them. In Report No. 18, Higgins substituted words, made grammatical changes, and made a minor transcription error. In Report No. 45, Higgins rewrote sentences from Whitehurst's dictations. Many of these changes tended to clarify Whitehurst's dictations and thus improved them without affecting their substance.

Whitehurst stated that he did not give Higgins permission to make even non-substantive changes to his dictations, and that he would have generated new dictations and submitted them to Unit Chief Corby had he done so. Higgins, on the other hand, told us that in 1991 and for some time thereafter, he understood that principal examiners were permitted to make grammatical changes to auxiliary examiner dictations without authorization, as long as the changes were not substantive. Explosives Unit Chief J. Christopher Ronay likewise told us that during this time period, he would approve unilateral changes to Whitehurst's dictations as long as they did not substantively change the findings.

Even though the changes above did not materially change the meaning of Whitehurst's dictations, they did constitute technical violations of the Laboratory's policy requiring verbatim reporting of dictations. We do not conclude that Higgins purposely violated Laboratory policy, however, because it appears that Ronay authorized Explosives examiners to make such non-substantive changes. In this respect, Ronay was at fault for allowing Explosives Unit examiners to unilaterally make changes they determined to be nonsubstantive, since Explosives Unit examiners lacked the qualifications to determine whether changes to explosive residue analyses are substantive and such changes violated the rule requiring verbatim inclusion of dictations.

### **C. Category Three**

Thirteen Laboratory reports fall under Category Three, which includes Laboratory reports in which Higgins changed the meaning of Whitehurst's dictations without authorization. In these reports, Higgins misreported the number of specimens that Whitehurst had examined (Report No. 34), omitted important qualifying or explanatory language from the dictations (Report Nos. 13, 16 and 36), eliminated Whitehurst's forensic opinion altogether (Report Nos. 20, 22, 35, 36, 46, and 47), changed Whitehurst's findings (Report Nos. 17, 20, 34, and 46), or identified the presence or absence of chemical compounds not identified by Whitehurst (Report Nos. 17, 20, 30, 37, 42, and 47).

**1. Report No. 13.** With respect to Report No. 13, Higgins omitted important explanatory language from Whitehurst's dictation. Whitehurst stated in his dictation, in part:

The results of chemical and physical analysis of specimen Q1 are consistent with the presence of residues of a low explosive mixture based on perchlorate and nitrate oxidizers. Such residues could have resulted from commercial and homemade perchlorate flash powders initiated with a black powder fuse or a low explosive mixture composed of nitrate and perchlorate oxidizers. □

Higgins omitted the underscored clause and simply reported: Such residues could have resulted from commercial and/or homemade perchlorate flash powders.

Higgins told us that he would not have omitted the underscored passage without Whitehurst's permission. However, Whitehurst stated that he did not authorize the omission of this passage. Whitehurst indicated that he purposely included this clause to explain the presence of the nitrate ions in the residues. It is unlikely that Whitehurst agreed to remove the passage. The resulting Laboratory report suggests that a commercial and/or homemade perchlorate flash powder alone could have been the source of the nitrate ions seen by Whitehurst. Whitehurst clearly knew that straight flash powder could not be such a source. The evidence indicates that Higgins omitted this language without authorization from Whitehurst.

**2. Report No. 16.** In Report No. 16, Higgins again omitted explanatory language. In his dictation, Whitehurst stated in part: The results of preliminary chemical and physical analysis of specimen Q1 are consistent with the presence of TNT. Report No. 16, however, omits the word preliminary and states: Instrumental and physical analysis of specimen Q1 are consistent with the presence of Trinitrotoluene (TNT).

Higgins could not recall the circumstances that prompted removal of the word preliminary, but acknowledged that such a change would be substantive. On the other hand, Whitehurst stated that he did not change the report. Whitehurst also reviewed the official FBI case file and found no evidence that he had agreed to remove the word preliminary. By designating the results as preliminary, Whitehurst told the reader that the results were not confirmed and therefore additional testing was needed. The omission of the word preliminary in Report No. 16 made the testing appear more complete than it actually was. We think that Higgins erred in omitting this qualifying language.

**3. Report No. 17.** Report No. 17 contains two substantive changes to Whitehurst's dictation. First, Whitehurst reported in his dictation:

The results of chemical and physical analysis of specimen Q4 are consistent with the presence of components of a blasting cap composed of a PETN base charge, polyvinylchloride insulated leg wires and an electric match composed in part of zirconium.

In Report No. 17, however, Higgins reported: Instrumental analysis of the main charge inside the detonator reveals it as pentaerythritol tetranitrate (PETN).

When we asked Higgins about this passage, Higgins could not recall how this change had occurred. Higgins observed that Report No. 17 is dated October 3, 1991, and Whitehurst's dictation is dated October 23, 1991. Thus, Higgins suggested that he possibly received this information verbally from Whitehurst before Whitehurst issued his dictation. Whitehurst, however, doubted that he verbally communicated any results to Higgins. Whitehurst also could not explain the discrepancy between his dictation and Report No. 17. Given this record, and especially the dates of these reports, we are unable to determine whether Higgins received and purposely changed Whitehurst's dictation regarding PETN.

In the same dictation, Whitehurst also reported: No indication of the presence of lead organic primary explosive was found. Report No. 17 did not include this sentence, but instead reported: An electrical match inside the detonator initiates lead styphnate and lead azide which in turn initiates the PETN.

Higgins explained that he added this statement based on his own x-ray work showing a high density material. When pressed, Higgins acknowledged that his x-ray work did not specifically identify lead azide and lead styphnate. Higgins also stated that it would have been more correct to report that the electric match in a detonator commonly initiates lead styphnate and lead azide. We agree that Higgins' statement is not supportable in this case. Higgins could not determine from an x-ray image alone that the high density material was lead styphnate and lead azide. Furthermore, Higgins had no reason even to suggest that lead compounds might be present, absent some indication from the chemical analyses by Whitehurst. Higgins erred in adding this sentence.

**4. Report No. 20.** With respect to Report No. 20, Higgins misreported Whitehurst's findings and omitted part of Whitehurst's forensic opinion. Specifically, Whitehurst reported in his dictation:

The results of these analyses [of specimens K1 and K2] are consistent with the presence of a mixture of aluminum powder, sulfur and potassium perchlorate. The combination of these materials form a low explosive/energetic mixture generally referred to as flash powder.

Higgins included this paragraph, but then added the following in Report No. 20:

The two items in specimen K1 contained approximately 45.4 grams and 41.9 grams of flash powder. The two items in specimen K2 contained approximately 3.7 grams and 4.3 grams of flash powder.

Additionally, while Whitehurst reported that he could not confirm the presence of perchlorate ions on specimen Q1, Higgins went farther and added that no low explosive energetic material residue could be detected on specimen Q1. Whitehurst reported that he did not authorize these changes.

Higgins acknowledged that he made these changes to Whitehurst's dictation without conferring with Whitehurst. Higgins stated that we were splitting hairs and arguing semantics by suggesting that these alterations changed the meaning of the dictation. Higgins added that he reported the absence of all low explosives energetic materials based on his assumption that Whitehurst had looked for and failed to find any such materials. Higgins also told us that he did not think that these changes would raise an issue if the matter went to trial, since he and Whitehurst could simply testify to their respective opinions.

Contrary to Higgins' suggestion, these changes would be difficult to explain at trial. While Whitehurst only reported results consistent with flash powder, Higgins indicated that the Laboratory had positively identified flash powder in specimens K1 and K2. Similarly, while Whitehurst ruled out only perchlorate ions, Higgins reported the absence of all low explosive energetic materials, including perchlorate compounds and many other materials. Higgins erred in altering Whitehurst's dictation.

Additionally, with respect to Report No. 20, Higgins failed to include the following underscored sentence from Whitehurst's dictation:

Residue from specimen Q1 was analyzed with high performance liquid ion chromatography and capillary ion electrophoresis. These analyses could not confirm the presence of perchlorate ions. Therefore an opinion can not be rendered concerning the possible common origin of the flash powder mixtures found in K1 and K2 and the energetic material which caused the explosive damage found on items in specimen Q1.



Higgins could not explain why this sentence was omitted. Higgins stated that he would not have omitted the sentence without first speaking with Whitehurst. Whitehurst, on the other hand, told us that he would not have authorized the removal of this sentence. As will be seen, this is only one of several cases involving the selective omission of Whitehurst's forensic opinion. Given this pattern and Whitehurst's statement, we think that Higgins erroneously omitted Whitehurst's opinion in Report No. 20 without authorization.

**5. Report No. 22.** With respect to Report No. 22, Higgins again omitted a sentence from the dictation that expressed Whitehurst's forensic opinion. Specifically, Higgins omitted the following underscored sentence:

The results of the analyses are consistent with the presence of residues of double-based smokeless powder.

It is the opinion of this examiner that the energetic material utilized in specimens Q1 and Q2 was at least in part double based smokeless powder.

Higgins told us that he did not recall the circumstances leading to the removal of this sentence. Higgins stated that he would have spoken with Whitehurst before making such a change. Higgins added that he did not consider the change to be substantial because Whitehurst said the same thing in the prior sentence. Whitehurst told us that he did not authorize the omission of this sentence and considered this to be a substantial change. Whitehurst added that he purposely stated that the specimen was in part a double-base smokeless powder because his chemical analysis could not exclude the possibility that other materials were present before the explosion.

By using this language, Whitehurst signaled to the reader that other chemicals could have been present. The two sentences were not repetitive, since Whitehurst reported his findings in one sentence and his forensic opinion based on those findings in the next. Thus, we consider this change to be substantive. In view of Whitehurst's insistence that he purposely included this language, we think that Higgins omitted this sentence erroneously.

**6. Report No. 30.** In Report No. 30, Higgins reported a more positive identification of explosive material than authorized by Whitehurst. Specifically, Whitehurst prepared the following dictation with respect to specimen Q1 in Report No. 30:

The results of these analyses are consistent with the presence of a moldable plastic explosive composed of 95% cyclotrimethylene-trinitramine (RDX), 2% poly (vinyl isobutyl ether) and the remainder a hydrocarbon oil and small amounts of phthalate plasticizer. The RDX explosive portion was not contaminated with HMX.

Higgins reproduced this dictation verbatim in Report No. 30 under the heading, Instrumental Analysis, but then immediately added: These results are consistent with a PE-4A explosive manufactured in Portugal.

Whitehurst told us that he did not authorize the addition of this sentence. Whitehurst added that he did not have sufficient information about the formula for Portuguese PE-4A to permit him to make this statement. Higgins acknowledged that he did not obtain Whitehurst's permission to include this sentence, but stated that the sentence reflected his own opinion after examining the wrapper containing specimen Q1. Specifically, Higgins told us that the wrapper referred to PE-4A and SPE or Society of Portuguese Explosives. Higgins added that he was aware that the Laboratory had previously detected PE-4A in similar wrappers.

We think that Higgins' identification of the material as consistent with Portuguese PE-4A was potentially misleading. By placing this sentence under the heading, Instrumental Analysis, and referring to [t]hese results, Higgins suggested that the examiner performing the instrumental analyses (Whitehurst) had determined that the chemical results were consistent with Portuguese-manufactured PE-4A. In fact, Higgins had reached that conclusion based

primarily on the wrapper, not the particular chemical results obtained by Whitehurst. If Higgins wished to include this opinion, he should have separately reported the information as his own opinion and more clearly identified the basis for the opinion.

**7. Report No. 34.** In Report No. 34, Higgins misreported the number of specimens that had been examined and identified compounds more positively than reported by Whitehurst.

Specifically, in connection with Report No. 34, the Laboratory received two electric blasting caps (detonators) labeled specimens Q3 and Q4. Whitehurst examined only specimen Q4 and reported in his dictation:

The results of chemical and physical analyses of specimen Q4 are consistent with the presence of explosive materials found in a blasting cap composed of a PETN high explosive base charge, lead azide and lead styphnate primary explosive and an initiating material based on a nitrate/chlorate low explosive mixture.

In Report No. 34, however, Higgins rewrote Whitehurst's dictation and, referring to specimens Q3 and Q4, reported:

The results of chemical and physical analyses of the components of the detonators determined they have a base charge composed of PETN with lead azide and lead styphnate used to initiate the PETN. The material used to initiate the lead styphnate and lead azide is a nitrate/chlorate low explosive mixture.

Higgins told us that he made this change after a lengthy discussion with Whitehurst. During that discussion, according to Higgins, Whitehurst stated that specimens Q3 and Q4 looked the same, and therefore Whitehurst only analyzed one of the specimens. Whitehurst, however, told us that his notes did

not reflect any discussion with Higgins about specimens Q3 and Q4. Moreover, Whitehurst stated that one could not safely assume that specimens Q3 and Q4 were identical without examining both specimens. We think that Higgins erred in writing Report No. 34 to indicate that both detonators had been examined. By his own admission, Higgins knew that Whitehurst had not examined the detonator labeled specimen Q3. Higgins should have reported Whitehurst's dictation as written or requested new dictation from Whitehurst concerning specimen Q3.

Additionally with respect to Report No. 34, Whitehurst reported in his dictation that the material in the detonator was consistent with the presence of explosive materials found in a blasting cap composed of a PETN high explosive base charge, lead azide and lead styphnate primary explosive and an initiating material based on a nitrate/chlorate low explosive mixture. Whitehurst further reported that the lead wires and the end cap were consistent with the presence of polyvinylchloride. Higgins, however, reported that the detonators have a base charge composed of PETN with lead azide and lead styphnate, that the initiating material is a nitrate/chlorate low explosive mixture, and that the insulation and end cap are composed of polyvinylchloride.

Higgins stated that he would not have changed or rewritten the dictation without conferring with Whitehurst. Whitehurst, however, was clear that he did not authorize these changes. In view of Whitehurst's statement and in the absence of any documentation of such a change, we conclude that Higgins altered Whitehurst's dictation without authorization. Higgins should have reproduced Whitehurst's dictation verbatim or asked Whitehurst to prepare additional dictation.

**8. Report No. 35.** With respect to Report No. 35, Higgins made grammatical changes to Whitehurst's dictation and omitted the underscored opinion that appears in Whitehurst's dictation:

. . . These analyses identified the presence of Pyrodex propellant in specimen Q5. The results of analyses of material on specimen

Q2 are consistent with the presence of residues of Pyrodex propellant.

It is the opinion of this examiner that the energetic material originally found in specimens Q2 and Q5 consisted in part of Pyrodex propellant. Pyrodex is a commercial propellant manufactured by Hodgdon Powder Company. This propellant can function as a low explosive if properly confined and initiated.

Higgins could not explain why the underscored sentence was not in Report No. 35. Higgins stated that he would have talked to Whitehurst before removing the sentence. Whitehurst, however, told us that he would not have authorized the removal of the sentence. Whitehurst stated that he could not exclude the possibility that black powder was present with the Pyrodex, and therefore he purposely stated that the specimens consisted in part of Pyrodex. Given this explanation by Whitehurst, we think that Whitehurst did not agree to omit this opinion sentence. Higgins erred in not reproducing Whitehurst's dictation as written.

**9. Report No. 36.** In Report No. 36, Higgins omitted Whitehurst's forensic opinion and other explanatory language. Specifically, the following underscored sentences that appear in Whitehurst's dictation were omitted from Report No. 36:

The presence of chloride, nitrite, nitrate, sulfate and carbonate ion in the explosive residues is consistent with residues of smokeless powders, nitrate/sulfur/hydrocarbon energetic mixtures and also with naturally occurring materials. The relatively large abundance of carbonate in these residues is also consistent with the use of a hydrocarbon based, nonefficient energetic mixture. Such mixture might include improvised explosive components which were combined in improper ratios leading to inefficient reaction. When such inefficient energetic materials are initiated, the post initiation residues normally contain unreacted hydrocarbon fuels such as

sugar, vaseline or charcoal. Microscopic examination did not reveal any of these materials on the specimens examined but their absence does not preclude their having been there in the original energetic mixture.

Whitehurst told us that he did not authorize any changes to this dictation.

Higgins stated that he could not explain why these sentences were omitted from Whitehurst's dictation. Higgins recalled that he asked Ronay to review the dictation because another sentence in the dictation encroached upon Higgins' area of expertise. Higgins told us that he gave the dictation to Ronay and [w]hat happened after that, I don't know . . . .

Ronay, however, told us that he did not recall the circumstances leading to the removal of these sentences. Ronay acknowledged that he thought Whitehurst expressed opinions outside of his area of expertise when Whitehurst wrote about possible explanations for the presence of residues, and therefore Ronay did not consider the removal of such opinions to be a substantial change. However, Ronay stated that he did not recall if he authorized Higgins to omit such an opinion. Ronay also told us that he would not have changed Whitehurst's dictation without consulting Whitehurst or Corby.

Contrary to Ronay's suggestion, the omission of Whitehurst's forensic opinion was a substantive change. In this case, Whitehurst reported in that opinion that he could not identify certain unreacted hydrocarbon fuels through microscopic examination, but concluded that their absence did not necessarily preclude their presence in the original mixture. Although somewhat speculative, this information was potentially useful in assessing the likelihood that the material was a hydrocarbon based mixture. As the principal examiner who prepared Report No. 36, Higgins was responsible for reviewing the report and ensuring that it included all required dictation, including the missing forensic opinion, before he issued the report. Given this fact, and the repeated omission of such forensic opinions, the preponderance of evidence shows that Higgins omitted Whitehurst's forensic opinion or at least concurred in its omission.

Additionally, in Report No. 36, the Laboratory report prepared by Higgins omitted the following, underscored language:

The presence of lithium ions is somewhat unique, having been detected by this examiner in explosives residues only one other time during the past six and one half years.

Whitehurst again told us that he did not authorize the omission of this language. Higgins stated that he did not think that he omitted this language. The underscored language indicates how rare such lithium ions are in this type of case, and provides potentially useful information to investigators and others. Because Higgins appeared certain that he did not remove this language, we do not conclude that he did so. Higgins was responsible for ensuring that the Laboratory report contained all required dictation, however, a responsibility that he did not meet in this case.

**10. Report No. 37.** In Report No. 37, Higgins added a sentence concerning the absence of accelerants to the section of the Laboratory report containing Whitehurst's dictation, although Whitehurst did not perform any accelerant examination.

Specifically, in Report No. 37, Higgins added the following paragraph under the heading, Analysis of Residues :

An examination of submitted specimens failed to detect the presence of accelerant however, they may also have never been present; they may have evaporated during transport and storage; or may be present in undetectable amounts.

When asked about the origins of this paragraph, Higgins stated that he asked Whitehurst to check for both explosive residues and accelerants and Whitehurst reported verbally that he had found no accelerants. Higgins stated that he may have typed this paragraph as Whitehurst verbally reported these findings to him.

Whitehurst, however, told us that he was not qualified to do accelerant analysis and did not do any accelerant analysis in this case. Whitehurst observed that the Chemistry-Toxicology Unit (CTU) had responsibility for conducting such accelerant analyses. Whitehurst speculated that if Higgins had raised the issue of accelerants, Whitehurst might have asked CTU examiner Ronald Kelly whether it was possible to detect accelerants on the specimens. If Kelly said that it was not possible to detect such accelerants, Whitehurst might have passed on that information to Higgins.

The evidence suggests, at best, that Whitehurst and Higgins had a miscommunication with respect to Report No. 37: Whitehurst possibly told Higgins that it would be fruitless to conduct accelerant analyses; Higgins may have understood that Whitehurst had analyzed the evidence for accelerants without success. In any event, Higgins should not have added to Whitehurst's dictation without Whitehurst's express permission, but should have reported Whitehurst's dictation verbatim or requested new dictation from Whitehurst.

**11. Report No. 42.** In Report No. 42, Higgins identified the presence of chemical compounds that Whitehurst did not identify. Specifically, in the dictation for Report No. 42, Whitehurst reported only that a sample from the main charge consists of approximately 94% RDX high explosive. . . . In Report No. 42, however, Higgins reported: "The results of an [sic] instrumental analyses of the main charge reveals that it consists of approximately 94% RDX and 6% binders. Higgins also made extensive grammatical changes to Whitehurst's dictation in Report No. 42. Likewise, in a subsequent Laboratory report in the same case, Higgins reported: "The results of an [sic] instrumental analyses of the RDX [sic] revealed that it consists of approximately 94% RDX and 6% plasticizers (binders). See Report No. 17.



Whitehurst told us that he did not authorize Higgins to identify the remaining composition of the main charge as 6% binders or 6% plasticizers (binders). Whitehurst added that he did not include such an opinion himself, because he was unclear as to the remaining composition of the main charge. Whitehurst, however, stated that he viewed this addition as not that big a deal. Nevertheless, Higgins was not qualified to report that the remaining constituents were 6% binders, plasticizers, or any other material. Higgins improperly rendered an opinion concerning the remaining chemical composition of the main charge and improperly incorporated that opinion into a sentence reflecting the results of the instrumental analysis.

**12. Report No. 46.** In Report No. 46, Higgins omitted a sentence expressing Whitehurst's opinion and changed Whitehurst's finding. Specifically, the dictation prepared by Whitehurst for Report No. 46 read in part:

It is the opinion of this examiner that the device represented by specimen Q1 was composed of a pipe bomb filled with a main charge of Pyrodex and initiated with a red colored hobby fuse.

In Report No. 46, however, Higgins replaced this sentence with the following:

These results are consistent with a pipe bomb containing a main charge of Pyrodex and initiated with a red colored hobby type burning fuse.

The report prepared by Higgins also contained grammatical changes.

Higgins stated that he did not recall making these changes. Higgins also told us that he did not know why he substituted the phrase consistent with for composed of. Higgins indicated that he probably showed Whitehurst's dictation

to Ronay because he felt that Whitehurst was venturing into his area of expertise by describing the device. Whitehurst, on the other hand, told us that he did not authorize these changes to his dictation. Whitehurst added that he would have had his unit chief approve any such changes to his dictation. In view of Whitehurst's statements and the absence of any documentation supporting these changes, we conclude that Higgins erred in not reproducing Whitehurst's dictation verbatim.

**13. Report No. 47.** In Report No. 47, Higgins omitted Whitehurst's forensic opinion and also reported the absence of chemical compounds not mentioned by Whitehurst. Specifically, Higgins omitted the following underscored sentences that appear in Whitehurst's dictation:

The results of chemical analyses of specimen Q3 are consistent with the presence of RDX high explosive.

Chemical analyses of specimen Q6 did not find any RDX high explosive.

It is the opinion of this examiner that RDX found on specimen Q3 could have come from PE-4A high explosive. PE-4A is a British explosive which according to information held by the FBI Laboratory records contains RDX.

Higgins told us that he discussed the underscored paragraph with Whitehurst. According to Higgins, he suggested that Whitehurst remove the paragraph because the British explosive is called PE-4, not PE-4A and because the RDX on specimen Q3 could have come from other explosives as well. Whitehurst, however, did not recall authorizing the removal of this paragraph. Whitehurst stated that if he had agreed to the change, he would have documented this change by having Corby approve new dictation. In view of Whitehurst's statements and the absence of any documentation of this change, we think that Higgins erred in not reporting Whitehurst's dictation verbatim or requesting new dictation from Whitehurst.

Additionally, Whitehurst reported in his dictation for Report No. 47 that the [c]hemical analysis of specimen Q6 did not find any RDX explosive. Higgins, however, replaced this sentence in Report No. 47 with the following:

Specimen Q6, a [sic] residue obtained from a pair of men's black slip-on shoes, size 12, labeled Lidfort and made in Italy, was chemically analyzed and no trace of RDX or any organic or inorganic explosive was found.

Higgins told us that he would not have referred to organic or inorganic explosives without checking with Whitehurst. Whitehurst, however, stated that he did not authorize this addition to his dictation and could not explain how Higgins reached this conclusion. Whitehurst reviewed the case file for Report No. 47 and did not find any indication that he had altered his dictation in response to a request from Higgins. In view of Whitehurst's statement that he did not authorize this addition and the absence of any documentation, we conclude that Higgins again improperly changed Whitehurst's dictation.

#### **D. The Remaining 21 Laboratory Reports**

The FBI could not locate and produce Whitehurst's final and approved dictations for comparison purposes in 21 Laboratory cases. The FBI told us in a letter that

[a]ny of the following could explain the absence of a document, such as signed AE dictation, from a Bureau file: the person responsible for sending the document to the central files failed to do so; the document was sent to be filed but did not reach the file room; and the document reached the file room but was misfiled. FN: Although it would be improper for an employee to remove a properly filed document from a file, this is a possibility.

Higgins likewise told us that he did not know where we might look for missing dictations at this time. Higgins stated that he generally placed the auxiliary examiner's dictations in the official FBI case file or sent them to the official FBI case file with a routing slip. Higgins added that the dictations may have been submitted as an exhibit at trial, although he considered that possibility to be unlikely. Higgins acknowledged that it was the principal examiner's responsibility to send the auxiliary examiner's dictations to the official FBI case file.

Absent these dictations, we could not determine whether Higgins made changes in these 21 Laboratory cases.

#### **IV. Conclusion**

We reviewed Laboratory reports prepared by Higgins in 69 Laboratory cases in which Whitehurst served as an auxiliary examiner. In 29 Laboratory cases, Higgins either did not change Whitehurst's dictations or made insignificant transcription errors. In six Laboratory cases, Higgins altered Whitehurst's dictations without Whitehurst's authorization, but did not materially change the meaning of the dictations. In 13 Laboratory cases, Higgins prepared Laboratory reports that contained material changes to the meaning of Whitehurst's dictations without Whitehurst's authorization. In these reports, Higgins misreported the number of specimens that Whitehurst had examined (Report No. 34), omitted important qualifying or explanatory language from the dictations (Report Nos. 13, 16 and 36), eliminated Whitehurst's forensic opinion altogether (Report Nos. 20, 22, 35, 36, 46, and 47), changed Whitehurst's findings (Report Nos. 17, 20, 34, and 46), and identified the presence or absence of chemical compounds not identified by Whitehurst (Report Nos. 17, 20, 30, 37, 42, and 47). We were not able to reach conclusions regarding the remaining 21 Laboratory reports, because the FBI could not locate and produce Whitehurst's dictations for comparison purposes.

Our efforts to identify which dictations had been changed without authorization were hampered by conflicting statements from Higgins and Whitehurst. Higgins repeatedly told us that he never changed Whitehurst's dictations in substance without permission from Whitehurst. Higgins explained that he had a gentlemen's agreement with Whitehurst that permitted him to substantively alter the dictations after conversing with Whitehurst. On the other hand, Whitehurst repeatedly told us that he did not authorize the changes made to his dictations. Whitehurst also denied that he ever had any gentlemen's agreement with Higgins. Whitehurst told us that if he had agreed to make substantive changes to his dictations, he would have documented the changes or submitted those changes to his unit chief for approval. We noted that Whitehurst had documented his changes on the face of the dictations in some of the cases. In other instances, Whitehurst observed that his underlying data did not support the changed dictations and therefore he would not have agreed to alter the dictations.

In most of these cases, we were not persuaded by Higgins' assertion that he obtained Whitehurst's permission before making substantive changes to the dictations. Contrary to this assertion, Higgins acknowledged during our interviews that he made what we considered to be substantive changes without permission in some of these Laboratory cases. See Report Nos. 17, 20, 34, and 37. As to the remaining Laboratory cases, Higgins told us that he had no idea how or why the changes occurred. We recognize that these events occurred between three to six years earlier, but we find it difficult to accept that Higgins had no explanation for so many of the changes in Laboratory reports, which, it must be recalled, were prepared by him. In contrast, Whitehurst could point to specific reasons why he would not have agreed to change his dictations in many of these cases. Finally, Higgins' credibility suffered because, when we showed him changes to dictations that were clearly substantive, Higgins refused to agree that the changes were significant or even acknowledge that the changes might pose a problem if those matters ever went to trial.

In view of our findings that Higgins made substantive changes to Whitehurst's dictations without permission, we think that the Laboratory should take certain remedial steps. Laboratory management should designate a qualified explosives examiner to review these reports and consider whether to prepare amended reports and advise the submitting agencies of the unauthorized changes. Laboratory management also should make every effort to locate the missing 21

dictations to determine if the corresponding Laboratory reports contain substantive changes.

Additionally, given Ronay's statements that he authorized non-substantive changes to Whitehurst's dictations and the omission of Whitehurst's opinions in some cases, we strongly recommend that the Laboratory review all Explosives Unit reports in cases in which Whitehurst served as an auxiliary examiner to determine whether other unauthorized changes occurred. If so, Laboratory management should consider whether, depending on the seriousness of the alterations, additional remedial steps should be taken in those cases.

Finally, we think that the manner in which the FBI maintained its official case files in this matter deserves comment. In reviewing those files, we found their organization to be somewhat incoherent. It was difficult to determine if all of the necessary records were present, and the absence of Whitehurst's approved dictations in 21 of the 69 Laboratory cases we reviewed suggests that records in a significant number of cases have been lost. Our review convinces us that an examiner may find it difficult to effectively prepare for trial by reviewing some of these case files. The official FBI case files should be sufficiently complete so that a qualified examiner can understand the examinations performed, the results obtained, and the bases for those results. In Part Six of this Report, we make recommendations that would go far toward alleviating the case documentation problems we encountered.

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**CHART A: LABORATORY CASES IN WHICH HIGGINS WAS PE  
AND WHITEHURST WAS AE**

<b>SEQUENTIAL NUMBER</b>	<b>CATEGORY</b>	<b>FILE NUMBER</b>	<b>DATE OF AE DICTATION</b>	<b>DATE OF FINAL REPORT</b>
1	N/A	N/A	N/A	N/A
2	II	174-10755 00924055	11/13/90	01/10/91
3	Not Categorized	95-292633 00328032	Not Produced by FBI	01/11/91
4	II	95-295034 00914025	01/30/91	03/29/91
5	II	95-295047 00914024	01/30/91	03/29/91
6	I		01/30/91	03/29/91

		95-295054 00914023		
7	I	95-295567 01012007	06/10/91	07/24/91
8	I	95-297958 10307012	10/07/91	12/20/91
9	I	95-298548 10523013	11/19/91	01/10/92
10	I	95-299639 10801044	10/07/91	10/18/91
11	I	95A-HQ- 1002839 11108031	01/27/92	02/24/92
12	I	95-300291 10912028	12/19/91	02/24/92
13	III	95A-HQ-	05/11/92	07/09/92



		1005646 11118014		
14	Not Categorized	174-10810 10322011	Not Produced by FBI	11/14/91
15	II	174-10759 01102042	05/31/91	06/07/91
16	III	262-105 10212024	08/19/91	09/18/91
17	III	262-135 10924017	10/23/91	10/03/91
18	II	183A-HQ- 1028989 20817014	10/06/92, 11/05/92 06/26/92	10/15/92 11/20/92
19	I	26B-NY-221224 21005042	10/21/92	11/30/93

20	III	95A-HQ-1020050 20324023	01/21/93	03/02/93
21	I	95A-HQ-1021257 20327066	11/12/92	01/27/93
22	III	95A-HQ-1045388 30208029	02/16/93	04/15/93
23	Not Categorized	95A-HQ-1046139 30219059/ 30219060	Not Produced by FBI	11/17/93
24	I	95A-HQ-1046136 30219058	05/13/93	05/21/93
25	Not Categorized	95A-HQ-1046145 30219061	Not Produced by FBI	10/29/93

26	I	95A-HQ- 1046148  30219062	10/19/93	10/29/93
27	I	95A-HQ- 1046339  30222063	11/04/93	12/03/93
28	I	95A-HQ- 1055157  30722016	11/18/93	12/03/93
29	II	95D-HQ- 1063101  31227006	04/26/94	05/09/94
30	III	163A-HQ- 1039342  21030019	01/07/93	01/12/93
31	III	174A-LV-24022  31104037	03/21/94	03/28/94
32	I	72-NY-224960  20604037	09/13/93	12/03/93

		(20624037 on AE Dictation)		
33	I	80-899 21112035	11/23/92	12/22/92
34	III	95-300132 10909047	09/20/91	05/29/92
35	III	95A-HQ- 1023121 20402053	01/05/93	01/15/93
36	III	160C-SC-18029 20414026	02/19/93	05/21/93
37	III	95A-HQ- 1032088 20615061	08/18/92	10/22/92
38	Not Categorized	199M-MH-171 30607095	Not Produced by FBI	11/15/93
39	Not Categorized		12/15/93	12/17/93

		262-MM-64973 30803005		
40	I	281A-NH-24953 30809034	11/09/93	03/29/94
41	Not Categorized	262-HN-9164 10212023	Not Produced by FBI	06/06/91
42	III	262-135 10212009	03/04/91	04/17/91, 10/03/91 (#17 FR)
43	II	62D-PG-54909 11104064	01/27/92	02/24/92
44	I	95-296542 10110017	05/23/91	05/24/91
45	II	95-296601 10115006	08/19/91	09/16/91
46	III	95-300689	01/13/92	04/10/92

		11021069		
47	III	262-HN-9126 (262-128) 10212008	03/04/91	05/31/91
48	Not Categorized	12D-SE-64286 (80-899) 20709003 (20709008 on AE Dictation)	Not Produced by FBI	11/27/92
49	N/A	N/A	N/A	N/A
50	I	262-135 20211016	12/07/92	09/23/92
51	N/A	N/A	N/A	N/A
52	Not Categorized	89E-MO-35734 (89-7918) 11015061	Not Produced by FBI	11/07/91

53	I	281A-DE-58586 20513027	09/15/92	10/23/92
54	I	12F-NF-28167 20529010	09/17/92	01/15/93
55	I	95A-HQ- 1046131 30219057	02/26/93	04/05/93
56	I	80-899 10913057	09/15/92	09/21/92
57	I	80-899 20820035	10/26/92	11/27/92
58	I	80-899 21020043	10/27/92	11/27/92
59	I	80-899 30507002	11/15/93	11/18/93
60	I		12/07/92	01/12/93

		2-MM-61261 21029005 21029035		
61	Not Categorized	174A-BH-39654 11113016	Not Produced by FBI	05/18/92
62	Not Categorized	95A-HQ- 1037936 21008060	Not Produced by FBI	01/28/93
63	Not Categorized	80-899 10913054	Not Produced by FBI	11/27/92
64	Not Categorized	80-899 10913055	Not Produced by FBI	11/27/92
65	Not Categorized	80-899 10913056	Not Produced by FBI	09/21/92
66	Not Categorized	80-899 20709002	Not Produced by FBI	01/15/93



67	Not Categorized	80-899 20709004	Not Produced by FBI	10/14/92
68	Not Categorized	80-899 20820034	Not Produced by FBI	11/27/92
69	Not Categorized	80-899 20820036	Not Produced by FBI	11/27/92
70	Not Categorized	80-899 20820037	Not Produced by FBI	11/27/92
71	Not Categorized	80-899 21020042	Not Produced by FBI	11/27/92
72	Not Categorized	80-899 21112036	Not Produced by FBI	11/27/92

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## **SECTION H12: TOBIN ALLEGATIONS**

### **I. Introduction**

This section discusses certain issues that William Tobin, a metallurgist now working in the Materials Analysis Unit (MAU), has brought to the attention of the OIG. Tobin has identified cases in which he believes other examiners, primarily in the Explosives Unit (EU), have incorrectly conducted or reported metals-related examinations. He also contends that SA Michael Malone, a former examiner in the Hairs and Fibers Unit (HFU), testified inaccurately and outside his expertise in a 1985 hearing related to the impeachment of United States District Judge Alcee Hastings.

To investigate these matters, we interviewed Tobin and several others, including: Dennis Aiken, Roger Avery, Alan Baron, John Doar, Michael Ennis, Christopher Fiedler, Bruce Hall, Michael Hahn, Congressman Alcee Hastings, John Hicks, Michael Malone, AUSA Frederick Martin, Thomas Mohnal, Kenneth Nimmich, Robert Sibert, Alan Robillard, J. Thomas Thurman, and Chief Judge Gerald Tjoflat of the United States Court of Appeals for the Eleventh Circuit. We also reviewed pertinent documents from the Alcee Hastings case and other cases.

Based on our investigation, we conclude that the Laboratory would benefit from a clear delineation of responsibilities between units with respect to metals-related examinations, better communication among examiners in this area, and recognition that differences among examiners should be resolved on a scientific basis. We also conclude that the EU should take steps to assure that its examiners properly conduct and report their examinations of wires or other metals-related evidence.

In the Alcee Hastings case, we find that Michael Malone falsely testified that he had himself performed a tensile test on a purse strap and also testified inaccurately and outside his expertise concerning the test results. The misstatements concerning the test results, Tobin acknowledged, did not affect the conclusion that the strap had been partially cut. After Tobin raised concerns about Malone's testimony in 1989, then-SAS Chief Kenneth Nimmich failed to assure that the serious allegations of examiner misconduct were appropriately investigated and addressed.

## **II. The Reporting of Metals-Related Examinations**

Tobin identified one general area and two specific cases in which he thought metals-related examinations had been incorrectly performed or reported: (1) in reports prepared by EU examiners regarding the gauge of wire; (2) in a report in the La Familia case indicating that holes had been drilled into metal pipes; and (3) a suggestion in the Mauchlin case that a handgun barrel was made from Swedish steel. We address each of these matters in turn.

### **A. Improper Wire Gauging**

Tobin contends that EU examiners have themselves conducted certain examinations that would be better performed by qualified metallurgists and in some instances the EU examiners have reported their examinations incorrectly. He specifically identified the measurement of wire gauge as an example. To illustrate his point, Tobin noted that in an August 1995 report issued by EU examiner Thomas Mohnal in the UNABOM case, the following dictation appears:

Present within the submitted specimens are the following lengths of wire: White insulated, single conductor, multi-strand copper wire containing 26 strands of 30 - gauge (AWG) copper wire.

In Tobin's view, this report incorrectly states the gauge of the wire because it describes the gauge of individual strands of a multi-strand wire. Tobin observed that, consistent with industry standards, a multi-strand wire should be gauged based on the total cross-sectional area of its separate strands. Because the report did not describe the wire in this way, Tobin voiced concern that field agents or other readers might misinterpret the report as indicating that 30-gauge wire was found in the examined specimens.

After the August 1995 report was issued, Tobin met with EU Chief J. Thomas Thurman and acting MAU Chief Christopher Fiedler to discuss Tobin's concerns about how the EU was measuring and reporting the gauge of wire. During the meeting, Thurman agreed that Tobin would instruct EU examiners how properly to gauge wire and to conduct certain other metals-related examinations. In September 1996, however, the EU still had not obtained this training. Tobin advised the OIG that Thurman had not yet asked Tobin to provide it. Thurman told the OIG that he had told Tobin he would set up the training whenever Tobin wanted to do it; Thurman further said he was not concerned that the EU was perhaps misgauging wire.

With respect to the wire gauging issue, we draw several conclusions. The measurement of wire gauge is, in our view, something that appropriately-trained EU examiners can perform themselves without involving a metallurgist. Thurman as the EU chief should have taken more seriously Tobin's concern that EU examiners were not measuring or reporting the wire gauge in accord with industry standards. Where a multi-strand wire is involved, its gauge should be measured and reported based on the total cross-sectional area of its strands. Of course, following the industry standard for describing the wire would not preclude an examiner, as in the quoted report from the UNABOM case, from also supplying additional information describing the size and other characteristics of individual strands.

## **B. The La Familia Case**

In the La Familia case, Tobin, who worked on the case, thought that the EU and the Firearms and Toolmarks Unit (FTU) in 1996 reported the results of metals-related examinations in a misleading or incorrect manner. After he reviewed a report containing certain statements with which he disagreed, Tobin prepared dictation describing his own opinions without first talking to explosives examiner Thomas Mohnal, who was the principal examiner (PE). Tobin's action led to further controversy because Mohnal and EU Chief Thurman accused Tobin of improperly attempting to discredit the EU and FTU. We conclude that the Laboratory personnel, including Tobin, should have communicated better among themselves and focused on the pertinent scientific knowledge in attempting to resolve any differences.

The Laboratory was asked in this case to determine if certain evidence met the definition of an explosive device or was used in the construction of pipe bombs. The submitted evidence included a pipe nipple with two end caps, collectively identified as Q1; another pipe nipple with an end cap and an end plug, collectively identified as K1; and a drill and drill bit. Each of the pipe nipples had a hole in the center of the pipe shaft.

As the PE, Thomas Mohnal sent the evidence to Tobin to determine if there were metal filings on the drill bit that matched the pipe. Mohnal also sent the evidence to the FTU to determine if the holes had been drilled with the bit. On February 9, 1996, Mohnal issued a partial report. Because Tobin had not completed his dictation, this report stated that [t]he Metallurgy examinations are continuing and you will be advised of the results of these examinations upon their completion.

In the February 9 report under the heading Pipe Nipple/End Caps, Mohnal described specimens Q1 and K1. The report stated that Q1 was a 6-inch length of black-coated steel pipe having a nominal pipe size diameter of 3/4 inch. Mohnal noted that a hole measuring approximately 0.118 inches in diameter had been drilled in approximately the center of the pipe nipple. He also noted that the pipe nipple had the word MEXICO stamped in manufacturer's lettering, that two nominal size 3/4 inch steel end caps were present, and that one of the caps was stamped on the top with the words 3.4 Q CHINA in manufacturer's lettering. Describing specimen K1, the report noted that the diameter of the

pipe was the same as Q1, that the stamped lettering on the pipe also bore the word MEXICO, and that the end cap from K1 was found to be the same nominal size as the end caps from Q1 and had the lettering 3.4 Q CHINA.

In a separate section, the February 9 report also described the results of toolmark examinations performed in the FTU:

The threaded pipes represented in specimens Q1 and K1 bear toolmarks (holes) typical of those produced by a drilling-type action. Although these holes are approximately the same size in diameter as the K4 drill bit, they bear no microscopic characteristics of value for comparison purposes. Therefore, no associations based on toolmarks, could be made between the K4 drill bit and the Q1 and K1 threaded pipes.

Shortly after the February 9 report was issued, Tobin sent Mohnal dictation reporting that no material consistent with specimens Q1 and K1 was found on the K4 drill and drill bit. Tobin says he only subsequently saw the February 9 report, and he then read Mohnal's description of the pipes but not the section describing the results of the toolmark examinations. Tobin concluded that the report incorrectly suggested that the pipes in specimens Q1 and K1 were identical and also incorrectly used the term nominal pipe size in describing the evidence, because nominal pipe size indicates that the pipe wall meets certain American Iron and Steel Institute (AISI) standards. Tobin also was concerned by the statement that holes had been drilled in the pipe nipples, because he had not found characteristics indicating the holes were drilled.

Without first discussing his concerns with Mohnal, Tobin recalled his earlier dictation and prepared new dictation dated February 13, 1996. That dictation stated:

Metallurgical examinations and comparisons of the Q1 and K1 pipe nipples revealed similarities as to the country of origin stampings . . . material class, and *ostensible* size (3/4 inch). However, the Q1 nipple is 3/4 inch AISI NPS (American Iron and Steel Institute, Nominal Pipe Size), but the K1 nipple would fail to comply with the AISI 3.4 inch NPS standard. . . .

Differences as to hardness and fabrication techniques, in addition to the slight but significant size difference, between the nipples of specimens Q1 and K1 were detected pursuant to the metallurgical examinations. The nipples, although apparently manufactured in Mexico, were concluded to have been formed by different fabrication operations. . . .

No material consistent with specimens Q1 and K1 was detected adhering to the K4 drill or drill bit. Although the approximate centers of the Q1 and K1 nipples do not exhibit characteristics of being drilled, the K4 drill bit (7/64 ) is of the proper size to have been used for pilot holes.

When he received Tobin's February 13, 1996, dictation, Mohnal said he was immediately angered by the fact that Tobin had issued the findings without consulting him. Mohnal said that he thought that Tobin was deliberately attempting to embarrass the EU and FTU and to hurt the case. In Mohnal's view, Tobin had been asked to answer a very limited question and he had done so by his dictation stating that no material consistent with specimens Q1 and K1 was detected adhering to the K4 drill and drill bit. Mohnal also stated that his February 9, 1996, report was not intended to compare the K1 and Q1 specimens to determine if they were identical, as that was not a pertinent issue, and the language in the Pipe nipple/end cap section was meant to be merely descriptive.

After Mohnal's unit chief, J. Thomas Thurman, learned that Tobin had prepared the revised dictation, Thurman also concluded that Tobin had improperly

commented on matters he had not been asked to address. Thurman told the OIG that he did not take issue with Tobin raising issues, but Thurman thought it was improper for Tobin to issue the revised dictation without even talking to the other examiners involved.

Sometime after February 13, 1996, Tobin met with his acting unit chief, Christopher Fiedler, and Thurman to further discuss the dictation. As a result of this meeting, Tobin issued yet another revised dictation with additional language stating that the metallurgical differences would not likely be detected by other than a metallurgist or other individual knowledgeable of pipe fabrication techniques, and they do not alter the efficacy of the apparent intended product. Tobin told the OIG he agreed to this language to appease the EU. Thurman said that while he still thought Tobin should not have issued his February 13 dictation and it should have been withdrawn, Thurman agreed to the compromise dictation because Mohnal said he could live with it.

After preparing his February 13 dictation, Tobin realized that it also conflicted with the toolmark conclusions described in the February 9, 1996, report. Those conclusions, which were based on the work of examiner Michael Ennis, stated that the pipes in Q1 and K1 bear toolmarks (holes) typical of those produced by a drilling-type action. Tobin approached Ennis to attempt to reach agreement on further revised language.

Tobin met with Ennis and then prepared a dictation dated February 27, 1996, which stated:

The holes in the approximate centers of Q1 and K1 do not exhibit characteristics indicative of drilling as a final metallurgical operation and they are similar as to technique of formation and apparent RMS (root mean square) profile. The K4 drill bit (7/64 ) is of the proper size to have been used for drilling pilot holes in both nipples. No material consistent with the Q1 and K1 nipples was detected adhering to the bit.



Although Tobin and Ennis agreed on Tobin's revised dictation, they evidently misunderstood each other as to its implications for the conclusions Ennis earlier had reached. Ennis told the OIG that he understood that Tobin had examined only the top of the holes in the pipes, while Ennis had examined the inside of the holes and observed characteristics such as spiraling that he thought were indicative of drilling. Ennis said this allowed him to reconcile his earlier dictation with Tobin's February 27 dictation. Tobin told us his February 27 dictation on its face contradicted the dictation Ennis had prepared and that he did not think that spiraling was significant with regard to whether the holes had been drilled. Tobin told the OIG that he had probably not told Ennis these things because Tobin did not want to embarrass him.

After Tobin and Ennis met, there was a separate meeting among EU Chief Thurman, FTU Chief Sibert, and Bruce Hall, who by then was serving as the MAU chief. Hall concluded from this meeting that Tobin should have discussed his concerns with the FTU and the EU examiners before issuing his February 13, 1996, dictation. Hall also thought that Tobin had acted out of frustration after concluding that Mohnal and Ennis had incorrectly performed examinations that should have been done by a metallurgist. Hall observed that the problem reflected a lack of communication that could have been avoided if the units had collaborated. In addition, Hall recalled suggesting that a metallurgist provide training to EU examiners to try to improve communication, but this idea apparently was not implemented.

The La Familia investigation resulted in the trial of defendant Charles Nunez in federal court in Springfield, Massachusetts in July 1996. Nunez was convicted on charges related to the unlawful possession of pipe bombs. Thomas Mohnal testified at the trial that a particular device was a pipe bomb, and Steven Burmeister testified about the Laboratory's identification of certain powder. Neither Ennis nor Tobin testified at the trial.

We have several conclusions concerning the La Familia case. When Tobin saw what he thought were incorrect or misleading statements in the February 9, 1996, report, he was correct to raise the issue. He should, however, have talked

with Mohnal before issuing his own February 13 dictation. As a general matter, we think that examiners should first discuss issues informally among themselves if there appears to be a difference of opinion in interpreting data or reporting conclusions. Had Tobin attempted such informal communication here, it might have avoided both much of the controversy and the need for Tobin to further revise his dictation. We find unpersuasive Tobin's explanation that he prepared his dictation as he did because he knew from past experience that Mohnal would ignore his concerns.

We also find that Tobin and Ennis did not take appropriate steps to resolve their differences concerning whether the evidence indicated that holes had been drilled in the pipe nipples. Although Tobin and Ennis agreed to a further revision of Tobin's dictation, Tobin did not think the evidence showed characteristics of drilling. Ennis in contrast thought he and Tobin had agreed their conclusions could be reconciled. That Ennis and Tobin talked about their differences was laudable. They should, however, have addressed more directly the bases for and the possible inconsistencies in their respective conclusions. If they were unable themselves to reach agreement based on the data and analyses performed, they should have involved their unit chiefs further.

Both Thurman and Mohnal seemed to be concerned more about Tobin's motives or manner in issuing the February 13 dictation than about the merits of the points he raised. As a unit chief, Thurman should have assured that any differences of opinion among the examiners were resolved on a scientific basis. Rather than do so, Thurman appeared to be chiefly concerned with defending the report issued by EU examiner Mohnal and attempting to persuade others that Tobin's February 13 dictation should be withdrawn.

More generally, we think the La Familia case and the issue concerning the measurement of wire gauge show that the Laboratory would benefit from a clear delineation of the respective responsibilities of its metallurgists and other examiners in conducting metals-related examinations. Based on our interview of SAS Chief Randall Murch, we understand that the Laboratory will attempt to develop guidelines in this area. We also understand that the Laboratory intends to establish a Science Resolution Board which will serve as a forum for the airing of disagreements over scientific issues. Such a board could serve a useful

purpose, but we would hope that issues like those presented in the La Familia case could generally be resolved by direct, informal discussions among the examiners involved.

### **C. The Peter Mauchlin Case**

Tobin has expressed concerns that in this case, in which he conducted metallurgical examinations, the prosecutor and the case agent were incorrectly told that a gun barrel was made from Swedish steel. Although the case agent recalls hearing something about high quality Swedish or stainless steel, we did not identify anyone in the Laboratory who reported incorrect information in this regard.

According to Tobin, he met with AUSA Frederick Martin before the trial to discuss Tobin's anticipated testimony. Tobin recalls that Martin asked him several questions about the nature and origin of metal in a particular gun barrel. Tobin responded that he did not know. When Martin asked why he did not know the answers, Tobin recalls explaining that he had not been asked to examine the gun barrel. Tobin says that Martin then asked what indicated that the gun barrel was made from Swedish steel and said that they had been looking all over for Swedish steel.

Subsequently, Tobin concluded that a remark he had made to EU examiner Thomas Mohnal may have been incorrectly communicated to the case agent. Tobin recalled that before the trial, Mohnal had approached him waving some evidence and said what is this stuff? I don't want a complete exam. Look, I just want your opinion what it is. Tobin said he told Mohnal that he would first need to hold the evidence. According to Tobin, Mohnal replied, Well, look, I just want to know what to put in my notes just for an inventory kind of thing. Tobin stated that Mohnal continued to push him for an answer and Tobin responded, Tom, for all I know, it's high quality Swedish steel. I don't know. Tobin speculated that as result of this comment, the case agent was mistakenly told the barrel was Swedish steel.

AUSA Martin did not recall a conversation about Swedish steel in his pretrial interview with Tobin. Martin said that the case agent, Michael Hahn, was present at the interview and mentioned that the metal used was high-quality, but Martin did not recall Hahn saying it was Swedish. Hahn told the OIG that he recalled something about high quality Swedish or stainless steel, although Hahn could not remember how he received this information.

J. Thomas Thurman was the PE on this case. Thurman told the OIG that the submitting agency had not asked for an analysis of the gun barrel and he did not otherwise see any need for Tobin to analyze it. Both Thurman and Mohnal denied ever telling anyone that the gun barrel was Swedish steel. We could not identify the source of the information regarding Swedish steel that case agent Michael Hahn seems to recall.

### **III. Alcee Hastings Matter**

Tobin alleges that, in 1985, former Hairs and Fibers Unit (HFU) examiner Michael Malone testified falsely and outside his expertise before a judicial committee that was investigating misconduct by Alcee Hastings, who then was a United States District Judge for the Southern District of Florida. As set forth below, we conclude that Malone falsely testified that he had himself performed a tensile test on a purse strap and he also testified outside his expertise and inaccurately concerning the test results. These misstatements, Tobin acknowledged, did not affect the conclusion that the strap had been partially cut. We also find that after Tobin raised concerns about Malone's testimony in 1989, then-SAS Chief Kenneth Nimmich failed to assure that the serious allegations of examiner misconduct were appropriately investigated and addressed.

In 1989, Hastings was impeached and removed from his judicial office based on his involvement in a bribery scheme and related misconduct. Our investigation focused on Tobin's allegations concerning Malone's testimony;

we did not otherwise review or evaluate actions by the FBI or others related to the impeachment of Hastings.

### **A. The Background to the Investigating Committee Proceedings**

To place Malone's 1985 testimony into context, it is necessary to briefly summarize the events leading to the charges that Hastings had been involved in a bribery scheme. As a federal judge, Hastings had presided over the trial of Frank Romano and Thomas Romano, who were convicted in Miami in December 1980 on twenty-one counts of racketeering. In May 1981, Hastings ordered the forfeiture of \$1.2 million of the Romanos' property; in July 1981, he sentenced each of the Romanos to a three-year prison term. In late July 1981, a person named William Dredge told federal prosecutors in Miami that he had been directed by William Borders, a Washington, D.C. attorney and long-time friend of Hastings, to solicit a \$150,000 bribe from the Romanos in exchange for their sentences being reduced to probation. Dredge was a former client of Borders, had a criminal record, and was then facing federal criminal charges himself.

After corroborating certain statements made by Dredge, the Government decided to enlist his cooperation. On September 12, 1981, Dredge introduced Borders to a retired FBI agent named Paul Rico who was posing as Frank Romano. Borders told Rico that in exchange for \$150,000 an order would be signed returning a substantial amount of the property and the Romanos would receive mitigated jail sentences. To demonstrate his influence with Hastings, Borders also told Rico that the judge would appear at a time and place selected by Borders and Rico. They agreed that Hastings would appear at the dining room of the Fontainebleau Hotel in Miami at 8:00 p.m. on September 16, 1981. Borders and Rico also agreed to meet again on September 19, 1981, for an up front payment on the bribery deal. On the evening of September 12 and the morning of September 13, 1981, Borders and Hastings were together in Washington, D.C.

Shortly before 8:00 p.m. on September 16, 1981, Hastings and a female companion entered the dining room of the Fontainebleau Hotel, where they ate dinner. On September 19, 1981, Rico paid Borders \$25,000 as up front money. On October 2, 1981, Rico contacted Borders asking about the status of the forfeiture order. In a telephone conversation on October 5, 1981, Borders told Rico the matter had been taken care of and that the order would be mailed out that day or the next. Less than one hour later, Hastings telephoned Borders. During their brief conversation, Hastings said, I've drafted those, ah, ah, letters for Hemp. . . . Borders later said, I talked to him and he wrote some things down for me. Hastings said he understood, and Borders stated, And then I was supposed to go back and get some more things. Hastings told Borders, I'll send the stuff off to Columbia in the morning. The next day, Hastings issued an order reversing in part his original \$1.2 million forfeiture order and returning over \$845,000 in property to the Romanos.

On October 7, Borders told Rico that the order had been issued the previous day. Rico agreed to meet Borders in Washington on October 9 for the final payoff. That same evening, a testimonial dinner was to be held in Washington to honor Borders, a past president of the National Bar Association. On Thursday, October 8, Hastings called Borders and told him he would arrive in Washington the next morning. On the morning of October 9, Borders picked Hastings up at the airport and took him to a hotel, where they had adjacent rooms; shortly thereafter Hastings went with Borders to the latter's law office. While at his office, Borders returned a call from Rico; Rico told Borders he had brought all the necessary papers and they agreed to meet at once at Rico's hotel. Borders went by himself to Rico's hotel. Hastings left Borders' office, made a few stops, and then returned to his own hotel.

Borders met Rico at his hotel and told him to get in because he wanted to take a ride. Rico got into Borders' car and placed a bag containing \$125,000 between them. FBI agents stopped and arrested Borders when he started to drive out of the hotel parking lot. That afternoon, Hastings learned that the FBI wanted to interview him and that Borders had been arrested. Rather than contacting the FBI in Washington, Hastings made an unplanned and hurried departure for Miami, where he was interviewed by FBI agents later that evening. Hastings denied any involvement with Borders in a bribery scheme.

On December 19, 1981, Hastings and Borders were indicted on federal charges of conspiracy and obstruction of justice. Borders was also charged with two counts of interstate travel with the intent to commit bribery. The proceedings against Borders were transferred to the Northern District of Georgia, where a jury convicted him on all counts in March 1982. The Court of Appeals for the Eleventh Circuit affirmed the conviction in December 1982. Hastings was tried in Miami in January 1983. He testified that he did not participate in the bribery scheme and had been taken advantage of by Borders. On February 4, 1983, the jury acquitted Hastings.

In March 1983, two district court judges filed a complaint with the Judicial Council of the Eleventh Circuit against Hastings based on his involvement in the bribery related to the Romano case and certain other conduct. To investigate the complaint, on March 29, 1983, Chief Judge John Godbold of the Eleventh Circuit appointed a committee consisting of himself, Circuit Judges Frank Johnson and Gerald Tjoflat, and District Judges Sam Pointer, Jr. and William O'Kelley (the Investigating Committee). The chief counsel for the Investigating Committee was John Doar, an attorney then in private practice who had formerly served both as Special Counsel for the Committee of the Judiciary of the House of Representatives in its investigation regarding the impeachment of former president Richard Nixon and as an Assistant Attorney General for the Civil Rights Division of the Department of Justice.

Hastings objected to the Investigating Committee's jurisdiction and did not thereafter participate in the proceedings either directly or through his counsel. Over the course of three years, the Investigating Committee conducted an extensive investigation that included not only a review of the records of the proceedings in the Romano, Borders, and Hastings cases, but also consideration of numerous documents and witness testimony, including evidence that had not been introduced at Hastings' trial of various contacts between Borders and Hastings between February 1981 and September 1981. Between May 1985 and July 1986, the Investigating Committee took sworn testimony on seven different occasions. The Committee heard testimony from more than 110 witnesses and received approximately 2800 exhibits.

In a report completed in August 1986, the Investigating Committee stated that there was clear and convincing evidence that Hastings had sought to conceal his participation in the bribery scheme with Borders and to explain away

evidence connecting him to the scheme and that he had pursued these objectives by presenting fabricated documents and false testimony in his criminal trial. The Investigating Committee unanimously recommended that the Judicial Council determine that Hastings had engaged in conduct that might constitute one or more grounds for impeachment by: (1) conspiring with Borders to receive a bribe for an official judicial act and, (2) giving false testimony and obstructing justice in connection with his criminal trial in an effort to conceal the conspiracy.

## **B. Malone's Testimony before the Investigating Committee**

In his criminal trial, Hastings had offered a leather purse with a broken strap as an exhibit. Hastings testified that the reason he had accompanied Borders to his law office on October 9, 1981, was to locate a luggage shop to have the purse repaired. As part of the investigation by the Investigating Committee, the purse was submitted to the FBI Laboratory in 1985 for examination, including an analysis of the nature of the break in the strap.

Within the Laboratory, the case was assigned to SA Michael Malone, an examiner who had worked in the HFU since 1974. Malone remained in the HFU until 1994, when he transferred out of the Laboratory as part of a general reassignment of FBI agents from FBI Headquarters to the field offices.

Malone examined the purse visually and found two things that he thought suggested the strap had been deliberately broken. An eyelet on one end of the purse was recognizably distorted, while an eyelet on the other end was not. Malone posited that if the purse had been accidentally snagged on something, then both eyelets would have been equally distorted. Malone also found that the break in the strap did not appear to be accidental. If the break had been accidental, Malone thought the strap would have been torn completely across its width with a jagged-edge tear. Malone found, however, that the strap had been cut across three quarters of its width, leaving a straight edge, and the remainder of the strap had been torn, leaving a jagged edge. Malone also



attempted manually to break the strap in an undamaged area but could not do so.

According to Malone, when he found he could not manually break the strap, he took it to Tobin so it could be examined with a tensile tester, a device that measures the tensile force necessary to break an object. Sometime between September 26 and 30, 1981, Tobin ran the tensile test and the strap broke at 29.5 pounds of force. Malone told the OIG that he did not know what this number meant and that he did not ask Tobin to explain it because he assumed they both would be called to testify at any hearing. Malone issued a report dated September 30, 1985. Tobin issued handwritten AE dictation dated October 2, 1985, which stated:

Examinations of the buckle holes in the strap of Q1 purse revealed that a relatively large amount of force(s) had been applied to one end of the strap and a relatively small amount of force(s) had been applied to the opposite end of the strap. This non-uniform distribution of forces is not consistent with snagging or other accidental force application. Each of the two remaining portions of broken strap was subjected to tensile loading ( pulling ) to failure. The strap sections failed at 29.5 lbs. and 29.0 lbs.

Malone's September 30, 1985, report includes language nearly identical to the first two sentences in Tobin's October 2, 1985, dictation. The September 30, 1985, report does not, however, refer to the strap sections failing at 29.5 pounds and 29.0 pounds or otherwise refer to the tensile test. From our investigation, we could not determine why Malone did not refer to these matters in his September 30, 1985, report.

On October 2, 1985, Malone testified before the Investigating Committee. Malone told the OIG that he met with Doar to discuss his testimony that same day. Malone maintains that he then told Doar that he did not conduct the tensile test, but that Tobin had done so. Malone told the OIG that Doar said, Damn, I forgot to subpoena Tobin. Malone says Doar asked him if he could read Tobin's

results into the record and Malone agreed to do so. Malone thinks he may have then had Tobin's handwritten October 2, 1985, dictation, and says that Doar must have had something in writing regarding the tensile test because Doar knew about the 29.5 pound figure. Malone says Doar also told him that the judges would probably have questions about the test and asked if Malone could handle the questions. Malone says he told Doar he was not an expert in the force test but that he would try to answer the questions.

Doar disputes Malone's recollection about the discussions before the testimony. Handwritten notes that Doar prepared on October 1, 1985, show that he met with Malone the day before Malone testified. Among other things, these notes also indicate that Malone then told Doar that the strap broke at 29.9 pounds of tensile strength. The notes do not refer to Tobin. Doar insists that Malone did not tell him that Tobin performed the tensile test or even worked on the case, and Doar says he did not receive anything in writing from the FBI related to the tensile test before Malone testified on October 2, 1985. Doar denies ever telling Malone that he forgot to subpoena Tobin. On this point, Doar notes that he did not subpoena FBI witnesses for the proceedings, but instead requested their appearance by letter. Moreover, the Investigating Committee did not strictly observe the rules of evidence, and Doar told the OIG that if he had known that Tobin had conducted the tests, Doar would have had Malone read the relevant report into the record. Doar also says he would not have presented certain testimony by Malone if the latter had told him Tobin had done the test.

At the hearing before the Investigating Committee, Malone testified about the examination of the purse and the tensile test results. Malone testified that he microscopically examined the original separation in the purse strap. He told the Committee:

After examining the separation, I concluded that most of the separation wasn't a tear at all, it was a cut, and this was very, very apparent.

With regard to the tensile test, Malone stated:

[W]e kind of had to jury rig it to get it to hold it, in other words, to make some adaptations. But after a while of kind of fiddling around with it, we were able to make the machine hold it in such a way that we could do the test.

Malone then described the results of the test:

When we broke the strap, we recorded the amount of force to break the strap. It was 29.9 pounds of pulling force. It was the exact same reading for both straps.

Doar then asked Malone, And did you actually, yourself, conduct this test? Malone answered, Yes, I did. Malone's testimony that the strap broke at 29.9 pounds used the same figure that appears in Doar's notes from his meeting with Malone the previous day. The dictation prepared by Tobin, however, referred to 29.5 and 29.0 pounds. Before the Committee, Malone generally talked about the strap breaking at 29.9 pounds.

The judges on the Investigating Committee questioned Malone further about the meaning of the 29.9 pound figure. Malone responded, Well, it means, number one, it's a lot more than an average person could exert. . . .

Judge Tjoflat asked, If you are going to take the strap and hang it from something, that means you would put 29.9 pounds on the bottom and the gravity would cause it to break? Is that what you mean?

Malone responded:

I think it's a little more than that. You are getting out of my area of expertise now as far as exactly what that figure means. I am a person who does microscopic examinations, and I had to use the machine in order to break it, and I recorded this figure. The first thing I did from my own practical thing was try and break it myself. I couldn't even --

Judge Godbold then stated, I understand your testimony that you couldn't break it, yourself. What I am trying to figure out is what 29.9 tells us apart from your inability to break it manually.

Malone answered, Other than saying how many pounds it took to break the strap, it's a meaningless figure.

Judge Godbold later returned to the issue by asking, Now, as to whether the machine at 29.5 is pulling harder than you were able to pull manually, I take it you can't answer that. Malone responded, That's correct. The judge then asked, [D]o you have an opinion as to whether the machine was pulling with greater force than you were able to pull manually, bearing in mind that the machine broke two pieces of the strap and that you could not break the strap. Malone answered, Yes. In my opinion, it was pulling much harder than myself.

After Malone testified before the Investigating Committee, Doar on October 5, 1985, wrote to the FBI liaison officer on the case, Dennis Aiken, asking the FBI to conduct further investigation to determine the static force required to break the strap on the purse. Doar's letter stated, We understand that the strap was inserted in a device which exerts pressure on two sides of the strap and that the machine measured 29.5 pounds when the strap parted. Please relate this number so that its significance can be appreciated. Doar also requested photographs of the two ends of the strap where the initial separation occurred.

As a result of Doar's request, Tobin prepared a report dated November 7, 1985, which further explained the 29.5 pound figure. The report stated that [i]t was concluded that a force of approximately 7 pounds had been exerted to break the strap after it had been partially cut. The report also stated that 29 2 pounds is not difficult for an individual of average' build to achieve by pulling'; a force of 7 pounds is very easily exerted. In fact, a force up to the actual weight of an individual can readily be exerted. When Tobin prepared this report, he did not know what Malone's testimony had been concerning the pulling force needed to break the strap.

On November 20, 1985, Doar received a copy of the November 7, 1985, report. This report does not state that Tobin conducted the tensile test or prepared the report, although the initials RU appear on the report and these initials were the Laboratory's code for Tobin. Doar says that he did not know Tobin had done the tensile test until he was interviewed by the OIG during our investigation. Neither Malone's September 30, 1985, report nor Tobin's November 7, 1985, report was offered as an exhibit in the proceedings before the Investigating Committee. The Committee did receive the purse, the strap, and certain photographs related to the examination of the purse as exhibits.

Malone testified again before the Investigating Committee on April 8, 1986. He then told the Committee that the purse strap had been subjected to a slow, steady pulling force on the tensile tester and had broken when it reached approximately 29.5 pounds of pulling force. Malone also testified that when the purse was first received in the Laboratory, he had microscopically examined the two broken ends of the strap and concluded that they had previously been joined together in one piece. Consistent with his earlier testimony, Malone again testified that the strap had been both partially cut in two and torn.

The Investigating Committee described its investigation and conclusions in a 1986 report to the Judicial Council for the Eleventh Circuit. The report is in three volumes: the first two describe the investigation and summarize the evidence received by the Committee, while the third presents the Committee's analysis of the evidence and findings.

With regard to Malone, the report states in volume 2:

Agent Malone testified that his microscopic examination of the strap revealed that most of the separation wasn't a tear at all, it was a cut, and this was very, very apparent. He based this on his original examination of the severed ends of the strap and his examination of subsequent test breaks.

The Investigative Committee's report does not otherwise refer to the tensile test. Volume 3 of the report discusses the Committee's analysis of the evidence on various issues. That discussion, which spans forty pages of the report, does not explicitly refer to Malone's testimony, but does observe that Hastings' testimony concerning a purse was troublesome because the strap which Judge Hastings claimed he tried to have repaired was not torn, worn, or broken; it was cut.

Based on its nearly three-year investigation, the Investigating Committee concluded that:

The evidence, considered in its totality, clearly and convincingly establishes that Judge Hastings was engaged in a plan designed to obtain a payment of money from defendants facing jail sentences imposed in his court by promising that with the payment they would receive lenient non-jail sentences.

The report identifies thirty-two separate factual findings supporting this conclusion. In addition to finding that Hastings and Borders had agreed on the bribery scheme, the Investigating Committee identified fifteen points on which Hastings had presented false testimony at his criminal trial and found that he had introduced three fabricated documents as evidence. These findings do not refer to the purse, the purse strap, Malone, or the tensile test.

### **C. Tobin's 1989 Complaints about Malone's Testimony**

In September 1986, the Judicial Council of the Eleventh Circuit accepted and approved the Investigating Committee's report and concluded that Hastings had engaged in misconduct that might constitute grounds for impeachment. The Judicial Council made a certification to this effect to the Judicial Conference of the United States, which in March 1987 certified to the House of Representatives its concurrence in the Council's determination that impeachment might be warranted. After the House returned articles of impeachment, the Senate in October 1989 voted to remove Hastings from his judicial office.

Attorney Alan Baron served as impeachment counsel for the House of Representatives and as prosecuting counsel for the Senate in connection with the Hastings impeachment. Baron told the OIG that he did not offer testimony by Malone in the impeachment proceedings before the House or the Senate, that he thought Malone's testimony before the Investigating Committee was confusing, and that the evidence concerning the purse was peripheral. Malone's testimony before the Investigating Committee and the Laboratory reports dated September 30, 1985, and November 7, 1985, were not made exhibits in the proceedings before the House or the Senate. The articles of impeachment returned by the House of Representatives and the accompanying report of the House Committee on the Judiciary do not refer to the purse, the purse strap, Malone, or the tensile test.

During the impeachment proceedings, Tobin and Malone, along with certain other potential FBI witnesses, were told by the FBI Office of Congressional Affairs to stand by should their testimony be needed. Neither Tobin nor Malone ultimately testified before Congress. In preparing for possible testimony, however, Tobin in August 1989 reviewed Malone's 1985 testimony before the Investigating Committee. Tobin says this was the first time he had seen Malone's testimony.

Tobin recalls that upon reviewing Malone's testimony, he immediately contacted Kenneth Nimmich, then the chief of the SAS, to discuss problems Tobin saw in the testimony. Tobin says that, in a brief conversation, he indicated to Nimmich that there was a potential serious problem that could be very embarrassing to the FBI regarding evidence manipulation and some very inappropriate presentation of the data. He further recalls telling Nimmich that Malone had testified inappropriately and inaccurately, and says he also described Malone's testimony as misrepresented and false. Nimmich, Tobin states, asked Tobin to provide a document detailing Tobin's exceptions to Malone's testimony.

Tobin says that within several days of his meeting with Nimmich, he prepared a memorandum describing his concerns about Malone's testimony. The memorandum, which is addressed to Nimmich and not dated, states:

[A]n audience was requested with you late in the day of August 3, 1989, wherein you requested the specific details of my objections, my exceptions to SA Malone's testimony and technical analysis as to the effect of the testimony. Attached hereto are the requested exceptions and analysis, as well as two photographs of test breaks.

Tobin's memorandum details serious concerns about Malone's testimony. According to Tobin, he first gave the memorandum to his unit chief, Roger Aaron. Aaron recalls discussing the concerns with Tobin, and Aaron wrote on the memorandum, Sad to say, you are right on every point. This has to be done. Tobin says that after he talked with Aaron, he placed a copy of the memorandum in an envelope and either delivered it to Nimmich in person or placed it in Nimmich's in-box. Neither Tobin nor Aaron recalls hearing anything more about the matter after Tobin prepared his memorandum. Tobin also says he did not at the time discuss his concerns with anyone other than Nimmich and Aaron.

In his memorandum, Tobin criticized Malone for testifying that he had done the tensile test and other things, such as taking photographs, labeling evidence, and



making test tears, that Tobin had in fact done. Tobin also took issue with Malone's testifying that it had been necessary to jury rig the test device. Tobin wrote, The equipment was designed for any solid material of suitable configuration. The testing was in conformance with the Frye and generally accepted guidelines' rules, contrary to the manner in which the testimony was presented. (emphasis in original). Tobin also found areas where Malone misused metallurgical terms or was inaccurate.

Tobin's more serious allegations centered on Malone's testimony that the force needed to break the strap was a lot more than the average person could exert. Tobin wrote that this testimony was in [d]irect contradiction to laboratory (AE) findings supported by data. Presents apparently and potentially exculpatory information as incriminating. He also stated that Malone's testimony that the 29.5 figure was meaningless is not true. With regard to how the tear was created during the test, Tobin wrote that Malone's testimony was a [c]ompletely fabricated failure propagation assessment. Tobin complained that Malone's testimony about the test breaks suppresses apparent exculpatory material behavior and presents test specimens as incriminating data. Tobin ended his memorandum, however, by stating that [o]verall, the exceptions to the testimony of SA Malone do not affect the technical assessment that the purse strap has been cut.

The Laboratory apparently did not further investigate the serious allegations made by Tobin about Malone's testimony. Malone told the OIG that sometime after Hastings was impeached, Nimmich stopped him briefly in a hallway and said that Tobin had made an allegation against him. Nimmich, according to Malone, said that he had looked into the allegation and had concluded that there was nothing to it. Malone said that before the OIG investigation, he was never questioned by anyone about his testimony before the Investigating Committee or Tobin's allegations, and he did not confront Tobin about the allegations.

When Nimmich reviewed Tobin's memorandum during the OIG investigation, he said he did not recall ever seeing it before, the allegations it described, or discussing the matter with Tobin. Although Nimmich did not deny that Tobin might have raised these matters with him, he said that if he had received Tobin's memorandum, he would have himself sent a memorandum to the

Laboratory's Director and asked Malone to respond to the allegations. If it appeared Malone had acted inappropriately, Nimmich said he would have referred the matter to the FBI OPR.

Upon checking his calendar, Nimmich found references to two meetings on August 3, 1989, regarding the Hastings case. The first notes a meeting at 8:00 a.m. with Tobin, Malone, and another person who appears to have been Daniel Dzwilewski, who then worked in the FBI's Office of Congressional Affairs and who coordinated the appearance of witnesses before Congress for the impeachment proceedings. The second reference is for 4:00 p.m. and simply notes: Aaron - Tobin - re Hastings Case.

Through our investigation, we could not confirm that Nimmich met with the persons indicated on his August 3, 1989, calendar. Nimmich does not recall any such meetings. Dzwilewski says that it is conceivable that he met with Nimmich, Tobin, and Malone, but he does not recall doing so. Both Tobin and Malone say that they did not ever meet together with Nimmich regarding the Hastings case. Aaron said he did not have a substantive conversation with Nimmich regarding Tobin's allegations, and Tobin says he did not inform Nimmich about Aaron's views on the matter.

#### **D. Analysis**

Based on our investigation, we conclude that Malone, in his 1985 testimony before the Investigating Committee, falsely testified that he had himself performed the tensile test and that he testified outside his expertise and inaccurately concerning the test results. The OIG questioned Malone about Tobin's allegations and, to his credit, Malone agreed with many points that Tobin had raised. Malone maintained, however, that he was justified in giving certain testimony because he was offering his own personal opinions rather than expert opinions. This is not a persuasive rationale for the presentation of inaccurate testimony by a Laboratory examiner.

Before the Investigating Committee, Malone testified falsely when he responded yes to the question, did you actually, yourself, conduct this test? In his OIG interview, Malone admitted he was technically wrong in his response but noted he had been right there when the test was conducted. Malone's presence when the test was performed does not justify his inaccurate response to the question whether he actually conducted the test.

Malone's testimony that he conducted the test is particularly egregious, because he proceeded to inaccurately describe how the test was performed and the significance of its results. Malone, as noted above, testified that 29.9 pounds of force is a lot more than the average person could exert. In an interview with the OIG, Malone said this statement was his own layman's opinion based upon the fact that he was not able to break the strap manually. Malone was testifying outside his expertise and evidently did not understand the meaning of the 29.9 pound figure. He incorrectly told the Investigating Committee that [s]ince nobody in our unit or our lab had ever done a test like this, and I have never heard of any studies being published, it's almost a meaningless figure other than it's a lot more than an average person could exert. He later admitted that the questions were getting outside of [his] area of expertise, but he proceeded to again say that 29.9 pounds was a meaningless figure.

Malone's testimony on this issue was inaccurate and unacceptable. Tobin in his 1989 memorandum noted that Malone's testimony was contradicted by the findings in Tobin's November 7, 1985, report. This report was not completed until nearly one month after Malone testified before the Investigating Committee in October 1985, and we did not find evidence establishing that Malone knew the information in the report when he then testified. Thus, we do not find that Malone knowingly or deliberately testified in contradiction to Tobin's conclusions as described in the November 7, 1985, report.

Moreover, Malone's testifying that he actually conducted the test, combined with other facts, causes us to believe Malone is incorrect in now claiming that he told Doar in 1985 that Tobin had conducted the test. As noted above, Doar states that Malone did not tell him, and he did not otherwise know, that Tobin had done the work. Doar's notes of his meeting with Malone do not refer to Tobin, and the questions Doar asked during Malone's testimony suggest Doar thought Malone conducted the test. Malone's statement to the OIG that Doar said in 1985 he had forgot to subpoena Tobin is not credible. We conclude that

Doar did not know during the Investigating Committee proceedings that Malone had not performed the tensile test. Recognizing that we are reviewing events that occurred more than ten years ago, and given the record now before us, we are not able to find that Malone engaged in intentional misconduct by failing in 1985 to tell Doar that Tobin had performed the test or by inaccurately describing to the OIG his conversations with Doar before Malone testified.

Malone also testified inaccurately about other matters outside his expertise. For instance, regarding the break in the purse strap, Malone testified before the Investigating Committee that he observed that it's not a sudden break like you would have with a metal. When a metal breaks, bam, it's gone, it's broken, it's instantaneous. Tobin noted that the statements about metals were [i]ncorrect. In fact, designers and users abhor sudden breaks because of the potential for catastrophic loss of life. Designers, therefore, attempt to insure gradual failures so that it is not instantaneous. Malone acknowledged to the OIG that he might have been wrong on this point, but said that he was conveying his own personal opinion that metal breaks suddenly.

The testimony that Malone gave before the Investigating Committee cannot be excused by his explanation that he was offering his personal opinion based on his own experience or subjective beliefs. Laboratory examiners generally are proffered as witnesses because they have expertise and can offer opinions based on their scientific examination of evidence. The questions that Doar asked Malone suggest that Doar thought that Malone had conducted the test and was competent to explain the results. By failing to tell Doar that Tobin had performed the tests, Malone not only misled the special counsel but may also have caused him to forgo the testimony of another expert who was appropriately qualified to answer certain questions raised by the Committee about the tensile test.

In testifying before the Investigating Committee, Malone should have candidly stated that he did not perform the tensile test and could not explain the significance of its results. The transcript instead suggests that when Malone was asked questions outside his expertise about the tensile test, he resorted to fabrication rather than admitting he did not know the answer. After reviewing Malone's testimony, Tobin observed, and we agree, that it appears that

someone's under pressure to be specific and can't because he doesn't have any personal knowledge of the actual physical phenomena that are occurring, and therefore, seems to make up, based upon very limited amount of information, a sequence of events that just flat didn't occur.

We recognize that the inaccuracies in Malone's testimony do not appear to have had any effect on the Investigating Committee's ultimate findings and recommendation. Tobin himself acknowledged in his 1989 memorandum that his complaints about Malone's testimony did not affect the technical assessment that the strap had been cut. Moreover, the thirty-two factual findings supporting the Investigating Committee's conclusion do not refer to Malone, the tensile test, or the purse. Both John Doar, the counsel for the Investigating Committee, and Chief Judge Gerald Tjoflat, who served on the Committee, told the OIG that Malone's testimony did not influence the Committee's findings. Although these facts indicate that Malone's misstatements did not affect the outcome of the Investigating Committee proceedings, they do not in our view excuse Malone's conduct.

We cannot understand the Laboratory's failure to further investigate the allegations that Tobin made regarding Malone's testimony. We could not confirm that Nimmich in fact reviewed Tobin's 1989 memorandum, but we are persuaded that Tobin expressed his concerns orally to Nimmich. Tobin says he did so, and, as noted above, Malone recalls that Nimmich told him that Tobin had made an allegation and that Nimmich had determined there was nothing to it. Aaron also recalls Tobin telling him in 1989 that he had met with Nimmich, expressed his concerns about Malone's testimony, and that Nimmich had asked Tobin to put his complaints in writing. Such a direction, Aaron noted, was an indication the matter was serious. Given the serious nature of Tobin's allegations, Nimmich should have taken steps to assure that they were adequately investigated, even if for some reason Nimmich did not ever receive Tobin's memorandum. If Nimmich did in fact conclude the allegations were unfounded, he did so without adequate justification.

Nimmich should have assured in 1989 that Malone and Tobin were interviewed, that the matter was otherwise appropriately investigated, and that the resolution was documented. Such an investigation could have resulted in

appropriate administrative discipline and conceivably a referral for investigation for possible criminal misconduct. Nimmich acknowledged to the OIG that Malone's claiming to have performed tests he had not conducted should, at the least, have resulted in a reprimand. We did not find any evidence that Tobin's allegations were appropriately investigated or resolved by anyone in FBI management.

The concerns raised by Tobin in 1989 also evidently were not then communicated to Congress or otherwise outside the FBI. Alan Baron told the OIG that he did not know until recently that Tobin had made any allegations about Malone's 1985 testimony. Similarly, Hastings and Terence Anderson, an attorney who has represented Hastings since 1981 and who represented him in the impeachment proceedings, said that they first learned through media reports in February 1997 that Tobin had criticized Malone's testimony.

Tobin states that in 1989, he discussed his concerns only with Nimmich and Aaron. He also recalls that he told Aaron he would deal directly with Nimmich and he asked Aaron not to get involved in the matter himself. Tobin further says that Aaron returned to him the copy of the undated memorandum that Aaron reviewed, and Tobin says that he did not give the memorandum to anyone other than Nimmich until years later. Finally, Tobin says that when he prepared the memorandum, he intended to defer to Nimmich if the latter thought it did not warrant additional action.

Aaron did not approach Nimmich to discuss the matter, and says that while he may have mentioned the matter to Malone's unit chief, he does not specifically recall doing so. Alan Robillard, who was the chief of Malone's unit in August 1989, says he only recently learned from news accounts that Tobin had made allegations concerning Malone's testimony related to the Hastings proceedings. John Hicks, who became Laboratory Director in August 1989, says he did not know of Tobin's allegations regarding Malone. Bernardo Perez, who served as Deputy Assistant Director in the Laboratory from May 1989 through March 1991, does not recall being aware of these allegations and says that if this matter had been brought to his attention, he would have sent a memorandum to the FBI OPR and to FBI legal counsel. Daniel Dzwilewski, who coordinated the appearance of FBI witnesses in the congressional impeachment

proceedings, told the OIG that he did not know of Tobin's criticisms of Malone's testimony until he was advised in March 1997 that he would be interviewed as part of the OIG investigation. Given these facts, and Nimmich's claim that he does not recall this matter at all, we are unable to conclude that there was a deliberate or concerted effort within the FBI to conceal Tobin's allegations about Malone's testimony.

#### **IV. Conclusion**

We conclude that the Laboratory would benefit from a clear delineation of responsibilities between units with respect to metals-related examinations, better communication among examiners in this area, and recognition that differences among examiners should be resolved on a scientific basis. We also conclude that the EU should take steps to assure that its examiners properly conduct and report their examinations of wires or other metals-related evidence.

With regard to both the issue of the EU's measurement of wire gauge and the controversy over the examination of holes in pipes in the La Familia case, we think EU Chief J. Thomas Thurman should have focused more on assuring that EU examiners were reporting the results of examinations in an appropriate manner. William Tobin displayed poor judgment by failing to discuss his concerns in the La Familia case with the principal examiner before Tobin issued his revised dictation. We also think that Tobin and FTU examiner Michael Ennis should have taken further steps, with involvement by their unit chiefs if necessary, to attempt to resolve the apparent differences in their conclusions about the holes found in the pipes. Because they did not reconcile their opinions on a scientific basis, Tobin and Ennis might have contradicted each other if they had testified about the results of their examinations.

In the Alcee Hastings case, we find that Michael Malone testified falsely and outside his expertise in discussing tensile tests performed by the Laboratory. Moreover, after Tobin raised concerns about Malone's testimony in 1989, then-SAS Chief Kenneth Nimmich failed to assure that the serious allegations of examiner misconduct were appropriately investigated and addressed.

In reviewing Tobin's allegations, we also identified ways in which the policies or the practices of the Laboratory could be improved:

(1) Laboratory management must assure that disputes about methodology or the interpretation of data -- such as those illustrated by the wire gauge issue or the examinations in the La Familia case -- are resolved professionally based on the pertinent scientific knowledge and that the resolution is communicated to those involved.

(2) There also appears to be a need, which the Laboratory seems to recognize, for clearer delineation of the respective roles of different units in the area of metallurgy and for improved communication between units. Defining the roles more clearly and improving communication should help to assure that the Laboratory's conclusions are reasonably supportable and properly reported, and should also reduce unnecessary conflict between units.

(3) The Laboratory should adopt guidelines for examiner testimony that, among other things, direct examiners to be accurate and to remain within their expertise in testifying. The Laboratory might also benefit from procedures aimed at identifying which examiner or other representative of the Laboratory is best able to testify on particular issues. The Laboratory also should implement an effective program for monitoring the testimony of its examiners. Such guidelines and procedures would have helped to avoid problems like those evidenced by Malone's testimony in the Hastings matter.

(4) Laboratory management must assure that concerns about the quality of the Laboratory's work, such as those raised by Malone's testimony, are investigated promptly and appropriately and that the resolution is documented.



We comment further on these issues in Part Six of this Report, which discusses our general recommendations regarding the Laboratory and the role of management.

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### **SECTION H13: GEORGE TREPAL**

In a letter dated October 13, 1996, Whitehurst wrote to the OIG expressing concerns about testimony by CTU examiner Roger Martz in Florida v. George Trepal. In 1991, Trepal was found guilty of one count of murder and six counts of attempted murder as a result of his adding the poison thallium nitrate to bottled Coca-Cola. Trepal is now challenging his conviction, for which he was sentenced to death. At the trial, Martz testified that [b]ased on [a diphenylamine] test I concluded that thallium nitrate was added to the Coca-Cola. Martz also testified that a white powder, which had been found in a bottle in Trepal's garage, was thallium nitrate.

Whitehurst complained in his letter that Martz had misstated the significance of certain analytical tests or otherwise testified inaccurately. Some of Whitehurst's allegations, such as suggesting that Martz should have volunteered in testifying that his undergraduate major was in biology, do not merit further discussion here. As a result of Whitehurst's letter, however, we did identify several concerns about Martz's work in this case that are similar to ones we noted in certain other matters discussed earlier in this Report.

To investigate this matter, we obtained the Laboratory's case file, reviewed transcripts of testimony by Martz in a pretrial deposition and at the trial, and questioned Martz in a sworn interview. After the FBI provided written comments on a draft of this portion of the report, we also interviewed the two Laboratory examiners who had provided scientific information for the FBI's comments: chemist Thomas Jourdan, who recently became the unit chief for the newly created Materials and Devices Unit and Steven Burmeister, who now is an examiner in the CTU.

Given the tests that Martz actually performed, he could have properly stated in his dictation and testimony that two samples of Coca-Cola, identified as Q1 and Q2, were consistent with thallium nitrate having been added to them.

Alternatively, he correctly could have observed that Q1 and Q2 had elevated levels of thallium and nitrate ions as compared to unadulterated Coca-Cola. Martz, however, did not limit his conclusions in this way, and his work on the case was deficient in several respects: (1) his dictation stated that the nitrate ion was identified in samples Q1 through Q3 and those samples were consistent with thallium nitrate having been added to them; this was incorrect insofar as he had not performed tests necessary to reach these conclusions with regard to Q3; (2) Martz did not acknowledge certain data obtained from the tests he performed; (3) he failed to perform additional tests that were appropriate under the circumstances; (4) in testifying, Martz improperly offered a stronger opinion about the identification of thallium nitrate than he had expressed in the dictation reviewed by his supervisor and included in the Laboratory report; (5) Martz did not adequately document his work, his case notes were incomplete, undated and inaccurate, and the charts were not accurately or clearly labeled; (6) he lacked a sufficient analytical basis to opine that a bottle containing thallium nitrate found in Trepal's garage, identified as Q206, contained no other drug residues ; (7) he also gave an unsupported opinion about the purity of the thallium nitrate in Q206; and (8) Martz in his deposition and trial testimony made various inaccurate, incomplete, or unsupported statements.

In December 1988, several unopened Coca-Cola bottles were sent to the FBI Laboratory for examination to detect tampering. The bottles had been found in the home of a women who, along with her two sons, had become suddenly ill. The woman, Peggy Carr, ultimately died from thallium poisoning; the children survived. After the bottles were received in the Laboratory, examiner Don Havekost of the Elemental Analysis Unit determined through the use of inductively coupled plasma atomic emission spectroscopy (ICP) that the contents of several bottles contained thallium. The ICP results showed that samples Q1 through Q3 contained from 403 to 915 milligrams of thallium, while none was identified in unadulterated Coca-Cola.

After Havekost identified thallium in Q1 through Q3, Martz was asked to examine these samples further to possibly determine the form in which the thallium was present. Thallium can appear as a soluble salt in different compounds, including thallium chloride, thallium sulphate, and thallium nitrate. Martz conducted tests that included a diphenylamine (DPA) test and ion chromatography (IC). Based on the DPA and IC tests, Martz concluded that nitrate ions were present in Q1 through Q3.

Martz prepared dictation that was approved by his unit chief Steve Allen in February 1989 and later incorporated verbatim into a Laboratory report dated July 10, 1990. The report was disclosed to the defense attorneys and Martz was questioned about it, albeit perfunctorily, in a pretrial deposition and at trial. In his dictation, Martz stated:

The contents of Q1 through Q3 . . . were analyzed for an anion associated with thallium. The nitrate ion was identified in Q1 through Q3. The Q1 through Q3 cokes are consistent with thallium nitrate having been added to them.

(Emphasis added).

Martz had sufficient analytical data to support this conclusion with regard to samples Q1 and Q2, but not Q3. His IC results clearly showed increased concentrations of nitrate ions in samples Q1 and Q2 as compared to known, unadulterated Coca-Cola. The case notes, however, do not reflect any IC analyses for Q3. The DPA test referred to by Martz is a color spot test for a range of oxidizing compounds, which include but are not limited to nitrates. Given the tests he performed, Martz should not have stated in his dictation that the nitrate ion was identified in Q3.

At trial, when asked if he had done any test other than the DPA test to determine if there was thallium nitrate in the Coca-Cola, Martz stated that he did one other test called ion chromatography. In his deposition, after describing the DPA and IC test results, Martz said he had cover[ed] his entire investigation of this case. Martz failed to acknowledge data he had obtained from other analytical tests. In addition to the DPA and IC analyses, Martz's notes indicate he also performed silver nitrate and barium chloride spot tests on Q1 through Q3 and a sample of known Coca-Cola. These tests, respectively, will indicate the presence of chloride or sulphate. The results of these tests are ambiguously stated in Martz's notes and, given his testimony, he evidently did not rely upon them in reaching his conclusions.

Martz also analyzed sample Q1 by mass spectrometry (MS), scanning electron microscopy/energy dispersive x-ray analysis (SEM/EDX), and x-ray powder diffraction (XRPD). The XRPD results, obtained after the sample was treated by burning, indicated the presence of thallium chloride, but not thallium nitrate. The MS data, also obtained after burning or other treatment of the sample, indicated the possible presence of thallium chloride, phosphate, sulphate, and possibly oxide, but not thallium nitrate. The SEM/EDX results showed the presence of thallium, sodium, potassium, calcium, chlorine, and phosphorous.

The fact that the MS and XRPD results for Q1 did not show the presence of thallium nitrate may be explained by the sample preparation process. Martz, however, did not acknowledge this analytical data in his trial or deposition testimony. In his interview with the OIG, he said he did not rely on the MS, SEM/EDX, or XRPD data in reaching his conclusion that thallium nitrate had been added to the Coca-Cola. This conclusion, Martz said, was based on the DPA and IC tests and the information about thallium he received from Havekost.

Martz also failed to perform additional tests that were appropriate under the circumstances. First, he did not perform the simple validation experiment of adding thallium nitrate to known unadulterated Coca-Cola and analyzing the mixture in the same manner as Q1. This could have usefully indicated whether the results that Martz observed from his tests other than DPA or IC were due to the sample preparation process. Moreover, Martz could have quantified the nitrate he identified in the questioned samples. Havekost had identified the quantity of thallium in Q1 through Q3. If Martz had quantified the nitrate, he could have determined if the relative amounts of the thallium and nitrate were consistent with their having been present in the Coca-Cola in the form of the compound thallium nitrate.

By testifying that in his opinion thallium nitrate had been added to the Coca-Cola, Martz overstated the significance of the analytical results in a manner similar to what he did in the World Trade Center case. As discussed in Part Three, Section C, there Martz as the chief of the CTU approved Lynn Lasswell's conclusion that mass spectrometry had identified urea nitrate on certain evidence, when the results in fact merely established the presence of urea and nitrate ions. In Trepal, the test results that Martz said he relied upon showed the presence of nitrate in samples Q1 and Q2. The ICP results from the

tests earlier performed by examiner Havekost identified thallium in samples Q1, Q2, and Q3. Taken together, these results showed that nitrate and thallium ions were present in Q1 and Q2, but they do not necessarily demonstrate that the compound thallium nitrate had been added to the Coca-Cola.

When Martz opined that thallium nitrate had been added to the Coca-Cola, he also went beyond his written report, which said only that the samples were consistent with thallium nitrate having been added to them. We do not accept Martz's view that an examiner may properly offer an opinion about the identification of a questioned substance that is stronger than the conclusions described in the Laboratory report where, as here, the opinion rests on the same data and analyses as the report. In our interview, Martz's explanation for his testimony appeared to be that he was convinced he was right. The process of supervisory review -- which is intended to assure that conclusions are reasonably supported -- is seriously undermined if examiners feel free to offer opinions that are stronger than those their unit chiefs have reviewed and approved for inclusion in reports. In this case, Martz should have confined his conclusions to those contained in his dictation.

Martz also failed to prepare notes and charts that adequately described the analyses performed and the results obtained. We have commented on this same issue in our discussion of Martz's work in the VANPAC case. In Trepal, Martz's handwritten notes indicate that he performed spot tests with AgCl (sic) and BaNO<sub>3</sub> (sic) with the results same for all. In his OIG interview, Martz acknowledged that his notes were inaccurate and said he meant that he did a silver nitrate (AgNO<sub>3</sub>) test for chloride and a barium chloride (BaCl<sub>2</sub>) test for sulphate. His notes do not indicate whether same for all means the results were positive or negative, and Martz in his interview said he thinks the results for chloride were positive and he cannot remember what the results for sulphate were. This again illustrates the importance of accurate notes, both to permit thorough supervisory review and to allow an examiner later to refresh his or her memory. We also are concerned that Martz's notes do not describe the use of appropriate blanks or traceable standards.

Samples were not clearly identified on certain MS charts, and Martz acknowledged that other MS charts were actually labeled incorrectly. The IC

charts, which Martz thinks reflect work performed by someone in the MAU, do not identify who ran the tests, are not dated, do not specify the instrumental conditions, and contain unidentified handwritten notes. The deficient documentation for the IC tests is particularly troublesome because Martz principally relied upon the IC results in concluding that thallium nitrate had been added to the Coca-Cola.

Martz lacked a sufficient analytical basis to opine, as he did in his pretrial deposition, that a brown bottle containing thallium nitrate contained no other drug residues. This bottle, which had been found in Trepal's garage in December 1989, was identified as Q206. Martz testified that, based on XRPD and FTIR analyses, no drug residues were present in the thallium nitrate found in the bottle. With regard to the FTIR, Martz relied on spectra for the questioned sample and a sample of known thallium nitrate of unspecified origin that were each of unacceptably poor quality. Spectra of this quality would not permit the identification of the questioned sample as thallium nitrate, much less rule out the presence of other possible drugs. Furthermore, XRPD, which identifies only crystalline compounds, is not the method of choice for identifying drug residues.

During his OIG interview, Martz acknowledged that based on the XRPD and FTIR results, his conclusion was debatable. Quite inexplicably, in testifying about drug residues, Martz did not refer to MS results that were probably his best data, although at the trial he later mentioned the MS analysis in testifying on another issue. To determine if drug residues were present, Martz should have made an extraction of the sample and followed a protocol of the type routinely used in forensic laboratories for drug identification.

Martz also made unsupported statements in testifying about the purity of thallium nitrate identified in specimen Q206, the powder found in a bottle in Trepal's garage. In his deposition, Martz said that Q206 was easily over 90 percent thallium nitrate. And possibly as high as 95 to 99 percent. At trial, he stated, In my opinion it's greater than 95 percent pure, because I did not find any other impurities. Martz lacked sufficient data to support these statements, given that he said they were based only on the FTIR and XRPD analyses and,

as he acknowledged in his testimony, he did not attempt to quantitate the powder.

Finally, Martz in his deposition and trial testimony made various inaccurate, incomplete or unsupported statements. In his deposition, he stated that to his knowledge, thallium nitrate would not be absorbed into the hand. During his OIG interview, he acknowledged that this statement was not based on specific literature, but instead reflected his general belief that such chemicals are not absorbed through the skin. We readily identified, however, an article published in 1988 which states that severe systemic poisoning has occurred from skin contact, and other basic reference sources note that thallium nitrate may be absorbed through the skin. On this topic, Martz should have said he did not know whether it would be absorbed through the skin since he was not able to provide a properly informed answer.

At trial, Martz misspoke in stating initially that he concluded based on the DPA test that thallium nitrate had been added to the Coca-Cola. He acknowledged in an OIG interview that his conclusion was based on both the DPA test and the IC results, which he did later discuss in his testimony. In describing the IC results at trial, however, Martz testified that all samples were tested while his charts indicate that only two of three samples were. Martz told the OIG that sometimes when he had three samples that were suspected to be the same, he would not test all of them. This might be acceptable if his reports and testimony properly reflected the actual work performed; they do not. Martz also testified that no nitrates were present in the known Coca-Cola, without noting that the IC results indicated at least trace amounts of nitrates. During his OIG interview, Martz described these various misstatements as oversights or technicalities. By so characterizing his conduct, Martz seemed not to appreciate the importance of accurate testimony.

In his work in Trepal, Martz appeared to have a lower threshold of scientific proof than is generally accepted in forensic science and to lack appropriate scientific rigor in his approach to examinations. Martz did not conduct additional tests that were appropriate under the circumstances, and in reaching his conclusions, he did not consider analytical results of his tests other than the DPA and IC tests. His case notes and charts were inaccurate and incomplete,



and he testified inaccurately on several points. He committed a serious error when, based on the same data, he rendered an opinion at trial that was stronger than the opinion in his dictation. Such conduct by an examiner is of concern whenever it is displayed in casework, and it is particularly disturbing in a matter such as Trepal where the death penalty is a potential result.

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## **PART FOUR: WHITEHURST'S ALLEGATIONS OF RETALIATION**

### **I. Introduction**

Whitehurst claims that he has been the victim of retaliation because he expressed concerns about the FBI Laboratory to the FBI and others. He offers several examples of alleged retaliation and the retaliatory atmosphere within the FBI.

Whitehurst claims that the FBI retaliated against him in 1990 by suspending him for one week and placing him on six months' probation because he accused Terry Rudolph of misconduct in the Psinakis case. Whitehurst further alleges that the FBI retaliated against him and his wife, Cheryl Whitehurst, in 1992 by ignoring their allegations of computer software theft within the Criminal Investigative Division and by failing to punish an FBI employee who assaulted Cheryl Whitehurst. According to Whitehurst, the retaliation continued into 1993, when the FBI management ordered him to undergo psychiatric examination and later to participate in psychotherapy. Whitehurst also charges that in 1993, the FBI retaliated against him by opening an investigation into his alleged disclosure of confidential information to members of the Senate Judiciary Committee.

As further examples of retaliatory conduct, Whitehurst alleges that the FBI compiled and released derogatory information about him as Henthorn material in the 1993 World Trade Center trial and the 1995 Simpson trial. Whitehurst further alleges that in mid-1994, the FBI retaliated against him by transferring him from the explosives analysis unit to the paints and polymers program.

Whitehurst supports his claims of retaliation with a number of anecdotal examples of the FBI's intent to retaliate. Those examples include instances in

which Kearney, Hahn, and Thurman allegedly made threatening remarks to Whitehurst. Whitehurst also maintains that other FBI employees have expressed reluctance to criticize the FBI for fear of retaliation.

In the following sections, we analyze Whitehurst's claims to determine whether there is a factual basis for Whitehurst's belief that he suffered retaliation because he raised concerns about the Laboratory. With respect to all but one of Whitehurst's claims, we conclude that the evidence does not substantiate Whitehurst's allegations of retaliation. Generally, the circumstances of those events supported the decisions made by the FBI management, and we discerned no retaliatory or wrongful purpose behind those decisions.

We are not able to reach a conclusion concerning Whitehurst's claim that the FBI sought to punish him by forcing him to undergo psychiatric evaluation. Despite our requests, Whitehurst failed to provide a medical release form that would have allowed key personnel in the Health Care Program Unit and Employee Assistance Program to discuss medically sensitive information about Whitehurst. Without statements from these personnel, we are not in a position to reach a conclusion concerning this claim by Whitehurst.

## **II. Analysis of Whitehurst's Allegations**

### **A. The Claim that the FBI Improperly Punished Whitehurst for His Conduct in the Psinakis Case**

Whitehurst charges that in November 1990, the FBI improperly suspended him without pay for seven days and placed him on six months probation because he accused Terry Rudolph of misconduct in the Psinakis case.

In reviewing this matter, we obtained and reviewed relevant files and records from FBI OPR, Administrative Summary Unit (ASU) of the Administrative Services Division, and the Laboratory, along with pertinent provisions of the FBI Manual of Administrative Operations and Procedures. We also interviewed former Laboratory Director John Hicks, former SAS Chief Kenneth Nimmich, FBI OPR Unit Chief Ralph Regalbuto, FBI OPR case agent Gary Bald, FBI ASU Unit Chief Jerry Donahoe, FBI ASU case agent Peter Gullota, AUSA Charles (Ben) Burch, and FBI Special Agents Tony Maxwell and Frank Doyle.

We conclude that Whitehurst's claim is not substantiated.

## **1. Factual Background**

In 1989, the United States Attorney's Office in San Francisco prosecuted Psinakis for smuggling explosives to the Philippines. A jury ultimately acquitted Psinakis of all charges in June 1989. During the FBI's investigation, agents found tools purportedly used to strip detonation cord containing PETN. In January 1982, explosives residue examiner Terry Rudolph rendered an opinion that the tools contained traces of PETN. Rudolph's opinion is the subject of discussion earlier in this Report. See Part Three, Section A.

Shortly before trial, Assistant United States Attorney (AUSA) Ben Burch became concerned that Rudolph's examinations were incomplete and requested more conclusive examinations. Whitehurst conducted these additional examinations, which confirmed the presence of PETN in the samples. However, while preparing to testify, Whitehurst reportedly became concerned that his identification of PETN resulted from contamination of the sample by Rudolph. Whitehurst based his concerns on observations of Rudolph's work habits during his training period with Rudolph. Whitehurst acknowledged that he was not in the Laboratory in 1982 when Rudolph actually examined these items.

When Whitehurst arrived in San Francisco for trial, he failed to share his concerns about contamination with AUSA Burch or FBI Special Agent Frank

Doyle, the case agent. Whitehurst explained that during a pre-trial meeting, he heard Burch joke about Doyle's personal acquisition of government frequent flyer miles. According to Whitehurst, the conversation reflected a flippant attitude toward a violation of FBI regulations and convinced him that he could not share his concerns about possible contamination. Whitehurst therefore decided to first express his concerns about Rudolph while testifying at trial.

When Whitehurst subsequently learned that he would not be called as a witness at trial, he told us he worried that his concerns might never surface. Whitehurst therefore approached the defense expert, Dr. Lloyd Snyder, and as Whitehurst later explained in a sworn statement to FBI OPR:

I . . . advised Dr. Lloyd Snyder of my misgivings concerning the testimony of SSA Terry Rudolph in this matter. I specifically advised Dr. Snyder that Rudolph's laboratory and work area were, and to my knowledge had always been, extremely sloppy and contaminated and that PETN, high explosive material, found on the evidence that Rudolph was testifying to could have originated from Rudolph's laboratory or work area. I suggested that cross examination of SSA Rudolph specifically address this issue. . . . Later, as I was leaving the area of the court room, I noted that Dr. Snyder and Mr. Brosnahan, the Defense Attorney, were in conference in the hall. I went up to Dr. Snyder, shook his hand, and advised him that I would not be able to testify and that I was sorry as I had something to say. I specifically did that in order to raise Mr. Brosnahan's attention to what I felt was a miscarriage of justice.

Sometime before departing, Whitehurst told AUSA Burch that Rudolph was a slob and that the evidence could have been contaminated, but did not mention his conversation with the defense expert.

Whitehurst then returned to the Laboratory and reported to Laboratory Director Castonguay that he may have violated FBI regulations and federal law by

making his disclosures. After interviewing Whitehurst about the matter, SAS Chief Nimmich prepared a June 30, 1989, memorandum recommending that Whitehurst be orally reprimanded for discussing the matter with the defense without notifying the prosecutor or case agent. Also during June 1989, the Laboratory received a letter from AUSA Burch that was highly critical of Rudolph's work in the case, but praised Whitehurst for his concerns about integrity. In response, the Laboratory initiated a review of Rudolph's work.

As a result of Nimmich's June 30, 1989, memorandum, FBI OPR opened an investigation into Whitehurst's conduct. Gary Bald, FBI OPR case agent, conducted a fact-finding investigation, which included interviews of Burch, Doyle, and Whitehurst. Laboratory management also sent a memorandum to FBI OPR again recommending an oral reprimand. Bald subsequently completed his investigation and sent these materials to the ASU for a determination of possible administrative action. Pursuant to FBI OPR policy, Bald did not make any recommendation.

ASU case agent Pete Gullota received these materials and prepared the case review memorandum, dated July 23, 1990. In that memorandum, Gullota stated that although there is little doubt that SSA Whitehurst's concerns were legitimate, Whitehurst exercised an egregious display of poor judgment by first contacting the defense and disclosing confidential information in violation of the FBI's Manual of Administrative Operations and Procedures (MAOP). Gullota also observed that Whitehurst's concerns about contamination were speculative, in that he had not observed Rudolph conducting the examination in this case. Gullota recommended that Whitehurst be suspended for seven days without pay and placed on six months probation.

In response, Laboratory Director Hicks met with Weldon Kennedy, the FBI Chief of the Administrative Services Division (with responsibility for the ASU), and James Greenleaf, the FBI Associate Deputy Director of Administration. Hicks argued that the recommended punishment was too severe and that Whitehurst should receive only an oral reprimand. Hicks also sent two memoranda to Greenleaf recommending that the suspension be dropped. Kennedy and Greenleaf ultimately agreed only to delay the

suspension to allow Whitehurst an opportunity to immediately appeal the decision.

Whitehurst appealed his suspension in a memorandum to Kennedy, stating, My appeal is based on my recognition that my actions were completely warranted under the circumstances. As a result of Whitehurst's perceived failure to acknowledge his erroneous judgment, Gullota recommended to Kennedy and Greenleaf that the appeal be denied. In a November 1, 1990, letter, Greenleaf denied Whitehurst's appeal and ordered the seven-day suspension to commence on November 2, 1990.

## **2. Analysis**

The evidence does not support Whitehurst's assertion that this incident reflected a retaliatory action by the FBI. Specifically, the FBI management had reason to criticize Whitehurst's conduct in the Psinakis case. Whitehurst erred in failing to disclose his concerns about contamination to SA Doyle, AUSA Burch, or Whitehurst's supervisors at the Laboratory, while making those concerns known only to the defense. As the explosives residue examiner who succeeded Rudolph, Whitehurst was obliged to fully report his findings and concerns to those in charge of the prosecution. We cannot accept Whitehurst's rationale that because he thought the AUSA and case agent had disregarded FBI regulations regarding frequent flyer miles, Whitehurst was justified in not reporting his concerns about contamination. Even if Whitehurst thought the AUSA and case agent would disregard his concerns, Whitehurst should have reported those concerns to his supervisors in the Laboratory.

Whitehurst also displayed poor judgment in deciding to raise his concerns about contamination for the first time while testifying. Whitehurst reported that he only contacted the defense expert when he learned that he would not be able to present these views himself while testifying at trial. Whitehurst's decision to surprise the parties with this information at trial was itself improper. His actions threatened to unnecessarily complicate the presentation of this evidence and possibly delay the trial while the parties investigated his concerns. In this

respect, Whitehurst acted without regard for the adverse impact that his conduct might have on the overall case.

With that background, we conclude that the Laboratory management did not act with the intent to retaliate against Whitehurst. To the contrary, the evidence showed that Nimmich, Castonguay, and Hicks repeatedly sought the least severe form of discipline possible for Whitehurst -- oral reprimand. The evidence further showed that Hicks personally intervened with Kennedy and Greenleaf to obtain rescission of the ASU's recommended suspension. According to Jerry Donahoe, Chief of the ASU at the time, Hicks' action was very unusual. We also note that during his first interview of Whitehurst, Nimmich determined that the matter would be treated as an administrative (as opposed to criminal) matter. According to FBI OPR's Gary Bald, the FBI Laboratory was not authorized to make that decision. Nimmich's determination, however, also suggests that the Laboratory was not acting with an intent to unfairly punish Whitehurst.

Additional evidence also supports our finding. In the June 30, 1989, memorandum, Nimmich praised Whitehurst as a highly principled examiner who approaches his work with an exceptional degree of professionalism. Similarly, Hicks, in his memoranda to Greenleaf, lauded Whitehurst's contributions to the Laboratory. In our interview, Hicks stressed that the FBI disciplined Whitehurst, not for raising his concerns, but for the manner in which he raised his concerns. Both Nimmich and Hicks stated that they did not believe that Whitehurst's suspension was a retaliatory act.

The evidence also does not support Whitehurst's suggestion that FBI OPR acted with a retaliatory intent. Gary Bald, FBI OPR case agent assigned to the case, denied that he had any personal motivations against Whitehurst and told us that he would have investigated anyone who appeared to be acting in retaliation against Whitehurst. Bald stated that Whitehurst was correct to express his concerns about Rudolph's work but should have done so within the FBI. We also found that the manner in which Bald conducted the investigation did not suggest a retaliatory motive. For example, we saw no evidence that Bald withheld information favorable to Whitehurst or recommended that the ASU take any disciplinary action. In fact, the documents show that when Bald



learned about the allegations against Rudolph, he directed the Laboratory to furnish him with the results from the review of Rudolph's work. Bald explained that he wanted to ensure that the Laboratory was addressing Whitehurst's allegations against Rudolph.

Our investigation also did not support the conclusion that the ASU acted with a retaliatory purpose. SSA Pete Gullota, who recommended that Whitehurst receive a letter of censure, suspension, and probation, denied any intention to retaliate against Whitehurst and stated that he had no prior knowledge of Whitehurst or Rudolph. ASU Chief Jerry Donahoe, who approved Gullota's recommendation, likewise disclaimed any prior knowledge of Whitehurst or intent to retaliate. In deciding to recommend suspension, Gullota reportedly considered the results of FBI OPR investigation, the recommendations of other ASU agents, the MAOP schedule of penalties, and Whitehurst's personnel file. Gullota was not able to find a similar case for comparison. Gullota concluded in his July 23, 1990, report:

While ASD recognizes SSA Whitehurst's intentions were honorable in that he was concerned about the integrity of the judicial process and the FBI's role in it, it is apparent that he exercised extremely poor judgement and unprofessional conduct in the manner in which he expressed his concerns regarding SSA Rudolph's analysis.

The factors reviewed by Gullota appear to be appropriate. See MAOP, Part I, ' 13-12(1).

We also conclude that the conduct of FBI management in this matter did not reflect an intention to retaliate against Whitehurst. In fact, it appears that the decision by Kennedy and Greenleaf to delay Whitehurst's suspension pending appeal was unusually lenient. According to Gullota, the FBI ordinarily imposes such disciplinary action immediately, without an opportunity for appeal. Because of Hicks' intervention, however, the FBI held Whitehurst's suspension in abeyance pending resolution of the appeal. Gullota could not recall FBI management acting similarly in any other matter. Furthermore, both Gullota and Hicks told us that Whitehurst's suspension likely would have been lifted

had Whitehurst acknowledged that he exercised poor judgment. Gullota stated that only after Whitehurst claimed that his actions were completely warranted under the circumstances did Gullota decide to recommend that Whitehurst's appeal be denied.

We nevertheless are troubled by the apparent disparity in treatment given to Whitehurst and Rudolph in this matter. As we concluded earlier, the FBI Laboratory management clearly failed to properly investigate the allegations against Rudolph. The FBI Laboratory's treatment of Rudolph -- and particularly its conclusion that Rudolph's procedures were weak analytically but accepted practice in 1982 -- seemed to give Rudolph every benefit of the doubt. The discipline imposed by the FBI on Whitehurst seems severe in contrast, although there is little to suggest that its severity grew out of a retaliatory motive. The apparent disparity illustrates yet another problematic consequence of the FBI's failure to address deficiencies in Rudolph's work.

### **B. The Claim that the FBI Ignored and Covered Up Whitehurst's Allegations Concerning Software Theft and Assault**

In 1991, Whitehurst reported to FBI OPR that personnel in the Criminal Investigative Division (CID) were stealing computer software and that Supervisory Special Agent Kenneth Neu had assaulted his wife, Cheryl Whitehurst, for reporting these software thefts. Whitehurst claims that FBI OPR ignored and covered up these allegations.

In connection with this allegation, we reviewed the files and records of FBI OPR and DOJ OPR, along with selected, relevant documents from the CID and Cheryl Whitehurst's personnel file. We also interviewed the following personnel: former Criminal Investigative Division (CID) Assistant Director William Baker, former CID Investigations Support Section Chief Joseph Koletar, former CID Assistant Section Chief James Summerford, CID Safe Streets Unit Chief Kenneth Neu, former CID Automation Support Group specialist Christopher Belan, former FBI OPR case agent Stephen M. Largent,

former Deputy Laboratory Director Bernardo M. Perez, former DOJ OPR Assistant Counsel David Bobzien, FBI OPR Unit Chief Ralph Regalbuto, and former Principal Deputy General Counsel Steven Robinson.

The evidence did not substantiate Whitehurst's allegations of wrongdoing and retaliation by FBI OPR.

## **1. Factual Background**

In late-1990, Cheryl Whitehurst worked as a management analyst within the Automation Support Group (ASG) of the CID. She was the point of contact for CID personnel with respect to computers. Her duties included maintaining the computers, troubleshooting any problems, and handling computer repair orders.

On November 26, 1990, Cheryl Whitehurst sent a memorandum to her Unit Chief, Robin Brown, alleging that personnel within the CID were routinely using unlicensed copies of software programs, including the Harvard Graphics program. After Brown allegedly failed to address the issue, Cheryl Whitehurst brought the matter to the attention of CID Section Chief Joseph Koletar. As a result, in a March 18, 1991, memorandum, Koletar notified all CID Section Chiefs that the ASG shortly would purge all unauthorized software.

On March 20, 1991, SSA Kenneth Neu confronted Cheryl Whitehurst in her office about the decision to purge the Harvard Graphics program. According to both Cheryl Whitehurst and Neu, Neu was angry. Two days later, Frederic Whitehurst sent a memorandum to the FBI OPR requesting an investigation into the use of unlicensed software in the CID and Neu's behavior toward Cheryl Whitehurst.

In response, the FBI OPR opened an investigation and assigned the matter to OPR case agent Steve Largent. Largent obtained a signed statement from Cheryl Whitehurst on April 9, 1991. In that statement, Cheryl Whitehurst described her efforts to report the alleged software thefts and added, I consider this to be an administrative or management problem. I believe that Section Chief Joe Koletar is addressing the problem. She further denied that she had received any retribution for reporting the use of unlicensed software. She also stated that she was afraid that Neu might hit her, but that Neu did not physically touch or threaten her. On May 6, 1991, DOJ OPR Assistant Counsel David Bobzien reviewed these facts and recommended termination of the investigation in view of the absence of serious misconduct. The FBI OPR closed the investigation on May 15, 1991.

In April 1995, Frederic Whitehurst wrote to the Deputy Attorney General about the alleged assault, triggering a new DOJ OPR inquiry. The DOJ OPR reviewed the FBI OPR file and re-interviewed Cheryl Whitehurst on October 11, 1995. At that time, Cheryl Whitehurst reiterated that Neu never threatened to hurt her, and that she suffered no medical, emotional, or physical problems as a result of the incident. She further stated that a desk separated her from Neu during the ten-minute confrontation. Cheryl Whitehurst added that she did feel threatened and afraid, but did not ask Neu to leave, tell Neu that he was scaring her, call for help, ask a co-worker who entered her office to get help, complain to authorities within the FBI, or seek legal action against Neu. Likewise, Cheryl Whitehurst stated that after the confrontation, she was not afraid of Neu, did not refuse to work with him, and was not uncomfortable alone with him. The DOJ OPR concluded that Neu had been rude and abrasive, but that his conduct did not rise to the level of misconduct warranting further inquiry.

During the DOJ OPR inquiry in 1995, Whitehurst also complained that Cheryl Whitehurst's supervisor, James Summerford, had retaliated against her for raising issues about unlicensed software. The DOJ OPR referred this allegation to the DOJ OIG. The DOJ OPR then closed the inquiry.

## **2. Analysis**

The evidence does not show that the FBI OPR ignored Whitehurst's allegations concerning the computer software thefts. The FBI OPR's investigation revealed that Cheryl Whitehurst first made her allegations about unauthorized software in late-November 1990. In March 1991, as a result of Cheryl Whitehurst's complaint, Section Chief Joseph Koletar instructed the ASG to purge all unauthorized software and notified CID personnel that future generations of unauthorized software [would] meet a similar fate. When the FBI OPR subsequently interviewed Cheryl Whitehurst in April 1991, she reported that Section Chief Koletar was addressing the problem. The FBI OPR then referred the matter to DOJ OPR attorney David Bobzien for a determination concerning the appropriateness of criminal charges. Bobzien advised the FBI OPR that although a technical violation of the copyright statute might have occurred, the matter was being handled appropriately by the CID and did not rise to the level of serious misconduct. Thus, Bobzien recommended that investigation be closed. In sum, the investigation conducted by FBI OPR indicated that CID management had addressed the software problem in a timely fashion and, as a result, DOJ OPR approved closing the investigation. We find no reason to criticize the FBI OPR investigation in this regard.

Whitehurst further claims that the FBI OPR ignored and covered up the retaliatory assault on his wife. Contrary to this claim, the FBI OPR obtained a sworn statement from Cheryl Whitehurst in which she stated that she had not suffered any retribution as a result of her allegations. With respect to the alleged assault, Cheryl Whitehurst reported in her sworn statement in pertinent part:

I was visited in my office by SSA Kenneth Neu, who I would describe as being extremely mad. Neu recently had back surgery and I know that he wears a backbrace, so I am not sure whether his physical actions were due to back pain or due to his extreme anger. He walked into my office with his fist clenched at his side and his face extremely red. I have known him since 1982 and know him to be a very mild mannered person. He was so upset that I stepped behind my desk because I was afraid that he might hit me and he began ranting and raving about the fact that he could not erase the Harvard Graphics software in his computer because it would wipe out years of work. I told him that the software was illegal software and he indicated to me that he did

not feel it was illegal. He stated that he got the software from someone in Division 3 and indicated to me, he did not feel that he needed a license for the software. During the conversation, Monica Finley Williams, Secretary to Deputy Assistant Director Nick O'Hara, walked into the room and upon observing Neu's actions, immediately turned and walked out. I later talked to her and she indicated that Neu was extremely mad.

Neu did not physically touch me nor did he threaten me in anyway. I would characterize his demeanor as being extremely mad and I believe that he was venting his anger on me. I did feel intimidated by him since he was yelling at me but again no threats or physical contact occurred.

\* \* \* \* \*

I have since spoken with and worked with Kenneth Neu, who was very pleasant to me. There does not appear to be any animosity towards me. I have not received any other retribution that I am aware of due to my efforts to address the software problems with the Criminal Investigation Division.

Cheryl Whitehurst added that her supervisors also later spoke with Neu and Neu's unit chief about the incident.

Steve Largent, the case agent in the FBI OPR assigned to the investigation, told us that he investigated the charges by obtaining this statement from Cheryl Whitehurst and gathering other pertinent documents. Largent stated that he then referred the matter to the DOJ OPR pursuant to the FBI's normal practice in cases involving possible criminal conduct. DOJ OPR attorney David Bobzien told us that he then reviewed this material and determined that Neu had not engaged in serious misconduct and that there was no need for further

investigation. According to Bobzien, he reached those conclusions because Neu did not physically threaten Cheryl Whitehurst or have physical contact with her. Bobzien indicated that no one encouraged him to close down the investigation and that he would have considered any attempt to influence him to be improper. Both Bobzien and Largent denied any intention to retaliate against Frederic or Cheryl Whitehurst.

This evidence does not substantiate the claim that the FBI OPR, or the DOJ OPR for that matter, sought to retaliate against Frederic or Cheryl Whitehurst by ignoring the assault allegations. DOJ OPR attorney David Bobzien simply reached the conclusion that the facts did not establish criminal conduct warranting further action. While this conclusion is supportable, we think that the FBI OPR can be faulted for failing to interview Neu about his conduct toward Cheryl Whitehurst. Largent told us that he did not interview Neu because Cheryl Whitehurst indicated in her statement that she had not been assaulted by Neu. In her statement, however, Cheryl Whitehurst stated, . . . I stepped behind my desk because I was afraid that he might hit me. . . . This statement suggested that she believed she had been assaulted by Neu, contrary to Largent's assertion. In view of that statement, we think that a thorough investigation would have included an interview of Neu about his conduct and presentation of that interview to the DOJ OPR for consideration.

Whitehurst also makes other claims of misconduct. He charges that Koletar committed a clear obstruction of justice by ordering the removal of unauthorized software, thereby destroying evidence which would have been relevant in [sic] criminal investigation. Whitehurst assumes without basis that the use of unlicensed software in these circumstances was a criminal violation. Contrary to Whitehurst's suggestion, not every unauthorized use of software rises to the level of criminal conduct. In any event, Koletar told us that before issuing his March 18, 1991, memorandum, he brought the matter to the attention of FBI OPR and learned that the allegations did not rise to the level of an OPR matter. Likewise, David Bobzien of DOJ OPR concluded that the use of unlicensed software within the CID was at most a technical violation. Even Cheryl Whitehurst viewed the matter as an administrative or management problem. We find Whitehurst's allegation that Koletar obstructed a possible criminal investigation to be baseless.

Whitehurst also claims that beginning in the fall of 1992, Assistant Section Chief James Summerford harassed Cheryl Whitehurst because she had reported the alleged software abuse. Our investigation showed that in September 1992, Summerford sent two memoranda to Section Chief Koletar regarding interpersonal problems between Cheryl Whitehurst and other CID personnel. In September 1992, Cheryl Whitehurst sent Koletar her own memorandum in response. Additionally, although Summerford rated Cheryl Whitehurst exceptional overall in her December 31, 1991, performance evaluation, he rated her only fully successful overall in her December 31, 1992, performance evaluation.

Contrary to Whitehurst's suggestion, this evidence does not show that Cheryl Whitehurst's complaints about unlicensed software caused Summerford to retaliate against her. Summerford's memoranda and performance evaluations criticize Cheryl Whitehurst based on her skills in getting along with other CID personnel, not for raising allegations concerning illegal software use. In fact, Summerford told us that he believed that Cheryl Whitehurst had properly reported the software abuse. As some evidence of that assertion, Summerford gave Cheryl Whitehurst the highest rating possible -- exceptional -- in her December 31, 1991, performance evaluation, well after she raised the software issues. Koletar also told us that in his view, it was appropriate for Summerford to write such memoranda based on repeated complaints from CID personnel about Cheryl Whitehurst. Koletar stated that he had no reason to believe that Summerford's actions were retaliatory. Even Chris Belan, Cheryl Whitehurst's co-worker who was highly critical of Summerford's management style, stated that he could not say that Summerford's treatment of Cheryl Whitehurst was motivated by her allegations of illegal software use. In sum, the evidence did not support Whitehurst's allegations that Summerford acted to retaliate against Cheryl Whitehurst.

Whitehurst further alleges that during a review of these allegations in 1994 by the Office of General Counsel (OGC), Principal Deputy General Counsel Steven Robinson ignored his allegations and refused even to take notes about the alleged assault. Robinson told us that he stopped taking notes because Whitehurst appeared to be having a flashback during the discussion. Specifically, according to Robinson, Whitehurst began speaking emotionally about Vietnam, started rocking back and forth, and stated that he would shove a knife up any person who would assault his wife. Associate General Counsel



John Sylvester, who was present, also recalled that Whitehurst became upset during this discussion and started talking about Vietnam. Robinson and Sylvester later reported that no further action was warranted by the OGC in view of the conclusions that had been reached by FBI OPR and DOJ OPR. We do not think that Robinson or Sylvester ignored Whitehurst's allegations, but simply reached a conclusion that FBI OPR had properly conducted and closed the investigation.

In sum, we conclude that the evidence did not support Whitehurst's allegations.

### **C. Referral for Psychiatric Examination and Counseling**

Whitehurst alleges that in 1993 the FBI ordered him to undergo psychiatric evaluation and therapy in retaliation for raising various allegations.

In order to investigate Whitehurst's claim, we reviewed pertinent reports and correspondence regarding Whitehurst's referral to psychiatric evaluation and counseling and pertinent provisions of the FBI Manual of Administrative Operations and Procedures. We also reviewed pertinent portions of the transcript of Whitehurst's testimony at the Darryl Green case. We further interviewed Assistant United States Attorney Rachel Adelman Pierson and Detective Robert Rice from the Darryl Green case; Laboratory personnel including John Hicks, Kenneth Nimmich, Alan Robillard, and James Corby; and former Section Chiefs of the FBI Personnel Recruiting and Benefits Section, Thomas Pickard and Richard Hildreth.

We also interviewed Joan Earnshaw from the FBI Employee Assistance Program (EAP) and Margaret Grey from the FBI Health Care Program Unit (HCPU) generally about FBI practices with respect to psychological counseling and limited duty status. However, we were not able to interview these witnesses or other relevant personnel from the EAP (Sheron Finister) and HCPU (Adele Miller) specifically about Whitehurst. These witnesses advised us that they

would only discuss matters relating to Whitehurst if we obtained an express medical release from Whitehurst. Whitehurst and his attorney refused to provide such a release despite our repeated requests. At Whitehurst's request, we also attempted to interview psychologist Dr. Edwin N. Carter, but Dr. Carter did not return our many telephone calls.

Because we view these witnesses as important to the retaliation issue, we could not reach definite conclusions regarding these allegations. However, our investigation has failed to disclose any retaliatory purpose, as alleged by Whitehurst.

## **1. Factual Background**

In 1992, the United States Attorney's Office in the District of Columbia tried a felony child abuse case in the Superior Court. The defendant, Darryl Green, was charged with burning a seven-year-old girl by placing a heated Bic lighter against her inner thigh. The defendant maintained that he had only briefly touched the child with the lighter. To test the lighter's capacity to burn skin, the detective in the case, Robert Rice, contacted the FBI Laboratory.

Rice spoke with Whitehurst and asked to use a thermocouple, a device used for testing the temperature of objects. Whitehurst told Rice that the Laboratory did not have a thermocouple, and stated, Let's see what we can do. Whitehurst then activated the lighter, turned it upside down to heat the metal collar for approximately one minute and one-half, and pressed the metal collar against his inner forearm for approximately 30 seconds, leaving a horseshoe shaped burn approximately the size of a quarter. While accounts vary, it appears that Whitehurst burned himself in the presence of Rice, Unit Chief Jim Corby, and another technician in the MAU. Later that day, Whitehurst exhibited that burn to the jury.

SAS Assistant Section Chief Alan Robillard stated that when he heard that Whitehurst had burned himself, he was appalled. Robillard met with Whitehurst and expressed his disapproval. During the conversation Whitehurst reportedly became distraught and started talking about Vietnam and veterans issues, incompetent personnel in the Explosives Unit, Terry Rudolph, and Whitehurst's wife. According to Robillard, Whitehurst appeared to be on the verge of a nervous breakdown. Robillard told us that, as a result, he reported these events to SAS Chief Nimmich and possibly Laboratory Director Hicks.

After hearing about the burning incident, Nimmich spoke with an EAP counselor about Whitehurst. Nimmich stated that he took this step because the burning incident constituted a total anomaly from standard laboratory practice, health and safety . . . . Nimmich told us that he was concerned because Whitehurst appeared to be under considerable stress and had become very emotional during recent conversations with Nimmich. As a result of Nimmich's conversation with the EAP counselor, the EAP reported the matter to Margaret Grey, the Unit Chief of the FBI Health Care Program Unit (HCPU). Nimmich and Grey later discussed the matter and, according to Nimmich, agreed that Whitehurst should be referred for a psychiatric examination. According to Whitehurst, EAP counselor Joan Earnshaw told him that he needed to go for the examination. Whitehurst told us that he did not take issue with this referral for psychiatric examination.

On December 3, 1992, Whitehurst was examined by Dr. Alen Salerian, the psychiatric consultant to the EAP. Salerian found no evidence of overt psychiatric disorder. However, due to the nature of Whitehurst's recent actions and Salerian's conversations with Whitehurst and Nimmich, Salerian strongly recommended that Whitehurst either receive a voluntary psychiatric evaluation or be referred for a fitness-for-duty evaluation.

As a result of Dr. Salerian's recommendation, on January 19, 1993, Thomas Pickard, Section Chief of the Personnel Recruiting and Benefits Section, referred Whitehurst to the Isaac Ray Center in Chicago for a psychiatric examination and psychological assessment. Although the letter referring Whitehurst to Chicago stated that the examination was mandatory, Pickard told us that he understood that Whitehurst voluntarily agreed to go to this

examination. Whitehurst also told us that he voluntarily went to Chicago for evaluation, although he was not crazy about it.

Whitehurst was evaluated in Chicago by Drs. Jonathan Kelly and Orest Wasyliw on February 9, 1993. Kelly and Wasyliw prepared reports in which they found that Whitehurst was fit for duty and did not manifest any psychological illness that substantially impaired his functioning as a special agent. However, due to certain personality features, Kelly observed that Whitehurst would benefit from a course of voluntary psychotherapy, and Wasyliw likewise recommended such counseling for Whitehurst to deal with current tensions and increase his range of coping resources. Wasyliw also commented that the Bureau would do well to find ways to give Whitehurst an occasional rest.

After receiving these evaluations, Grey prepared an April 23, 1993, memorandum to the Laboratory Division that included two recommendations: (1) that the Laboratory place Whitehurst on limited duty status, evaluate his work assignments to reduce external stress, and monitor his behavior, and (2) that Whitehurst seek psychotherapy with monthly feedback to the HCPU. Pickard told us that he personally made the recommendations in Grey's memorandum.

On May 12, 1993, Whitehurst met with Pickard to appeal these recommendations. Although Whitehurst and Pickard report somewhat differing versions of the meeting, it appears that at the conclusion, Whitehurst indicated that he would attend counseling and Pickard agreed to later re-evaluate his recommendations based on the input from Whitehurst's therapist.

Whitehurst subsequently met for several sessions with psychologists Donald R. Soeken and Edwin N. Carter. The evidence indicates that Whitehurst selected these psychologists himself. During the course of this psychotherapy, Soeken and Carter sent letters reporting on Whitehurst to Adele Miller, supervisor of the Fitness-for-Duty Subunit of the HCPU. In a November 17, 1993, letter, Carter advised Miller that Whitehurst was fit to perform his job. Furthermore,

Carter stated that nothing in the earlier reports or current data suggested that Whitehurst should be compelled to participate in therapy. In a January 21, 1994, letter, the FBI advised Whitehurst that in view of Carter's comments and a concurrence by Salerian, Whitehurst would no longer be required to attend regular psychotherapy sessions.

## **2. Analysis**

Whitehurst's conduct in burning himself was highly questionable for several reasons. Whitehurst's experiment was clearly outside of his expertise and did not follow any scientific protocol. It is especially troubling that Whitehurst chose to experiment on himself, since we understand that Whitehurst could have contacted a pathologist at the Armed Forces Institute of Pathology for expertise concerning burned skin. Moreover, despite Whitehurst's suggestion that the situation required his immediate action, it appears that no one compelled or even encouraged Whitehurst to conduct such an experiment. In fact, Rachel Adelman Pierson, the AUSA who prosecuted the Darryl Green case, expressed surprise that Whitehurst would burn himself without first speaking with her. While Pierson clearly appreciated Whitehurst's actions to assist in the case, she also stated that she was not surprised that the FBI referred Whitehurst for counseling based on this incident.

In view of the unusual nature of Whitehurst's conduct and Dr. Salerian's recommendation, we do not think that Personnel Section Chief Thomas Pickard acted unreasonably in referring Whitehurst for a fitness-for-duty evaluation. Applicable regulations permitted the FBI to refer an employee for a fitness-for-duty examination when there was a question about the employee's capacity to meet medical requirements of the position. The regulations further specified:

An agency may order a psychiatric examination (including a psychological assessment) only when: (i) The result of a current general medical examination which the agency has the authority to order under this section indicates no physical explanation for

behavior or actions which may affect the safe and efficient performance of the individual or others . . . .

In his letter referring Whitehurst to Drs. Kelly and Wasyliw, Pickard cited this provision and stated that the FBI had reviewed Whitehurst's medical history and Dr. Salerian's letter. Pickard stated in that letter that due to Whitehurst's behavior and questionable judgment, Pickard was requesting that Whitehurst report for a psychiatric examination. Pickard likewise told us that he relied on Dr. Salerian's recommendation in referring Whitehurst to this psychiatric fitness-for-duty examination. Whitehurst's actions implicated the safe performance of his duties; therefore, we conclude that the evidence supported Pickard's actions.

We also cannot conclude that individuals within the Laboratory Division, specifically Hicks, Robillard, and Nimmich, acted with the intent to retaliate against Whitehurst by referring him for psychiatric counseling. Hicks essentially played no role in this matter. Hicks recalled learning about the matter from someone with the EAP. He determined that the matter should be handled by the Administrative Services Division/Personnel Section and the Health Care Program Unit. Our interviews of Pickard and others confirmed that Hicks did not play a role in any subsequent decisions.

Robillard played only a minor role in Whitehurst's referral for psychiatric evaluation. Specifically, Robillard said he told Nimmich and Hicks about the burning incident and about his emotional conversation with Whitehurst. Robillard told us that he took this action because he was concerned that Whitehurst was distraught and in turmoil during their conversation. We think that Robillard was justified in notifying an EAP counselor about Whitehurst.

Likewise, we find no evidence that Nimmich sought to retaliate against Whitehurst. Nimmich reported the matter to an EAP counselor and discussed the matter with Margaret Grey of the HCPU. Nimmich said he became concerned because he considered the burning incident to be a sign of significant stress. According to Nimmich, he worried about Whitehurst's judgment in

deciding to burn himself, rather than conduct a true scientific test. Furthermore, Nimmich stated that he was aware that Whitehurst was under considerable stress because of his efforts to adopt a child, address his wife's work-related problems, attend law school, and work through a tremendous backlog of cases. Nimmich reported that during this time, Whitehurst would become tearful and emotional due to this stress. We do not find any apparent retaliatory motive in Nimmich's conduct.

Absent the necessary medical release forms from Whitehurst, we were not able to assess the roles and motives of EAP counselor Joan Earnshaw, EAP Administrator Sheron Finister, or HCPU Unit Chief Margaret Grey in referring Whitehurst to psychiatric evaluation by Dr. Salerian or in recommending psychological counseling and limited duty.

We also sought to assess the motivations of Pickard in recommending that Whitehurst be placed on limited duty status and undergo continuing therapy. Pickard told us that he made these recommendations based on the reports of Drs. Kelly and Wasyliv, after speaking with his Assistant Section Chief, Margaret Grey of the HCPU, and Sheron Finister of the EAP. According to Pickard, at the time he made these decisions he was not aware of Whitehurst's complaints to FBI OPR. Pickard also told us that he had no reason to retaliate against Whitehurst. Pickard further specifically denied that he was influenced by anyone from the Laboratory Division or from FBI OPR in making these decisions. We note that Pickard's recommendations -- that Whitehurst seek therapy and that his work assignments be evaluated to reduce external stress -- generally were consistent with the recommendations of Drs. Kelly and Wasyliv. Thus, based on this evidence we do not conclude that Pickard sought to retaliate against Whitehurst in making these decisions.

We note that James Corby expressed a different view of this matter. Corby told us that he thought that referral for psychiatric care was one of the ways that the Bureau had of punishing people. Regarding whether the FBI had punitively referred Whitehurst to psychiatric care, Corby stated, I don't have proof of that, but I think it was, yes. It is difficult to credit this assertion by Corby, however, because he did not possess any personal knowledge of such retaliatory action. Corby acknowledged that he did not participate in the decisions regarding

Whitehurst's referral to psychiatric evaluation or counseling. Nor did Corby know the official reason for Whitehurst's referral to counseling. Moreover, despite Corby's assertion, he could not identify any other instance in which the FBI reportedly punished anyone in this fashion. Finally, Corby's reasons for concluding that the FBI acted punitively were obtuse: He pointed to the fact that the FBI had used a bureau psychologist or psychiatrist and had required Whitehurst to pay for ongoing therapy. We find Corby's assertions to be unconvincing.

In addition to the general allegation of retaliatory purpose, Whitehurst makes a number of specific allegations. Whitehurst alleges that the FBI acted without authorization in requiring him to participate in psychotherapy. Grey told us that the FBI considers mandatory psychotherapy to be a medical mandate that could be imposed only by a physician. The applicable provision of the FBI Manual for Administrative Operations and Procedures (MAOP) provided in part:

Medical mandates (restrictions) are assigned by the Bureau's Chief Medical Officer (CMO), the Bureau physician, or a private physician utilized by the employee when he/she has an illness, injury, physical/medical or mental condition that precludes or limits their ability to perform the expected duties of their position.

MAOP Part I, Section 20-5.2.1 (eff. 3/26/92). The evidence shows that none of the medical personnel listed above authorized mandatory psychotherapy for Whitehurst. Drs. Kelly and Wasyliw merely recommended voluntary counseling. Accordingly, if the FBI compelled Whitehurst to attend psychotherapy without the authorized medical mandate, the FBI would have violated its own policy.

Our investigation disclosed differing views as to whether the FBI compelled Whitehurst to attend psychotherapy or Whitehurst agreed to attend these sessions voluntarily. Pickard acknowledged that he did not have the authority to order Whitehurst to attend psychotherapy and specifically denied doing so. Pickard stated that while he could order Whitehurst to complete a fitness-for-



duty examination, he could only encourage Whitehurst to seek counseling following that examination. As evidence of the non-mandatory nature of the counseling, Pickard pointed to the April 12, 1993, memorandum from the HCPU to the Laboratory Division, which only recommended that Whitehurst seek psychotherapy. Pickard told us that after he discussed this recommendation with Whitehurst on May 12, 1993, Whitehurst voluntarily agreed to seek counseling. SAS Chief Kearney likewise told us that he spoke with Whitehurst about the recommendation, and Whitehurst agreed to attend counseling.

On the other hand, it appears that Dr. Carter and Adele Miller of the HCPU understood that the FBI had required Whitehurst to attend these counseling sessions. Carter stated in a November 17, 1993, letter to Miller: It seems to me that the requirement that Mr. Whitehurst continue in an ongoing psychotherapy program as a condition of his continued employment is unnecessary. Moreover, Miller sent a January 21, 1994, letter to Whitehurst stating:

In his report dated November 17, 1993, [Dr. Carter] states that you are capable of resuming your full time duties and responsibilities without limitations or restrictions, as a Special Agent, and you will no longer be required to attend regular psychotherapy sessions.

(Emphasis added).

According to this evidence, the FBI may have advised Whitehurst that he was required to attend psychotherapy sessions. Because we were not able to speak with HCPU personnel -- and especially Adele Miller -- about this subject, however, we could not reach a definite conclusion as to whether the HCPU failed to follow FBI regulations or whether that failure resulted from a retaliatory purpose.

Whitehurst also claims that the FBI improperly required him to pay for his psychotherapy sessions. When questioned concerning this claim, both Pickard and Grey told us that as a general rule, the FBI only covers the cost of fitness-for-duty examinations. According to Pickard and Grey, an FBI employee who is fit-for-duty is responsible, either directly or through health insurance, for the cost of treating any medical or psychological condition. We found support for this policy in the MAOP, which provided in part:

Once a medical examiner has made a fitness-for-duty determination and has completed the medical report, any recommendation for additional examinations, repeat or follow-up tests or other medical action will be paid by the Bureau when such recommended action is for the purpose of determining whether such malady exists and is solely to determine the employee's fitness for duty. Once a determination of fitness for duty is made, any additional examination(s) is considered treatment and will not be recompensed.

MAOP, Part I, Section 20-5.1.5 (eff. 3/26/92)(emphasis added). It appears that under this policy, Whitehurst was responsible for the cost of treatment after Drs. Kelly and Wasyliw found Whitehurst to be fit-for-duty.

Finally, Whitehurst claims that Adele Miller, the occupational nurse from the HCPU who monitored his ongoing therapy, abused her authority in several respects. We were not able to reach any conclusion about this allegation because Whitehurst did not provide a medical release form as requested.

In sum, we conclude that Laboratory personnel did not act with a retaliatory purpose in referring this matter to the HCPU and EAP. However, because Whitehurst did not provide the necessary medical release forms to allow us to interview key personnel with the HCPU, EAP, and Personnel Section, we cannot reach a definite conclusion concerning their motives in referring Whitehurst to psychotherapy.

## **D. The Claim that the FBI Improperly Investigated Whitehurst for Disclosure of Confidential Information**

Whitehurst alleges that FBI OPR improperly initiated an investigation into his disclosure of information to the Senate Judiciary Committee.

In connection with this matter, we obtained and reviewed the complete FBI OPR file in its investigation. We also interviewed FBI OPR case agent Sarah Pickard, FBI OPR Unit Chief Ralph Regalbuto, and DOJ OPR Assistant Counsel Judith Wish.

Our investigation did not substantiate Whitehurst's allegations.

### **1. Factual Background**

On January 26, 1993, a representative from the FBI Inspection Division, Office of Planning, Evaluation and Audits (OPEA), interviewed Whitehurst as part of an evaluation project conducted by that Office. During that interview, Whitehurst raised concerns about widespread voucher fraud, incompetence, inadequate protocols, backlogged cases, and safety problems in the Laboratory Division. He also complained of bootlegged copies of computer software in the Laboratory and Criminal Investigative Divisions. Whitehurst further reported that he had made copies of the content of computers in these Divisions and forwarded this information to Senator Joseph Biden for further examination.

As a result of this interview, on February 9, 1993, FBI OPR case agent Sarah Pickard opened an investigation into Whitehurst's allegations of voucher fraud. Pickard later spoke with FBI OPR Unit Chief Ralph Regalbuto, who agreed that Whitehurst also should be questioned about his possible unauthorized

disclosures of confidential FBI records to Senator Biden, Chairman of the Senate Judiciary Committee.

On April 6, 1993, Pickard interviewed Whitehurst about the alleged voucher fraud and possible unauthorized disclosures of case information to the Senate Judiciary Committee. According to the statement later prepared by Pickard based on this interview, Whitehurst stated that he lacked any specific knowledge about voucher fraud in the Laboratory Division. Whitehurst also reportedly acknowledged sending two letters to the Senate Judiciary Committee in the fall of 1992, the first concerning the alleged computer software theft within the Criminal Investigative Division and the second concerning Terry Rudolph. According to the statement, Whitehurst denied that he provided any information from Bureau files to the Senate Judiciary Committee. Pickard subsequently requested that Whitehurst read and sign the written statement, but Whitehurst refused to do so because the FBI OPR would not permit prior review of the statement by Whitehurst's attorney.

Pickard thereafter sought information about Whitehurst's disclosures to the Senate Judiciary Committee directly from Judiciary Committee staff. Pickard told us that she sought to verify that Whitehurst had not made unauthorized disclosure of FBI information to the Committee. A representative from the Judiciary Committee refused to disclose Whitehurst's letters to the Committee, citing concerns about constituent confidentiality. After several months, the FBI OPR decided not to further pursue the matter with the Judiciary Committee.

Because FBI OPR developed no facts warranting administrative action, the FBI Personnel Management Section (Former Personnel Benefits and Recruiting Section) notified Whitehurst in late-August 1994 that the administrative inquiry would be closed.

## **2. Analysis**

The evidence did not support Whitehurst's allegation that FBI OPR acted in retaliation by investigating possible unauthorized disclosures to the Senate Judiciary Committee.

The evidence shows that a factual basis existed for believing that Whitehurst may have made an unauthorized disclosure of Bureau information. Specifically, the OPEA reported that Whitehurst had stated during his January 26, 1993, interview that he had copied the contents of computers in the Laboratory and Criminal Investigative Divisions as evidence of alleged software theft. Whitehurst also reportedly told the OPEA that because FBI OPR did not take his allegations seriously he forwarded this information to the Senate Judiciary Committee. Thus, Whitehurst's own statements to the OPEA at least raised the possibility that he violated FBI rules and regulations through the unauthorized release of Bureau records. See MAOP Part 1, Section 1-19(2); FBI Standard Employment Agreement, FD-291. Although Whitehurst denied that he made any unauthorized disclosures, FBI OPR was not required to accept Whitehurst's assertion especially after he refused to sign the statement taken from him by FBI OPR.

When questioned regarding their motives, both FBI OPR case agent Sarah Pickard and FBI OPR Unit Chief Ralph Regalbuto told us that the FBI OPR decided to inquire into possible unauthorized disclosures based on the foregoing facts. Pickard denied that she or Regalbuto had any motive to retaliate against Whitehurst. Regalbuto told us that he had no basis to believe that Pickard sought to retaliate against Whitehurst. Likewise, they denied that anyone from the Laboratory or Criminal Investigative Division encouraged them to inquire into possible unauthorized disclosures by Whitehurst. Pickard and Regalbuto also told us that under the circumstances, they thought it was appropriate to close the investigation without a finding that Whitehurst made unauthorized disclosures. We find no reason to believe that FBI OPR acted with retaliatory motives.

We also find no basis to conclude that FBI OPR acted improperly in refusing to permit Whitehurst's attorney to review his statement before Whitehurst signed it. Our investigation showed that Pickard conducted her interview as an administrative inquiry. As such, Whitehurst received immunity from criminal

prosecution and had a duty to cooperate. Under these circumstances, FBI regulations provided that an employee does not have a right to legal representation in connection with the interview. See MAOP, Part I, Section 13-6.2(4); MIOG 263-5.2(4). Furthermore, the FBI has guidelines providing that an employee's attorney is not permitted to review materials in conjunction with a disciplinary investigation unless such materials were first reviewed and redacted by the Civil Discovery Review Unit (CDRU) of the Legal Counsel Division. The evidence showed that Pickard explained these provisions to Whitehurst, and the FBI provided copies of these regulations to Whitehurst's counsel. We see no retaliatory purpose in these actions.

### **E. The Claim that the FBI Improperly Disclosed Henthorn Material Concerning Whitehurst**

Whitehurst alleges that FBI OPR improperly disclosed derogatory information about him in the World Trade Center and Simpson cases.

We obtained and reviewed copies of the materials that the FBI released in the World Trade Center and Simpson cases. We also obtained and reviewed the CDRU case management sheet and logs, which described the CDRU's document review process in detail. We further interviewed various FBI personnel, including General Counsel Howard Shapiro, Deputy General Counsel Thomas Kelley, former Principal Deputy General Counsel Steven Robinson, CDRU Supervisory Paralegal Specialist Patricia Giannico, AUSAs Paul Gardephe and Gil Childers of the Southern District of New York, OPR Unit Chief Ralph Regalbuto, and former MAU Unit Chief James Corby.

The evidence shows that the FBI did not improperly disclose derogatory information about Whitehurst in these cases.

## **1. Factual Background**

### **a. World Trade Center Case**

In January 1994, prosecutors in the World Trade Center case in New York identified Whitehurst as a possible witness in the case. AUSA Paul Gardephe of the Southern District of New York asked the FBI to review Whitehurst's personnel file for possible Brady and Giglio material. In response, Thomas Kelley, Deputy Assistant Director of the Legal Counsel Division, directed the Civil Discovery Review Unit (CDRU) to conduct a so-called Henthorn review of Whitehurst's files. Supervisory Paralegal Specialist Patricia Giannico and Paralegal Vickie Hayden of the CDRU reviewed various personnel and OPR files and identified 27 pages of responsive documents (Package 1). After the CDRU redacted confidential and sensitive information in Package 1, the FBI provided copies of these documents to AUSA Gardephe.

On January 13, 1994, AUSA Gardephe traveled to the FBI Headquarters and personally reviewed Whitehurst's administrative and personnel files. Gardephe selected an additional 89 pages of documents from these files. The CDRU again redacted confidential and sensitive information from these documents, and the FBI provided copies of the documents to AUSA Gardephe (Package 2).

The prosecution ultimately decided not to call Whitehurst to testify in the case. According to World Trade Center case prosecutor Gil Childers, prosecutors released only part of these materials to the defense and did not disclose any records relating to Whitehurst's psychological evaluation.

### **b. Simpson Case**

During the trial of People v. Orenthal James Simpson in Los Angeles in September 1995, Simpson's defense counsel provided notice that they intended to call Whitehurst to testify that Roger Martz routinely biased results in favor

of the prosecution. In response, Los Angeles District Attorney Gil Garcetti requested impeachment material about Whitehurst from the FBI. Specifically, Garcetti asked for materials to be used to cross-examine Whitehurst from personnel files, or other files, memoranda, or reports involving the performance, competence, or discipline of Special Agent Whitehurst. Garcetti also requested the opportunity to review documents and conduct interviews of FBI personnel relating to any acts of perjurious conduct, acts of dishonesty or any acts which impact on the credibility of SSA Whitehurst.

The FBI treated Garcetti's letters as a request for Henthorn materials. A CDRU employee reviewed Whitehurst's personnel files from the date of the prior Henthorn Review, but reported finding no additional Brady or Giglio material. FBI Principal Deputy General Counsel Steven Robinson provided the Henthorn material from the World Trade Center case (both Packages 1 and 2) to prosecutors in the Simpson case. These records were released to the defense. Judge Lance Ito later ruled that Whitehurst would not be permitted to testify.

## **2. Analysis**

The evidence does not show that the FBI selected the Henthorn materials with a retaliatory intent.

The OGC selected and released these documents only in response to specific requests from prosecutors. The evidence showed that employees with the CDRU conducted the review for Henthorn material as they would in any other case. Both CDRU Supervisory Paralegal Specialist Patricia Giannico and AUSA Paul Gardephe denied selecting documents to unfairly malign Whitehurst and denied being aware of any attempt by others to unfairly select these Henthorn materials. OGC attorney Steven Robinson told us that he did not review or even discuss the documents before providing them to the Simpson prosecutors. We see nothing in these circumstances to suggest that the FBI released these documents for a retaliatory purpose.



Most importantly, our review of the documents themselves did not suggest that the FBI acted with an improper purpose. In conducting this review, we kept in mind that the purpose of a Henthorn review is to identify documents that might be used to impeach a law enforcement witness at trial. By definition, Henthorn materials cast an unflattering light on such a witness.

Package 1, which was selected by employees with the CDRU, primarily included materials from FBI OPR investigation in the Psinakis matter. These materials included ASU case agent Gullota's report, which accurately restated Whitehurst's own version of the facts. The materials also included statements of AUSA Burch complimenting Whitehurst's performance and conduct in the case. The materials further included Hicks' memorandum recommending a reduced sanction, which also placed Whitehurst's actions in a more flattering light. Thus, the materials in Package 1 included a balanced version of the Psinakis matter. These materials were appropriately disclosed.

Package 1 also included the April 23, 1993, memorandum from Margaret Grey of the HCPU to the Laboratory Division, recommending psychotherapy and limited duty status. In view of this letter, Whitehurst contends that the FBI also should have released a November 17, 1993, letter from psychologist Edwin Carter to the FBI, stating that Whitehurst should not be required to participate in psychotherapy, and a January 21, 1993, letter from the FBI to Whitehurst, terminating his referral to psychotherapy. In response to a request for Henthorn materials, the FBI was required to produce documents containing possible impeachment material. Thus, it was not necessary to provide Carter's November 17, 1993, letter. That letter also contained a detailed psychological profile of Whitehurst that would have raised privacy concerns. However, for the sake of completeness, it would have been appropriate for the FBI to notify prosecutors that the recommendations in the April 23, 1993, memorandum had been terminated. Deputy General Counsel Thomas Kelly, who reviewed these materials before their release, told us that he was not aware of the letter terminating Whitehurst's referral to psychotherapy. Kelly added that he would have released the letter had he seen it. Under the circumstances, we do not find any retaliatory purpose in the failure to release this letter.

Package 2 included materials from the FBI OPR investigations into allegations concerning the Psinakis case, Terry Rudolph, computer software theft and assault, and unauthorized disclosures by Whitehurst. Because AUSA Gardephe personally selected these documents, it is difficult to argue that these documents evidence an improper purpose on the part of the FBI. Furthermore, our review of Package 2 documents shows that these records did not present a biased picture of the OPR investigations. For example, these records also included Whitehurst's own version of the events underlying each of the OPR matters.

In sum, we conclude that the evidence does not substantiate Whitehurst's allegations of retaliation in connection with the release of Henthorn materials.

#### **F. The Claim that the FBI Punished Whitehurst by Reassigning Him to the Paints and Polymers Program**

Whitehurst alleges that in May 1994, the FBI reassigned him from the explosives residue program to the paints and polymers program to punish him for reporting misconduct in the Laboratory Division and especially in the Explosives Unit.

In connection with this allegation, we reviewed pertinent memoranda relating to transfer and reassignment of personnel in the SAS. We also reviewed Whitehurst's personnel file. Further, we interviewed the following FBI personnel: Acting Laboratory Director Donald Thompson, former Laboratory Directors John Hicks and Milton Ahlerich, former SAS Chiefs James Kearney and Kenneth Nimmich, current SAS Chief Randall Murch, former MAU Unit Chief James Corby, explosives residue examiner Steven Burmeister, CTU examiner Drew Richardson, former explosives residue chemists Kelly Mount, Mary Tungol, and Monica Knuckles, former Explosives Unit technician Amy Sirignano, FBI General Counsel Howard Shapiro, former Principal Deputy General Counsel Steven Robinson, former OGC attorney John Sylvester, and OGC attorney Laura Blumenfeld.

The evidence does not support Whitehurst's allegation.

## **1. Factual Background**

In October 1993, FBI Deputy Director Floyd Clarke instructed the Laboratory Division to provide a plan for reorganization as part of the general reorganization of FBI Headquarters. Pursuant to this reorganization plan, target staffing levels required that the Laboratory reduce its personnel by 65 special agents and support staff within two fiscal years. To accomplish this, Laboratory management prepared a report entitled, Mandated Personnel Reductions and Organizational Restructuring, which proposed the elimination of numerous personnel, the consolidation of units, and a reduction in non-critical services. With respect to the Scientific Analysis Section (SAS), that report proposed that the Elemental and Metals Analysis Unit (EMAU) be merged into the Materials Analysis Unit (MAU) under Unit Chief James Corby. In order to balance the workload of the MAU, Laboratory management further proposed that the explosives residue program, then comprising two special agent examiners (Frederic Whitehurst and Steven Burmeister) and two support technicians (Monica Knuckles and Kelly Hargadon Mount), be moved from the MAU to the Chemistry-Toxicology Unit (CTU) under Unit Chief Roger Martz.

In a June 14, 1994, memorandum, SAS Chief James Kearney announced the transfer of the explosives residue program to the CTU. Kearney further announced, apparently for the first time, that Whitehurst would remain in the MAU and that the CTU would qualify a second explosives residue examiner. Kearney added that Whitehurst would continue to be involved in the area of explosive residue analysis, however, his duties will be focused primarily on research studies and the training/qualifying of new examiners. Kearney noted that Whitehurst also would continue to manage the Explosive Analysis Database Program, at least temporarily.

Subsequently, in late-1994, MAU examiner SSA Richard Buechele, the Laboratory's primary paint and polymer examiner, announced his departure for a field assignment. Corby assigned Whitehurst to conduct examinations of

paints, polymers, plastics, cosmetics, adhesives and tapes in view of Buechele's departure.

## **2. Analysis**

The evidence does not support Whitehurst's claim that the FBI sought to punish him by moving the explosives residue program from the MAU to the CTU, by keeping Whitehurst in the MAU, or by reassigning Whitehurst to the paints and polymers program within the MAU.

Substantial evidence shows that SAS Chief James Kearney was responsible for the decision to move the explosives residue program while keeping Whitehurst in the MAU. Kearney told us that he personally made these decisions after consulting with MAU Unit Chief James Corby. Laboratory Director John Hicks, confirmed that Kearney made the decision to reassign Whitehurst. Our investigation also showed that MAU Chief Corby made the decision to assign Whitehurst to paints and polymers.

Because these decisions were based on different considerations, we analyze these decisions separately in the following sections.

### **a. Movement of the Explosives Residue Program**

The decision to move the explosives residue program to the CTU was unrelated to Whitehurst.

SAS management announced its plan to move the explosives residue program to the CTU in the November 1993 report, Mandated Personnel Reductions and Organizational Restructuring. According to that plan, one of the purposes of

this move was to assist in balancing the workload of the MAU and CTU following the merger of the EMAU into the MAU in early-1994. Our investigation shows that absent the movement of the explosives residue program to the CTU, the proposed merger would have resulted in a sizable difference in staffing between the MAU and CTU. Specifically, in fiscal year 1994, the MAU would have had a total of 24 special agent and support personnel and the CTU would have had a total of 14 special agent and support personnel. With the movement of the explosives residue program, staffing levels in the MAU and CTU were established at 20 and 18 persons, respectively.

Additionally, with the merger of the MAU and EMAU, the Unit Chief of the MAU gained a sizable increase in the areas of case responsibility:

<b>BEFORE MERGER</b>		
<b>CTU</b>	<b>MAU</b>	<b>EMAU</b>
Toxicology	Explosives Residue	Gunshot Residue
Arson	Paints	Bullet Lead Analysis
Inks and Dyes	Plastics	Shot Lead Analysis

General Chemical Analysis	Adhesives	Precious Metals
Pharmaceuticals	Cosmetics	Nuclear Matters
Petroleum Products	Soils	Metals
Product Tampering	Glass	Fractures
	Building Materials	Markings
	Safe Insulation	Scanning Electron Microscopy
	Gemstones	
	National Automotive Paint File	

**AFTER MERGER**

CTU	MAU
Toxicology	Explosives Residue (limited)
Arson	Paints
Inks and Dyes	Plastics
General Chemical Analysis	Adhesives
Pharmaceuticals	Cosmetics
Petroleum Products	Soils
Product Tampering	Glass
Explosives Residue	Building Materials
	Safe Insulation

	Gemstones
	National Automotive Paint File
	Gunshot Residue
	Bullet Lead Analysis
	Shot Lead Analysis
	Precious Metals
	Nuclear Matters
	Metals
	Fractures
	Markings
	Scanning Electron Microscopy



Given this disparity in the areas covered by the CTU and MAU, it was not unreasonable to attempt to balance the size and responsibilities of the units by moving explosives residue cases to the CTU.

Another stated purpose for moving the explosives residue program was to bring the entire explosive residue examination process under the supervision of a single Unit Chief . . . [to] provide for a more effective and efficient examination process and use of personnel. Before the move, the MAU and CTU shared responsibility for explosives residue analysis in an arrangement that had drawn criticism from Whitehurst and others. Since the 1980s, the CTU had analyzed unconsumed smokeless powders and performed GC/MS analysis of various substances for other units, including the MAU. Because the protocol followed by the CTU in analyzing smokeless powders was less comprehensive than the explosive residue protocol used in the MAU, Corby and Burmeister each observed that if the CTU alone analyzed smokeless powder cases, certain substances might not be identified. This concern supported the combination of these functions under a single Unit Chief.

Despite the efficiencies achieved by placing explosives residue analysis under one unit chief, both Corby and Burmeister told us that they opposed moving the program to the CTU because Unit Chief Roger Martz did not have the background to supervise the program. We have little doubt that MAU Unit Chief Corby was more qualified by experience to supervise the explosives residue program. However, Corby planned to retire in 1995, and as Burmeister acknowledged, the Laboratory needed to find another supervisor for the program. We also note that Burmeister told us in late-December 1995, that the movement of the explosives residue program to the CTU was working.

Given the foregoing, we cannot say that the decision to move the explosives residue program to the CTU suggested a retaliatory purpose. Additionally, Kearney maintained that he did not intend to retaliate against Whitehurst when he decided to move the explosives residue program to the CTU. Likewise,

Corby told us that after discussing the matter with Kearney, he did not think that Kearney decided to move the program to punish Whitehurst. The fact that the initial proposal to transfer the explosives residue program contemplated that Whitehurst would be transferred further undercuts the suggestion that the proposal was designed to punish Whitehurst.

**b. Removal of  
Whitehurst from the  
Explosives Residue  
Program**

Our investigation also shows that Kearney did not seek to punish Whitehurst by transferring him out of the explosives residue program.

Kearney told us that he made the decision to move Whitehurst because of extremely poor working relationship between Whitehurst and other personnel and units, especially the Explosives Unit. According to Kearney, these deteriorated relationships had rendered Whitehurst somewhat ineffective. Kearney further stated that he sought to eliminate friction that had developed between Whitehurst and his support personnel working with him, especially chemists Kelly Hargadon Mount and Mary Tungol. Kearney noted that he explained his reasons to Whitehurst on more than one occasion. Kearney told us that during these discussions Whitehurst agreed with Kearney's assessment that he had become somewhat ineffective and expressed relief to be out from under the pressure of these circumstances. According to Kearney, Whitehurst further agreed to let things cool off until he could re-build his credibility with the other Laboratory personnel.

Whitehurst confirmed that significant discord existed between him and others within the Laboratory. Whitehurst stated that a virtual war existed between himself and Explosives Unit examiners because he had stood up to these examiners. Whitehurst also confirmed that he and Kearney discussed his inability to deal with examiners in the Explosives Unit and co-workers Tungol and Mount. Whitehurst also wrote a series of memoranda to Kearney

documenting his difficulties with his co-workers in the MAU. Whitehurst acknowledged that at some point, Kearney determined that he had to settle this war down. Whitehurst acknowledged that he never told Kearney that he viewed his removal from the explosive residue program as retaliation. Rather, according to Whitehurst, he told Kearney that he hated to leave explosives, but was willing to go through that wall if ordered to do so. Furthermore, Whitehurst told us that he advised Kearney that he was relieved to be out from under the pressure of the situation.

Others within the Laboratory agreed that Kearney made the decision to remove Whitehurst from the program based on problems between Whitehurst and co-workers, and not to punish him for raising allegations. Corby told us that the conflict between Whitehurst and Explosives Unit personnel had progressed to the point where each side was reluctant even to speak to one another. Corby stated that Kearney sought to diffuse this conflict by removing Whitehurst. Corby stated that he did not believe that Kearney acted to punish Whitehurst. According to Corby, Whitehurst's relationship with Explosives Unit personnel was a problem area that a manager has to deal with and the best way to do that would be to take Fred, at least temporarily, off explosive cases but I disagree with Fred's statement that it was done for -- you know, just to demote him or to punish him. Corby only took issue with the abrupt manner in which Kearney acted. Corby also observed that transferring Whitehurst to the CTU was problematic because of personal and professional differences between Whitehurst and CTU Unit Chief Roger Martz.

Likewise, former Laboratory Director Hicks noted that Whitehurst had difficulty getting along with almost everyone and that one of the considerations for moving Whitehurst may have been his conflicts with the Explosives Unit. Hicks reported that the reassignment was not an attempt to silence Whitehurst.

To be sure, not all of Whitehurst's co-workers agreed with the decision to move Whitehurst out of the explosives residue program. Burmeister said that he saw no logic in the decision to move Whitehurst because Whitehurst was the foremost expert in explosives residue. He believed that the decision to move Whitehurst was some sort of punishment for raising issues about the Laboratory. Still, Burmeister acknowledged that he had no proof that FBI acted

to retaliate against Whitehurst. Indeed, Burmeister was not aware of who made the decision to move Whitehurst; nor was he aware of the official reason for the transfer of Whitehurst. Burmeister also acknowledged that the personality conflict between Whitehurst and Martz made it problematic for Whitehurst to transfer to Martz's unit.

In view of this record, we conclude that Kearney did not seek to punish Whitehurst by removing him from the explosives residue program. Kearney's decision to move Whitehurst was designed to address specific interpersonal difficulties between Whitehurst and individuals inside and outside of the explosives residue program. We also find that in reaching the decision to reassign Whitehurst, Kearney considered the fact that Whitehurst expressed a willingness to be reassigned and relief at the prospect of reassignment.

### **c. Assignment to Paints and Polymers Analysis**

Finally, we conclude that Whitehurst's transfer to the paints and polymers program was not in reprisal for making allegations about the Laboratory.

Corby told us that he personally made the decision to reassign Whitehurst to the paints and polymers program. Kearney confirmed that Corby made this decision without any discussion with Kearney. According to Corby, the Laboratory's primary paint and polymer examiner, SSA Richard Buechele, had announced his departure for a field assignment. Corby stated that because Whitehurst had the appropriate chemistry background for that position, Corby decided to assign Whitehurst to begin training in that program. Corby added that even before the explosives residue program moved to the CTU, Whitehurst had expressed interest in the paints and polymers and environmental programs. Corby also stated that Whitehurst did not suffer any demotion in terms of title or pay grade as a result of his movement within the MAU.

Corby told us that he did not intend to punish Whitehurst by assigning him to the paints and polymer program. Notably, Whitehurst also told us that he did not think that Corby acted with retaliatory intent. Under the circumstances, we find no evidence of any retaliatory motive on Corby's part.

For all these reasons, we conclude that the evidence does not support Whitehurst's claim that the FBI transferred him to the paints and polymers program to punish him for making allegations about the Laboratory.

### **G. Other Evidence of Retaliatory Intent**

In support of his claims of retaliation, Whitehurst reported the following anecdotal evidence of the FBI's retaliatory atmosphere:

Whitehurst claims that Section Chief James Kearney told him, Fred, you may be right about Rudolph, but if you pursue this matter you will destroy yourself, your career and your family. Is it worth it? Kearney told us that he did not make this statement exactly as Whitehurst presented it. Kearney stated that he did not recall his exact words, but did tell Whitehurst that it was not healthy to constantly dwell on the Rudolph matter. Kearney denied any intention to threaten Whitehurst, and stated that he was not attempting to deliver a message from FBI management. Kearney's statement, as recalled by either Whitehurst or Kearney, does not warrant the conclusion that Kearney harbored an intent to retaliate against Whitehurst.

Whitehurst also reports that Explosives Unit examiner Rick Hahn threatened him by stating, We'll replace you with a bright high school kid, in order to pressure Whitehurst to report certain results sought by Hahn. We have addressed this allegation in the section of this Report relating to the Norfolk case, where we concluded that we could not substantiate this allegation that Hahn threatened or tried to pressure Whitehurst. See Part Three, Section H2.

Whitehurst also charges that Explosives Unit Chief J. Thomas Thurman threatened him in early-1995. According to Whitehurst, Thurman told

Burmeister that if Whitehurst continued to raise issues about Martz in the VANPAC matter, Director Freeh was going to fire Whitehurst. Burmeister generally recalled this conversation with Thurman. However, Burmeister did not think that Thurman intended to communicate a threat from Director Freeh to Whitehurst. Director Freeh also denied making such a statement. We think that Thurman was expressing his own personal opinion and was not communicating a threat by Thurman or FBI management.

Whitehurst charges that someone chastised James Mudd, Quality Assurance Chief at the Forensic Science Research Center, for telling attorneys with the FBI OGC that the FBI Laboratory was not ready for accreditation. Mudd told us that he expressed this opinion to FBI OGC attorneys, Stephen Robinson and John Sylvester. Mudd denied that anyone from the OGC or FBI management later retaliated against him for expressing this opinion. Mudd recalled that Barry Mones, chairman of the Laboratory accreditation committee, learned of his conversation with the OGC attorneys and telephoned Mudd to express disagreement. However, Mudd did not consider Mones' telephone call to be retaliatory.

Whitehurst also claims that MAU examiner Christopher Fiedler said he was reluctant to criticize the Laboratory management because he and his friends had families to feed. Fiedler told us that he does not recall saying this to Whitehurst. Fiedler added that he has not refrained from making allegations because he thought his career might be jeopardized. Fiedler recalled that during one conversation with Whitehurst, Whitehurst expressed concern that he was the only person coming forward with allegations about the FBI. According to Fiedler, he may have responded that perhaps others are afraid to raise issues because they have families to feed, or they are close to retirement, among other reasons. Fiedler stated that he was only trying to provide Whitehurst with general reasons why someone might not raise issues. Fiedler stated that he has no personal knowledge of anyone who has failed to raise issues because they feared retaliation.

Whitehurst further claims that Vickie Casso, a co-worker of Cheryl Whitehurst, stated that she was proud of the Whitehursts, but feared coming forward herself because she might lose her home and job. Casso told us that she generally recalled the conversation with Cheryl Whitehurst. Casso stated that she never told Cheryl Whitehurst that she had any allegations to raise but feared coming

forward with them. Casso said that she may have told Cheryl Whitehurst that if she were in the Whitehurst's position, she would be reluctant to pursue their allegations because of the expense involved and thus the possibility of losing personal possessions such as her home. Casso observed that it requires lawyers and money to pursue such allegations. Casso added that she had raised issues to management in the past and does not feel that she experienced retaliation for any reason.

According to Whitehurst, Fran Henning of the Serology Unit knew that agents were padding their work hours, but refused to come forward because, according to Whitehurst, she would just lose. Henning, who has since retired, told us that she was the secretary to the SAS Chief between 1959 and 1970. She reported to us that during that time, she suspected that agents were padding their hours, but did not report this activity because it was only her impression. She denied that she had been afraid to report the allegations because of possible retaliation.

Finally, Whitehurst contends that the FBI Laboratory management transferred DNA examiner Greg Parsons to a research position because he refused to testify based on a flawed DNA protocol. Parsons told us that prior to December 1990, he disagreed with most of his colleagues in the DNA Unit regarding the interpretation of unevenly migrated DNA in autoradiographs, an effect known as band shifting. When he could not resolve his concerns, he asked to be transferred to the MAU, but Laboratory Director Hicks insisted that he continue to work in the DNA Unit. Parsons told us that although he never discussed this matter with Hicks, he thought Hicks was being vindictive and just wanted to get his way by keeping Parsons in the DNA Unit. Parsons stated that he did not think that the decision not to transfer him was related to his concerns about the DNA protocol. Parsons told us that he later transferred to the FSRU to work on the next generation of DNA analysis. Parsons said that he did not consider the transfer to be punishment and was relatively happy about the transfer.

In sum, the anecdotal evidence cited by Whitehurst did not support his assertion that there was an atmosphere of retaliation at the FBI Laboratory.

### **III. Conclusion**

In sum, we find no factual basis to believe that Whitehurst suffered retaliation for raising concerns about the Laboratory. With respect to most of Whitehurst's claims, the circumstances supported the decisions by the FBI management, and we could discern no retaliatory purpose behind those decisions. Certainly, Whitehurst disagreed with many of these decisions, but the fact that Whitehurst endorsed a different approach than adopted by FBI management does not in and of itself support a conclusion that management acted with wrongful purpose.

We were not able to reach a final conclusion concerning Whitehurst's claim that the FBI sought to punish him by forcing him to undergo psychiatric evaluation. Despite our requests, Whitehurst failed to provide a medical release so that we could interview key personnel in the Health Care Program Unit and Employee Assistance Program. Without their statements, we were not in a position to reach a definite conclusion concerning this claim.

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## **PART FIVE: FINDINGS AND RECOMMENDATIONS CONCERNING INDIVIDUALS**

This part summarizes the OIG's findings and recommendations with respect to various individuals, including Whitehurst and those he has accused of misconduct or other impropriety. Our recommendations reflect the analysis and conclusions presented earlier in this Report, and the different parts of the report should be read together. Moreover, our recommendations are based solely upon facts found in this investigation. Any disciplinary action or other personnel decisions resulting from these recommendations may properly take into account other factors relating to the person's employment history and record. We further understand that the Brady review team within the Criminal Division of the United States Department of Justice will review these findings and recommendations to determine what disclosure should be made in particular cases.

Section I of this part addresses persons who have been the subject of Whitehurst's most serious allegations, including that certain examiners have fabricated evidence, perjured themselves, or otherwise engaged in misconduct. In this section, we also discuss other individuals whose conduct we think merits critical comment. Section II addresses the conduct of particular Laboratory managers. The third section of this part discusses, in alphabetical order, other persons who were named in allegations by Whitehurst. Section IV briefly summarizes our findings concerning allegations made by Whitehurst that individuals in the FBI Office of Professional Responsibility (FBI OPR) or the FBI Office of General Counsel (OGC) either failed properly to investigate certain allegations made by Whitehurst or have engaged in retaliation against him. Section V concludes this part with our findings and recommendations regarding Whitehurst.

Before turning to our discussion of particular individuals, we comment briefly on an allegation that persons other than Whitehurst raised during our investigation concerning alcohol consumption by examiners in the Explosives Unit. We questioned several witnesses about this matter. Some persons recalled

that alcoholic beverages had been available during holiday office parties within the EU, but this practice ceased as result of directives imposed after Mr. Freeh became the FBI Director. Others recalled that examiners had consumed alcoholic beverages with meals or after hours. We did not identify any particular instance where an EU examiner was drinking while on duty or an examiner's work performance was impaired because of consumption of alcohol.

## **I. Individuals Central to Whitehurst's Allegations or Whose Conduct is Criticized in this Report**

This section begins with a discussion of Terry Rudolph, followed by our findings concerning CTU Chief Roger Martz, EU Chief J. Thomas Thurman, and EU examiner David Williams. The remainder of this section discusses other individuals in alphabetical order.

### **A. Terry Rudolph**

Terry Rudolph worked as an explosives residue examiner in the Laboratory from 1979 until 1988, when he began teaching at the FBI Academy in Quantico, Virginia.

As we explained in Part Three, Sections A and H9, we conclude that Terry Rudolph failed to conduct appropriate scientific analyses or to adequately document his work in the Psinakis case, in the UNABOM investigation, and in a substantial number of other cases in which he performed examinations while working in the Laboratory. The fact that unit chiefs approved conclusions reached by Rudolph or gave him favorable performance reviews does not excuse the shortcomings we noted in our investigation; instead, it suggests that the Laboratory failed appropriately to supervise Rudolph. The Laboratory did not adequately discipline him in 1992 when he was orally admonished for the condition of his files. Rudolph should then have been more severely

disciplined. A notation concerning this Report's findings should be placed in each case file in which Rudolph was the principal or auxiliary examiner.

In light of Rudolph's performance and his views about how analyses should be performed and case work documented, we conclude that Rudolph should not be teaching others about forensic science. If Rudolph were still in the Laboratory Division, we would recommend his removal from that Division. Rudolph has retired from the FBI, but we understand he later did some work at Quantico on a contractual basis. We recommend that the FBI not employ Rudolph in any capacity in the future.

### **B. Roger Martz**

Roger Martz became an examiner in the CTU in 1980 and has been the chief of the CTU since July 1989. Based on our investigation, we criticize certain of Martz's actions both as a supervisor and as an examiner in particular cases.

In 1989, Martz as the CTU Chief reported the results of his review of 95 of Rudolph's cases in a manner that misleadingly suggested that Martz had reviewed the technical sufficiency of Rudolph's work and found it adequate and that he also approved Rudolph's work in Psinakis. As noted in Part Three, Section A, Martz conducted his review after former MAU Chief Jerry Butler had found numerous administrative shortcomings in a preliminary review and had recommended an in-depth review because of the serious impact these weaknesses could have on the administration of justice.

Martz reviewed 95 of Rudolph's cases and described his findings in a memorandum which referred to Butler's earlier review. In the memorandum, Martz characterized his review as a technical review, stated that the analyses were sufficient and that no technical errors had been found in the final reports, and noted that while other techniques could have been employed, it is believed that no changes would be made in the reporting of the reviewed cases. Martz

recommended that no further technical reviews be performed of Rudolph's work.

The language in Martz's memorandum was misleading. Martz stated in the memorandum that the analyses were sufficient, yet he admitted to the OIG in this investigation that he had not reviewed whether Rudolph's work was analytically sufficient to support the stated conclusions. Indeed, Martz acknowledged to us that in some case files there was little or no documentation to review. Given the limited review that Martz conducted and the fact that Butler had already identified the need for an in-depth review, Martz could not properly conclude and should not have recommended that no further review be conducted.

Problems with the adequacy of his review are partly attributable to the fact that SAS Chief Kenneth Nimmich did not give Martz written instructions concerning the objective or methodology of the review. Nonetheless, whatever instructions he received, Martz worded his memorandum in a misleading way that obscured serious deficiencies in Rudolph's work. Nimmich erroneously relied on Martz's memorandum in concluding in 1989 that a further review of Rudolph's work was unnecessary. Martz's misleading wording thus contributed to the Laboratory's failure to adequately review and resolve the allegations about Rudolph. As a supervisor, Martz should have recognized the seriousness of the concerns noted in Butler's memorandum and the need for them to be adequately addressed.

In the Trepal case, discussed in Part Three, Section H13, we found that Martz overstated the significance of his analytical results by testifying he had concluded thallium nitrate had been added to three samples of Coca-Cola identified as Q1, Q2, and Q3. Given the tests that Martz actually performed, he could have properly stated in his dictation and testimony that two samples of Coca-Cola, identified as Q1 and Q2, were consistent with thallium nitrate having been added to them. Alternatively, he correctly could have observed that Q1 and Q2 had elevated levels of thallium and nitrate ions as compared to unadulterated Coca-Cola. He did not limit his testimony this way.

Martz's work in the Trepal case was deficient in several respects: (1) his dictation stated that the nitrate ion was identified in samples Q1 through Q3 and those samples were consistent with thallium nitrate having been added to them; this was incorrect insofar as he had not performed tests necessary to reach these conclusions with regard to Q3; (2) Martz did not acknowledge certain data obtained from the tests he performed; (3) he failed to perform additional tests that were appropriate under the circumstances; (4) in testifying, Martz improperly offered a stronger opinion about the identification of thallium nitrate than he had expressed in the dictation reviewed by his supervisor and included in the Laboratory report; (5) Martz did not adequately document his work, his cases notes were incomplete, undated and inaccurate, and the charts were not accurately or clearly labeled; (6) he lacked a sufficient analytical basis to opine that a bottle containing thallium nitrate found in Trepal's garage, identified as Q206, contained no other drug residues ; (7) he also gave an unsupported opinion about the purity of the thallium nitrate in Q206; and (8) Martz in his deposition and trial testimony made various inaccurate, incomplete, or unsupported statements.

In the World Trade case, as discussed in Part Three, Section C, Martz as the chief of the CTU approved Lynn Lasswell's conclusion that mass spectrometry (MS) had identified urea nitrate on certain evidence, when the results in fact merely established the presence of urea and nitrate ions. Martz was reluctant to acknowledge the limitations of the MS data. Initially in his OIG interview, Martz persisted in asserting that the results identified urea nitrate. After being further challenged by the OIG investigative team and reflecting overnight, Martz acknowledged that the MS analysis could not, by itself, identify the substance.

In reporting conclusions of his 1989 review of Rudolph's cases, in his defense of Lasswell's interpretation of the MS results in the World Trade case, and in his work in Trepal, Martz appeared to have a lower threshold of scientific proof than is generally accepted in forensic science and to lack appropriate scientific rigor in his approach to examinations. A forensic scientist, especially one in a supervisory position, should be conservative in forming conclusions and willing to consider possible limitations in the analyses. Martz instead has sometimes formed conclusions without acknowledging legitimate questions about their validity.

Both as an examiner and as a unit chief, Martz appears not to have recognized the importance of protocols in forensic examinations. After the explosives residue program was transferred to the CTU from the MAU in 1994, Martz as CTU chief failed to integrate the protocols that had been previously used by the two units. This meant, as was illustrated in the Shaw case, discussed in Part Three, Section H7, that the analysis of certain evidence could vary depending on the examiner assigned to the case. As noted in Part Three, Section G, in the Oklahoma City case, Martz did not follow the FBI's explosives residue protocol when he failed to examine certain evidence microscopically. Martz told the OIG that a protocol is a guideline and that examiners should have discretion in determining the procedures to apply in a particular case. Based on his conduct and remarks, Martz does not seem to appreciate the importance of following authorized protocols or the need to document the reasons for departing from them.

We find that Martz did not perjure himself or improperly circumvent or violate Laboratory protocols in the VANPAC case, as was alleged by Whitehurst. As noted in Part Three, Section B, Martz should have testified more clearly in that case about his inability to determine if smokeless powder samples came from the same batch. Martz was asked if he had compared smokeless powder from the mail bombs to powder from a gun shop where the defendant allegedly had bought powder before the bombings. Martz ambiguously stated that he had not been able to successfully compare the powders, and only when questioned further on cross-examination did he say that he could not determine from his comparisons if the powders came from the same batch. Martz should have stated clearly that he had compared certain samples, had found differences and similarities, but could not determine from the data if the powders came from the same batch.

As discussed in Part Three, Section F, we also conclude that Martz did not perjure himself, give misleading testimony, or improperly erase digital data in the Simpson case. Martz undermined his credibility by his poor choice of words in stating that he had decided to be more truthful in his testimony and by agreeing with defense counsel that he had destroyed certain data. By his lack of adequate preparation, his deficient record-keeping and note-taking practices,

and certain aspects of his demeanor at trial, Martz did not serve the Laboratory well in that case.

Based on our investigation, we conclude that Roger Martz lacks the credibility and judgment that are essential for a unit chief, particularly one who should be substantively evaluating a range of forensic disciplines. We found Martz lacking in credibility because, in matters we have discussed above, he failed to perform adequate analyses to support his conclusions and he did not accurately or persuasively describe his work. We recommend that Martz not hold a supervisory position. The Laboratory should evaluate whether he should continue to serve as an examiner or whether he would better serve the FBI in a position outside the Laboratory. If Martz continues to work as an examiner, we suggest that he be supervised by a scientist qualified to review his work substantively and that he be counseled on the importance of testifying directly, clearly and objectively, on the role of protocols in the Laboratory's forensic work, and on the need for adequate case documentation. Finally, we recommend that another qualified examiner review any analytical work by Martz that is to be used as a basis for future testimony.

### **C.J. Thomas Thurman**

J. Thomas Thurman has worked as an examiner in the Explosives Unit (EU) since 1982, and he became chief of that unit in December 1994.

Whitehurst has alleged that Thurman improperly altered dictation that Whitehurst prepared as an auxiliary examiner. Contrary to the unwritten policy in the Laboratory, Thurman from 1987 through 1992 prepared several reports that failed to incorporate verbatim the dictation Whitehurst prepared as an auxiliary examiner. As described in Part Three, Section H10, Thurman's reports contained certain inaccuracies or ambiguities as a result of the changes he made to the dictation. We also concluded that he should have revised his report in the case concerning an attempted bombing at the William Wirt Middle School after examiner Steven Burmeister questioned certain conclusions.

We do not conclude that Thurman intended to write his reports with a prosecutorial bias, although the effect of his overstating AE conclusions in certain reports was favorable to the prosecution, or that he engaged in willful misconduct in this respect. We also acknowledge that J. Christopher Ronay, the unit chief for the EU from 1987 through October 1994, approved reports by Thurman and other EU examiners that did not incorporate auxiliary examiner dictation verbatim. Thurman should, however, have recognized the potential problems posed by his actions and should have at least obtained the auxiliary examiner's approval before modifying language in the dictation.

After Thurman became unit chief of the EU in 1994, he incorrectly approved certain conclusions that examiner David Williams included in a report in the Oklahoma City case. Specifically, Thurman should not have approved Williams' conclusions that the VOD of the explosive used was 13,000 feet per second; that the explosion was caused by approximately 4,000 pounds of ANFO; that the initiator for the booster was either a detonator from a Primadet Delay system or sensitized detonating cord; that the initiator was a non-electric detonator; and that the time delay was 2 minutes, 15 seconds. For reasons set forth in Part Three, Section G, these conclusions were more specific or definite than could be validly supported. Thurman also should have directed Williams to rewrite the internally inconsistent statement that [t]races of PETN were located on specimen Q18, however could not be confirmed. Based on Thurman's OIG interview, we find that he did not sufficiently review the substantive validity of the conclusions stated in the report, but instead inappropriately deferred to Williams.

Thurman, as EU Chief, should have taken further steps to address concerns voiced by FBI metallurgist William Tobin that EU examiners were incorrectly describing metal wire in their reports. As noted in Part Three, Section H12, Tobin contends that EU examiners have not followed the industry standard for reporting gauge based on the total cross-sectional area of a multi-strand wire, and instead have reported the gauge of individual strands. Tobin has noted that if the gauge is described this way in reports it may be misunderstood. In light of Tobin's concerns, Thurman should have issued an appropriate directive to EU examiners so they understood the industry practice and reported their findings in a clearly understandable manner.



We conclude that Thurman did not perjure himself, fabricate evidence, improperly testify outside his expertise, or improperly circumvent FBI Laboratory procedures in the VANPAC case as was alleged by Whitehurst. We did find that Thurman inaccurately testified on two minor points: while he correctly stated that there had been no DNA match to the defendant, Thurman erred in saying that DNA analysis is based on an enzyme in saliva; and he incorrectly distinguished high and low explosives by referring to the speed of the explosive shock wave.

Whitehurst also alleged that in the Kikumura case, discussed in Part Three, Section H1, Thurman testified falsely, misled the jury, gave biased or speculative testimony, and violated FBI policies or procedures. We do not find that Thurman testified falsely in this case, which involved a sentencing hearing rather than a jury trial. Nor do we find that his testimony was improperly biased or speculative. Thurman did testify inaccurately or ambiguously on four points: the type of fireball that would result from the bombs; the common use of mercury fulminate in blasting caps; the direction in which the bombs would have released their lead shot contents; and the distinction between high and low explosives. The inaccuracies or ambiguities in Thurman's testimony that we noted in the VANPAC and Kikumura cases represent performance issues of the sort that are best addressed through an effective program of testimony monitoring.

In evaluating Thurman's conduct as a manager, we recognize that he did not become the unit chief of the EU until December 1994. We also note that he apparently has supported the development of protocols, training programs, and other quality assurance measures for the EU. In his interview with the OIG, Thurman seemed sincere in stating his desire to improve his unit and to learn from the experience of other forensic laboratories in the explosives field.

Given our recommendation that the EU be restructured so that its unit chief and examiners have scientific backgrounds, we conclude that when the restructuring is accomplished, Thurman should be reassigned to a component of the FBI outside the Laboratory. In the interim, the Laboratory should assess,

given the findings in this Report, whether Thurman should continue to occupy a supervisory position. While Thurman remains unit chief, the SAS Chief should monitor his work, and Thurman should be counseled to substantively review all reports issued by the EU and to enlist the assistance of other qualified examiners if necessary to assure that the conclusions stated by EU examiners have a reasonable scientific basis. Consistent with our general recommendations concerning peer review and report preparation as discussed in Part Six, any reports that Thurman prepares himself should be reviewed by another qualified examiner.

### **D. David Williams**

David Williams has worked as an examiner in the EU since 1987.

In Part Three, Section C, of this Report, we discuss at length the testimony by Williams in the Salemeh trial related to the World Trade Center bombing. As noted in that section, we conclude that Williams in testifying failed to display the objectivity, competence, and credibility that should be expected of examiners from the FBI Laboratory. Most egregiously, Williams gave a scientifically unsupportable opinion, based on speculation beyond his scientific expertise, in stating that the main charge was urea nitrate. That opinion was improperly based on information linking the defendants to urea nitrate that was not related to any scientific analyses of the bomb scene.

In the Salemeh trial, Williams also testified inaccurately about his role in the Laboratory's manufacturing of urea nitrate and about the use of Arabic formulas associated with the defendants to manufacture the sample; he testified outside his expertise about the defendants' capacity to make urea nitrate and did so in a way that appears intended to reach the most incriminating result; he gave incomplete testimony about the VOD of urea nitrate; he gave a scientifically unsupportable opinion about the VOD of the main charge in the bombing; and he gave misleading testimony about his attempt to modify dictation authored by Whitehurst.

We also found significant problems with a report Williams prepared in the Oklahoma City bombing case. As explained in Part Three, Section G, we conclude that in his report, Williams repeatedly reached conclusions that incriminated the defendants without a scientific basis and that were not explained in the body of the report. Williams here opined that a particular explosive -- ANFO -- was the main charge by again improperly speculating from information that linked the defendants to that explosive but that was not relevant to his scientific analysis of the evidence. We criticized other conclusions that Williams reached. He concluded that the VOD of the explosive used was 13,000 feet per second; that the explosion was caused by approximately 4,000 pounds of ANFO; that the initiator for the booster was either a detonator from a Primadet Delay system or sensitized detonating cord; that the initiator was a non-electric detonator; and that the time delay was 2 minutes, 15 seconds. These conclusions were more specific or definite than could be reasonably supported by his examination of the evidence.

We also found that Williams erred in the Oklahoma City case by failing to incorporate AE dictation verbatim into a report and instead including an internally inconsistent statement. With regard to sample Q18, Steven Burmeister prepared dictation noting that instrumental analysis was consistent with the presence of . . . PETN and that [t]he presence of PETN . . . could not be confirmed. Williams paraphrased Burmeister's dictation by noting, [t]races of PETN were located on specimen Q18, however could not be confirmed. Williams claims that Burmeister approved this language. In any event, Williams should have recognized the internal inconsistency in the sentence and should not have included it in his report.

With regard to the Ghost Shadow case described in Part Three, Section H8, Whitehurst alleged that Williams improperly presented an expert opinion concerning the main charge of an improvised explosive device. Whitehurst further alleged that Williams gave opinions for which he lacked qualifications or analytical support and that he fabricated evidence. The facts do not support these allegations. Williams completed a Laboratory report on June 14, 1995, that described the results of certain examinations and noted that additional examinations were continuing. A second report dated July 18, 1995, accurately incorporated dictation by examiner Steven Burmeister describing the results of

the additional tests. With regard to the June 14, 1995, report, we conclude that Williams did not fabricate evidence or state opinions for which he lacked qualifications or support.

Based on our investigation, we conclude that Williams lacks the objectivity, judgment, and scientific understanding that should be possessed by a Laboratory examiner. We recommend that the FBI reassign him to a position outside of the Laboratory Division. To the extent Williams is called upon to testify in the future concerning reports or other work he did as an examiner, we recommend that a qualified examiner review his proposed testimony and any related reports in advance of trial. We further recommend that a qualified examiner review any testimony after it is given to assure that Agent Williams has limited his testimony to reasonably supportable conclusions.

### **E. Richard Hahn**

Richard Hahn was an examiner in the EU from 1987 until early 1992, when he transferred to the FBI's office in Long Beach, California.

As discussed in Part Three, Section E, we conclude that in the Avianca trials Hahn did not commit perjury, fabricate evidence, or intend to mislead the court. We also conclude that he erroneously testified in the first trial that no dynamite could have caused the pitting and cratering on the aircraft, gave scientific opinions correlating the pitting and cratering with a VOD range that were unsound and not justified by his experience, erroneously failed to make inquiries about the validity of his jetting theory before the second trial, gave incomplete testimony concerning the MAU results, testified incorrectly and outside his expertise concerning a fuel-air explosion, the injuries to passengers, and other areas, and slightly overstated his experience.

Hahn is no longer working in the Laboratory. If in the future he is asked to testify about his work as an examiner, we recommend that he be specifically

counseled about the importance of not testifying on matters outside of his expertise. Such testimony should also be reviewed subsequently by appropriately qualified examiners in the Laboratory to assure that he has appropriately limited his testimony.

## **F. Robert Heckman**

Robert Heckman has worked as an examiner in the EU since 1990.

As described in Part Three, Section H6, we found that in the Conlon case Robert Heckman made improper additions to Whitehurst's dictation by adding statements outside of his expertise to the section of the report designated Instrumental Analysis. Heckman stated his personal opinion that the results of a field test of explosives residue with an ion mobility spectrometer (IMS) may well have been correct, despite the lack of confirmatory results when the evidence was later examined in the Laboratory. Furthermore, Heckman erred by including in the Instrumental Analysis section of the Laboratory report statements that reflected his own opinion, rather than any work performed by Whitehurst as the auxiliary examiner. While Heckman erred by adding these statements to the Instrumental Analysis section of the report, we also recognized that former EU Chief J. Christopher Ronay shared some responsibility because he approved the report.

We also noted that Heckman stated his conclusion in a way that might be misinterpreted. Because the contributing agency had asked if the explosive could have been of military origin, Heckman concluded in the report that the explosion was caused by a very brisant high explosive consistent with those used by the military. Although this statement was not inaccurate, Heckman later acknowledged in a deposition and our interview that the explosive could have been of commercial origin. We suggested that to avoid any possible misunderstanding, Heckman could have either limited his conclusion to a finding of a very brisant high explosive, or, alternatively, noted that the explosive could have been of military or commercial origin.

As explained in Part Three, Section H4, we do not find evidence supporting Whitehurst's allegations that Heckman improperly testified outside his expertise in the Borsellino case or that Heckman's testimony was unreliable because he did not consider potential contamination of the evidence. Given the particular circumstances of that case, including the Italian prosecutor's request that Heckman testify as the representative of the Laboratory, Heckman was permitted to report Whitehurst's findings while testifying at the trial before the Italian magistrate. In the Borsellino case, Heckman did erroneously state that Whitehurst had confirmed the presence of RDX, when in fact Whitehurst had found residues consistent with RDX. This case illustrates that if examiners describe analyses or conclusions made by other examiners, they must do so accurately.

We do not think that Heckman engaged in willful misconduct in either the Conlon or Borsellino cases. Conlon presents, in our judgment, a performance issue that is best addressed through supervisory counseling and monitoring of future report preparation. Similarly, the minor inaccuracy in Heckman's Borsellino testimony is the sort of thing that can be addressed by adequate monitoring of testimony.

### **G.Wallace Higgins**

Wallace Higgins has worked as an examiner in the EU since 1989.

Whitehurst alleged that Higgins may have changed dictations that Whitehurst prepared as an auxiliary examiner without Whitehurst's permission. As described in Part Three, Section H11, we found that between 1991 and 1994, Higgins prepared several reports that failed to incorporate verbatim the dictations prepared by Whitehurst. In these laboratory reports, Higgins misreported the number of specimens that Whitehurst had examined, omitted important qualifying language from the dictations, eliminated Whitehurst's

forensic opinion altogether, changed Whitehurst's findings, or identified the presence or absence of chemical compounds not identified by Whitehurst.

We had difficulty determining why Higgins made particular alterations. Higgins was not helpful in this regard, because he generally maintained that he did not recall the circumstances surrounding these changes. Furthermore, Higgins insisted that he would not have changed the dictations without authorization from Whitehurst. Higgins did indicate in some cases that he thought that Whitehurst's dictations were speculative, repetitious, or strayed into the EU's area of responsibility. Ronay also stated that a major issue in the EU at this time was Whitehurst's tendency to express opinions concerning possible alternative explanations for the presence of explosive residues. Ronay believed that such opinions were outside of Whitehurst's area of expertise, and accordingly Ronay did not consider the removal of such opinions to be a substantive change. Ronay indicated that there may have been a time when he authorized EU examiners to make non-substantive changes to Whitehurst's reports without Whitehurst's authorization.

Given the foregoing, the evidence did not support the conclusion that Higgins intentionally altered Whitehurst's reports to bias the dictations in favor of the prosecution. Higgins, however, should have recognized the potential problems posed by unauthorized changes to Whitehurst's dictations and obtained Whitehurst's express approval before making such alterations. Ronay also bears responsibility for the unauthorized changes to Whitehurst's dictations because he approved Higgins' reports and fostered a permissive attitude toward changes to Whitehurst's dictations.

In view of our recommendation that the EU be restructured so that its unit chief and examiners have scientific backgrounds, we conclude that Higgins should be reassigned to a component of the FBI outside the Laboratory. In the interim, while Higgins remains in the EU, the SAS Chief should counsel Higgins on the proper preparation of reports and monitor his work. A qualified explosives examiner also should review any reports prepared by Higgins.

## **H.Alan R. Jordan**

Alan R. Jordan was the EU examiner involved in the investigation of the attempted assassination of former President George Bush in Kuwait in April 1993. Whitehurst suggested that someone may have misinterpreted his analytical results to link the explosives involved in the attempted assassination to other explosives found in devices known to be associated with Iraq. As explained in Part Three, Section D of this Report, we did not find that Jordan or any one else misstated Whitehurst's results comparing the explosives in the Bush device and explosives linked to Iraq that were found in Southeast Asia.

Jordan prepared a report dated June 18, 1993, that incorporated dictation by Whitehurst but did not restate it verbatim. This dictation did not concern the Southeast Asia explosives, and Whitehurst never prepared dictation describing his work on that material. Jordan should have included Whitehurst's dictation verbatim. His changes do not, in our opinion, evidence any effort to misstate Whitehurst's conclusions. Moreover, J. Christopher Ronay as his unit chief allowed Jordan and other EU examiners to prepare reports that did not include Whitehurst's dictation verbatim.

We do not find that Jordan improperly misstated results reached by Whitehurst or otherwise engaged in misconduct in his work on the investigation of the Bush assassination attempt.

Whitehurst also alleged that Jordan may have misstated Whitehurst's findings in the Seijas case which concerned the attempted assassination of Miami attorney Gino Negretti. As noted in Part Three, Section H5, we conclude that Jordan did not misstate Whitehurst's results in this case.

We do not find any misconduct by Jordan with respect to those matters we investigated and we do not recommend any action concerning him.



## **I. Michael Malone**

Michael Malone worked as an examiner in the Hairs and Fibers Unit from 1974 until 1994, when he transferred out of the Laboratory. As described in Part Three, Section H12, Malone in 1985 examined a purse that then United States District Judge Alcee Hastings had introduced as an exhibit in his 1983 trial related to an alleged bribery scheme. At his trial, Hastings had testified that he had sought to have the purse repaired because its strap was broken. The purse was later sent to the FBI Laboratory for examination in 1985, when a judicial committee for the Judicial Council of the Eleventh Circuit Court of Appeals was investigating allegations of misconduct by Hastings in connection with the alleged bribery and other matters.

Malone examined the strap microscopically and found indications that it had been deliberately cut. He also asked FBI metallurgist William Tobin to test the strap with a tensile tester, a device that measures the force required to break an object. Tobin did so and found that the strap broke at 29.5 pounds of force. As part of the judicial committee's investigation, Malone testified before the committee in October 1985 and again in April 1996.

Malone's 1985 testimony was incorrect and misleading in several respects. First, Malone falsely stated that he had actually conducted the test himself. He also opined, inaccurately, that the machine at 29.5 pounds would be pulling much harder than Malone could pull himself. He further testified inaccurately in stating that metal displays a sudden or instantaneous break, which Malone distinguished from the break he observed in the purse strap. Finally, Malone said that the 29.5 pounds figure was almost a meaningless figure other than it's a lot more than an average person could exert. This statement is inaccurate both in diminishing the significance of the tensile test results and asserting that the identified force was a lot more than an average person could exert. These various misstatements, as Tobin himself acknowledged, did not affect the conclusion that the strap had been partially cut.

We also conclude that Malone was incorrect in telling the OIG as part of this investigation that he in 1985 had told John Doar, the chief counsel for the judicial committee, that Tobin had conducted the test. For reasons set forth in Part Three, Section H12, we find that Doar did not know that Malone had not performed the tensile test. Recognizing that we are reviewing events that occurred more than ten years ago, and given the record before us, we cannot conclude that Malone engaged in intentional misconduct by failing in 1985 to tell Doar that Tobin had performed the test or by inaccurately describing to the OIG his conversations with Doar before Malone testified.

Malone falsely testified before the judicial committee that he had himself performed the tensile test and he also testified outside his expertise and inaccurately concerning the test results. The FBI should assess what disciplinary action is now appropriate and should monitor his testimony in future cases to assure that Malone is accurate and testifies to matters within his knowledge and competence.

### **J.J. Christopher Ronay**

J. Christopher Ronay was the unit chief of the EU from 1987 through October 1994.

As chief of the EU, Ronay did not sufficiently review reports prepared by examiners in his unit. Ronay told the OIG that he read the EU reports to check their format, but he did not reexamine the evidence with regard to conclusions reached by EU examiners and he did not always review the work notes, test results, or the original dictation by other examiners. A specific example is provided by the Conlon case, in which Ronay acknowledged to the OIG that he would have questioned certain statements made by examiner Robert Heckman if he had read the report more carefully. Former SAS Chief James Kearney told the OIG that he had directed Ronay to review EU reports technically as well as administratively but that Ronay had responded that he did not want to second guess his examiners. In his review of EU reports, Ronay did not recognize the importance of assuring that each examiner's conclusions are reviewed by

another qualified examiner to assure that the conclusions stated are scientifically reasonable and supported by the data.

Ronay also erred by allowing EU examiners to revise auxiliary examiner dictation when incorporating it into Laboratory reports. Ronay claimed that he did this only where the changes did not, in his opinion, affect the substantive results and he said he did not recall approving revisions to the dictation of any examiner other than Whitehurst. By allowing the EU examiners unilaterally to revise auxiliary examiner dictation, Ronay departed from the Laboratory's unwritten rule that dictation would be incorporated verbatim unless the examiner who provided the dictation approved changes. Ronay's actions have created a serious problem for the Laboratory with those reports containing language significantly different from that of the underlying dictation. The examiner responsible for the dictation may not be able to support the language used in the report, and the EU examiner may not be able to either since that person did not perform the examinations or reach the conclusions described in the dictation.

As discussed in Part Three, Section D, Whitehurst alleges that Ronay or someone else may have misstated the results of Whitehurst's comparison of explosives used in the 1993 assassination attempt of former President George Bush and other explosives that had been found in Southeast Asia and linked to Iraq. Whitehurst alleges that he told Ronay that the Bush explosive material was different from the Southeast Asia explosives. Whitehurst did not prepare any dictation regarding this comparison. We do not find evidence to support Whitehurst's claims that Ronay or someone else misstated the results of Whitehurst's comparison in order to link the Bush explosive device to known Iraqi devices.

Ronay exhibited poor judgment as a manager when he approved EU reports that did not incorporate auxiliary examiner dictation verbatim and, at least in some instances, failed substantively to review the reports. Ronay should have recognized that these actions had potentially detrimental effects and that the alterations in auxiliary examiner dictation were contrary to unwritten, but generally understood, practices in the Laboratory. Ronay retired from the FBI in 1994, and we do not recommend any action by the FBI concerning him.

## **K. Robert Webb**

Robert Webb worked as an examiner in the Materials Analysis Unit from 1976 through 1991, when he transferred out of the Laboratory. As is discussed in Part Three, Section B, we conclude that, in the VANPAC case, Webb stated conclusions about the common origin of certain tape, paint, sealant, and glue more strongly than was justified by the results of his examinations and the background data. We find that Webb did not attempt to fabricate evidence or to present biased conclusions. As part of this investigation, we did not undertake a general review of Webb's work in cases other than VANPAC. We recommend that another qualified examiner review any analytical work by Webb that is to be used as a basis for future testimony.

## **II. Laboratory Management**

In this section we discuss several persons in managerial positions within the Laboratory whose conduct either was the subject of allegations by Whitehurst or otherwise merits comment.

Before addressing specific individuals, we think some general observations are appropriate. As the Rudolph matter powerfully demonstrates, we found that Laboratory management failed to assure that questions about the quality of the Laboratory's work were adequately investigated and appropriately resolved. Evidently, the Laboratory failed even to review Rudolph's testimony in Psinakis despite the detailed, and serious, criticisms made by the AUSA handling the case. Second, as illustrated by such matters as Avianca and World Trade, we found that management failed to assure that disagreements among examiners were resolved on a scientific basis and that any resolution was clearly communicated to all concerned. We also found that Laboratory management in several instances failed to assure that there was sufficient follow up to decisions or directives. One example is the direction to Rudolph that he return documents to his case files and prepare memoranda describing

his actions. Another is the failure to establish guidelines regarding the respective responsibilities of the CTU and MAU in the area of explosive analysis after the issue surfaced in connection with the World Trade case in 1993.

Many of the problems we identified might have been avoided if work by examiners had been adequately reviewed by a qualified unit chief or another peer. The absence of such a review partly reflects that the Laboratory did not adopt a formal quality assurance plan until November 1992 and even then did not have written procedures or policies on various matters. The Laboratory, for example, lacked an adequate system of peer review. In the past several years, the Laboratory has begun addressing these issues as it prepares to seek accreditation from the American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB). In Part Six of this Report we address accreditation and the role of management as part of our general recommendations for enhancing quality in the Laboratory. As we note there, management should reaffirm that providing reliable and objective forensic results is the Laboratory's primary goal, and management must express through its actions a strong commitment to the Laboratory's quality assurance program.

### **A.Charles Calfee**

Charles Calfee was the unit chief of the Instrumental Analysis Unit (later renamed the Materials Analysis Unit) from 1975 through 1986, when he became the chief of the Explosives Unit (EU). In October 1987, Calfee retired from the FBI. Before Calfee became a unit chief in 1975, he had worked as an examiner in the EU from 1969 to 1975 and in the Spectrographic Unit, which later became the Instrumental Analysis Unit, from 1967 to 1969.

Calfee was the unit chief who supervised Terry Rudolph during most of his career as an examiner. We conclude that, at least in certain cases, Calfee did not sufficiently review Rudolph's work to assure that the conclusions were supported by adequate analyses and that the casework was properly documented. Calfee's failure to adequately review Rudolph's work reflects, in

our view, that Calfee himself did not appreciate the importance of complete file documentation and case notes, the role of protocols, or the need to limit conclusions to those logically supported by the scientific analyses and data.

Our conclusions regarding Calfee are based on the condition of Rudolph's case files and statements made by Calfee during our investigation. Calfee defended Rudolph's use of liquid chromatography (LC) to identify PETN in the Psinakis case by noting that the powder Rudolph analyzed had been removed from a tool evidently designed to strip detonating cord. This observation does not excuse Rudolph's failure to conduct an appropriate test to confirm his LC findings, which themselves were merely consistent with the presence of PETN. Calfee also suggested that substances might, in some circumstances, be identified without a confirmatory technique. He also indicated that he had sometimes approved Rudolph's dictation without reviewing all the documentation, but would instead tell Rudolph to make sure that the documentation was collected and appropriately identified before the dictation went to the PE.

Calfee told us that he did not think it necessary that Rudolph record in his work notes all the tests performed. To justify this position, Calfee said that he told Rudolph not to use all the evidence in his tests so it could later be reexamined if necessary. When asked how another examiner could later tell from incomplete notes what Rudolph had done, Calfee said he thought it would be a very good test of the capability of any explosive examiner if they could testify based on the incomplete notes of another examiner. Calfee also remarked that he thought it was good not to have a set protocol because examiners could then work on a case-by-case basis. He acknowledged that Rudolph did not always follow the protocol for explosives residue analysis that Rudolph had described in a 1983 symposium, and Calfee did not require Rudolph to document why he chose to depart from the protocol on particular occasions.

The views stated by Calfee fundamentally misapprehend the importance of accurate case notes and protocols in the work of a forensic laboratory. As illustrated by the Psinakis case, the absence of accurate notes may mean that an examiner cannot credibly explain his or her conclusions. Moreover, no meaningful peer or supervisory review can occur if the case notes are

incomplete. Protocols are intended to assure that examiners follow sufficient, validated procedures for their analytical work. They should be followed absent articulated reasons for departing from them, and any such departures should be explained in the case notes.

As a supervisor, Calfee failed adequately to review Rudolph's work. His failure to do so evidently reflects that he did not himself understand that examiners should limit their conclusions to those that logically follow from their data and scientific analyses; that case files and notes must be accurate and complete; and that adherence to protocols is a foundation for credible and objective forensic work.

## **B. Kenneth Nimmich**

Kenneth Nimmich was the chief of the SAS from July 1987 until February 1993, when he became chief of the Forensic Science Research and Training Center (FSRTC). Nimmich retired from the FBI in November 1996.

As noted in Part Three, Section A, we find some fault in Nimmich's handling of the Rudolph matter. In 1989, after AUSA Burch complained in writing to the Laboratory about Rudolph's work in Psinakis and Butler prepared his memorandum noting that there were numerous administrative shortcomings in the cases he reviewed, Nimmich should have assured that more adequate reviews were completed of Rudolph's work in Psinakis and his case work overall. Although he did assign Martz to make a review, Nimmich's understanding of the nature of the review apparently differed from Martz's. In retrospect, it would have been desirable for Nimmich to provide written instructions to Martz concerning the object or methodology of his further review. Martz's deficient report led Nimmich to conclude that further action was unnecessary.

When the Laboratory again reviewed Rudolph's cases in 1992, Nimmich assigned responsibility to Corby to make the review together with Martz and Lasswell. It is now apparent that Nimmich should have put his instructions for this review in writing because, although Corby and Lasswell believe that Martz was part of the review panel, Martz does not recall participating. The review did not occur as Nimmich contemplated. When Nimmich decided to prepare a memorandum describing the review, he should have circulated drafts of pertinent parts of the memorandum to the three individuals he thought comprised the review panel. Their comments would have been relevant to Nimmich's recommendations and may have corrected his misunderstanding about how the review was conducted. To his credit, Nimmich did recommend that Rudolph be reprimanded based on the 1992 review. Without discussing the matter with Nimmich, Hicks decided merely to admonish Rudolph. Nimmich also recommended that Rudolph review the files and prepare a memorandum to be placed in each file documenting any changes made.

The 1992 review should also have led Nimmich to conclude that a review of all of Rudolph's cases should have been undertaken at the time. He also should have put in place some process to monitor Rudolph's preparing memoranda describing any additions made to the questioned case files.

Nimmich also failed to assure that an appropriate investigation was made in 1989 after FBI metallurgist William Tobin complained that Michael Malone, an examiner in the Hairs and Fibers Unit, had inaccurately testified in the Alcee Hastings matter. As noted in Part Three, Section H12, we conclude that Malone's testimony was in certain respects false and misleading. Tobin expressed his concerns to Nimmich orally and prepared a memorandum detailing significant problems with Malone's testimony. Nimmich states that he does not recall this issue. Although we could not confirm that Nimmich in fact reviewed Tobin's 1989 memorandum, we are persuaded that Tobin expressed his concerns orally to Nimmich. Given the serious nature of Tobin's allegations, Nimmich should have taken steps to assure that they were adequately investigated.

We also think that Nimmich should have taken additional steps in December 1992 in response to allegations that EU examiner Thurman had prepared



reports that did not include verbatim the auxiliary examiner dictation prepared by Whitehurst. It would have been preferable if Nimmich had then directed that all of Thurman's reports including dictation by Whitehurst be reviewed for possible changes -- a review that did not begin until 1994. In addition, Nimmich should have then circulated a written statement of the Laboratory's policy that dictation would be incorporated verbatim into reports unless the responsible auxiliary examiner approved changes.

We do not find that Nimmich intentionally failed to address concerns about the quality of the Laboratory's work or attempted to conceal problems within the Laboratory. Nimmich retired from the FBI in 1996, and we do not recommend any action by the FBI concerning him.

### **C. James Kearney**

James Kearney was the chief of the SAS from February 1993 until his retirement from the FBI in June 1995.

We do not find that Kearney acted with a retaliatory purpose in deciding to transfer the explosives residue program to the CTU in 1994 or to leave Whitehurst in the MAU after the transfer occurred.

In some cases, we think Kearney should have taken further steps to see that disagreements among examiners over analyses or the interpretation of data were resolved on a scientific basis and that the resolution was clearly communicated to all involved.

In the Avianca case, Kearney failed to give clear and sufficient direction when the controversy developed between Richard Hahn and Whitehurst in the summer of 1994. Shortly after Hahn testified in the first trial in June 1994,

Whitehurst sent a memorandum to the prosecutor that raised questions about conclusions Whitehurst had made in dictation he prepared after examining the evidence in 1990. Among other things, Whitehurst questioned whether his previous findings reflected contamination of the evidence. Hahn concluded that Whitehurst's concerns were not well founded and that he had raised certain matters outside his expertise. Kearney, after reviewing memoranda prepared by each examiner and discussing the matter with MAU Chief James Corby, concluded that Hahn could properly testify about Whitehurst's 1990 findings.

Certain aspects of Kearney's handling of the Avianca matter are troubling. First, in attempting to resolve the conflict between Whitehurst and Hahn regarding the significance of the questions Whitehurst raised in the summer of 1994, Kearney should have solicited input from other examiners with appropriate expertise. Kearney was right to talk to both Corby and EU Chief Ronay, but he should have sought further expertise to evaluate the scientific issues Whitehurst had raised. Second, Kearney failed to communicate his conclusion to the persons involved. Although Kearney states he thought both Hahn and Whitehurst should testify at the second trial, that view evidently was never communicated to Hahn, Whitehurst, or the prosecutor. Hahn simply assumed that Laboratory management did not object to his again testifying about Whitehurst's 1990 findings, and Hahn testified in the second trial without knowing what Kearney had decided. Whitehurst claims he was surprised to learn that Hahn had testified in the second trial and says he was never told what Kearney had concluded.

We also think Kearney should have followed up further when Steven Burmeister complained in 1994 that he disagreed with conclusions that J. Thomas Thurman had included in a report related to an attempted bombing at the William Wirt Middle School. Given Burmeister's concerns, Kearney should have asked another qualified examiner to assess the validity of Burmeister's concerns and, if appropriate based on that review, Kearney should have directed that the report be amended or supplemented.

We do not find that Kearney intentionally failed to address concerns about the quality of the Laboratory's work or attempted to conceal problems within the

Laboratory. Kearney retired from the FBI in 1995, and we do not recommend any action by the FBI concerning him.

## **D. John Hicks**

John Hicks was the Laboratory Director from August 1989 until his retirement from the FBI at the end of June 1994. Before becoming the Laboratory Director, Hicks had served as the Deputy Laboratory Director from 1986 until 1989, as the chief of the SAS from 1983 until 1986, and as the assistant chief of the SAS from 1979 until 1983. He worked as an examiner in the Microscopic Analysis Unit, which later became the Hairs and Fibers Unit, from 1971 until 1976.

As the Laboratory Director, Hicks failed to assure that the concerns raised by AUSA Burch about Rudolph's work in the Psinakis case were adequately investigated. In his July 8, 1989, letter to Hicks, Burch noted that Rudolph had improperly relied on hearsay from a field agent and had not conducted sufficient analyses to support his conclusions. Burch detailed his criticisms in four pages that also raised questions about contamination of evidence, protocols, and peer review within the Laboratory. By a letter dated July 28, 1989, Hicks responded to Burch by stating that he shared Burch's concerns and that as a result of Psinakis, Hicks had instituted an internal audit of the protocols used for the identification of explosives residue.

After receiving Burch's letter, Hicks should have directed that the transcript of Rudolph's testimony be reviewed. Hicks told the OIG, however, that he did not recall reviewing the testimony or hearing that anyone else had reviewed it. Moreover, if Hicks intended there to be an internal audit of the FBI protocols in explosives cases, as he stated in his response to Burch, Hicks failed adequately to communicate that intent to others in the Laboratory. Given the conclusions reached by Butler in his 1989 review, which found numerous administrative shortcomings in 200 of Rudolph's cases, Hicks should have then initiated a complete review of Rudolph's case work.

Hicks also did not satisfactorily resolve the Rudolph matter after the 1992 case review. By deciding to give Rudolph merely an oral admonishment, despite Nimmich's recommendation for a severe reprimand, Hicks downplayed the significance of Rudolph's misconduct. We do not find, however, that Hicks improperly attempted to cover up the allegations against Rudolph or deficiencies in his work.

As explained in Part Four of this Report, we do not find that Hicks engaged in improper retaliation in connection with the suspension of Whitehurst for one week in 1990 for his conduct in the Psinakis case.

In hindsight, the Laboratory would have benefitted greatly if Hicks had more strongly articulated the importance of quality assurance, more aggressively promoted the adoption of policies and procedures like those required for accreditation, and more thoroughly investigated and addressed concerns about the quality of the Laboratory's work. Hicks retired from the FBI in 1994, and we do not recommend any action by the FBI concerning him.

### **E. Alan T. Robillard**

Alan T. Robillard joined the Laboratory Division in 1977 and worked as an examiner in both the Hairs and Fibers Unit (HFU) and the Questioned Documents Unit (QDU). In 1988, Robillard became unit chief for the HFU; in 1989, he became unit chief for the DNA Unit. Robillard in 1990 became the Assistant Section Chief for the Scientific Analysis Section. In 1994, after briefly serving as the chief for a newly formed QDU, Robillard voluntarily transferred out of the Laboratory as part of the general reassignment of agents from FBI Headquarters.

We do not find that Robillard violated FBI policies or otherwise engaged in improper conduct with respect to any of those matters we investigated.

Whitehurst asserts that Robillard once told him that the FBI wanted to sweep the Rudolph matter under the rug. Robillard denies making this statement and notes that he was not involved in any of the reviews of Rudolph's work. We did not find any corroboration for Whitehurst's allegation and did not otherwise discover facts suggesting any wrongdoing by Robillard related to the Rudolph matter. We also do not find that Robillard engaged in improper retaliation in connection with the suspension of Whitehurst for one week in 1990 for his conduct in the Psinakis case.

Whitehurst also states that Robillard, as acting unit chief of the HFU, pressured serology examiner Robert Grispino to change his results in the Melissa Brannen case to agree with those of DNA examiner Dwight Adams. As explained in Part Three, Section H3, we did not find any evidence to support this allegation. Grispino had issued a report stating that serology tests indicated that a missing girl could have been the source of blood stains found in the defendant's car; Adams later conducted DNA tests that excluded the girl as a possible source. Robillard, Grispino, and Adams each deny that there was any effort to pressure Grispino to change his results.

On a different point, in correspondence to the OIG, Whitehurst stated that Robillard had once told him that the QDU lacked protocols and had been winging it for years. Our investigation indicates that Robillard did not make the broad statement attributed to him by Whitehurst. Instead, Robillard in 1994 asked Whitehurst to assist in a research project to distinguish laser printer copies from photocopies, which examiners in the QDU had not been able to do. Robillard acknowledges that in this context he may have said something about winging it, but states that he never suggested that the QDU generally lacked protocols or a proper basis for its conclusions. Whitehurst in an OIG interview acknowledged that Robillard's comments may have been limited to the research project they were discussing and that Whitehurst does not know what protocols the QDU may generally use.

### **III. Other Individuals**

This section discusses several other individuals who allegedly engaged in some form of misconduct. Included within this section are persons who were the subject of allegations by Whitehurst or who were otherwise identified to the OIG in the course of its investigation.

#### **A. Roger Asbury**

Roger Asbury worked as an examiner in the Firearms Identification Unit from 1974 to 1978 and in the Elemental Analysis Unit from 1978 to 1984. In 1984 he worked with the FBI Inspections Staff, and in 1985 he became the chief of the Forensic Science Research Unit in Quantico. Asbury was chief of the Materials Analysis Unit (MAU) from August 1986 through August 1987, a time in which Whitehurst was training to become an examiner and Terry Rudolph was still working in the Laboratory. Asbury became the chief of the Laboratory's Administrative Unit in 1987. From 1989 until his retirement from the FBI in 1993, Asbury worked in the International Criminal Investigative Training Assistance Program (ICITAP) within the Office of the Deputy Attorney General.

Whitehurst alleges that Asbury, while serving as MAU chief, told Whitehurst that Rudolph was blackmailing the FBI and that the Laboratory practiced Black Magic rather than science. Asbury did not recall making either of these statements and told the OIG that Whitehurst may have taken some other remarks out of context. Asbury said that he may have told Whitehurst that the Laboratory could not allow Rudolph to leave the Laboratory before someone else was trained to examine explosives residue, and that Whitehurst may have concluded this meant Rudolph was blackmailing the FBI. Similarly, Asbury suggested that comments he made that forensic science is not considered to be real science and is looked down upon by the scientific community may explain Whitehurst's recollection of some reference to Black Magic.

Asbury acknowledged to the OIG that as MAU Chief he did not feel qualified to scientifically critique work by examiners in the unit. He also noted that quality control suffered as a result, because the FBI did not have a process for peer review other than review by the unit chief. Asbury also stated that he was generally dissatisfied with Terry Rudolph's documentation of his work, that he directed Rudolph to provide more documentation in certain cases that Asbury reviewed, and that he came to conclude that Rudolph should leave the Laboratory.

We do not find that Asbury engaged in misconduct with regard to those matters that we investigated. To his credit, Asbury did observe in a 1987 progress review that Rudolph's communication of results would improve with more comprehensive and detailed notes in preparing reports. In retrospect, it would have been desirable if Asbury had taken further steps to address his concerns about Rudolph's casework. We recognize, however, that Asbury was cast into a supervisory position in the MAU for only about one year and he did not have a sufficient background to substantively evaluate Rudolph's casework.

## **B.Edward Bender**

Edward Bender worked as a technician in the FBI Laboratory from August 1979 until January 1990. As noted in Part Three, Section A, we did not generally evaluate the quality of Bender's work as a technician. We also did not evaluate any of Bender's forensic work after he left the FBI to work for the Bureau of Alcohol, Tobacco and Firearms within the Department of the Treasury.

As an FBI employee, Bender did not himself prepare reports or dictation or testify about conclusions reached in the Laboratory -- that responsibility rested with the examiner for whom Bender performed his technical work. Because we concluded that the FBI OPR had not sufficiently investigated Whitehurst's allegations that Bender was a racist and this affected his work, we did investigate those matters further. Our investigation confirms that Bender inappropriately made racial comments while employed as a technician in the

Laboratory, but we do not find evidence that his remarks or his racial views affected his work in particular cases.

### **C.Louis J. Freeh**

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Whitehurst suggested that Director Freeh, when an Assistant United States Attorney, may have engaged in misconduct in the VANPAC case through the presentation of testimony by Martz and Thurman or by statements made in the closing argument. As described in Section Three, Part B, based on our investigation we do not find any basis to conclude that Freeh knowingly presented any improper evidence or otherwise engaged in prosecutorial misconduct in this case.

In correspondence to the OIG, Whitehurst has also noted that certain other FBI employees who are eligible for retirement do not have to fear retaliatory actions from Director Freeh. Whitehurst also has alleged that Thurman said that Freeh would fire Whitehurst if he kept making allegations. Based on our investigation, we do not find any basis to conclude that Director Freeh directed or otherwise participated in any retaliation against Whitehurst.

### **D.Donald Haldimann**

As described in Part Three, Section C, Whitehurst alleged that SSA Donald Haldimann approached him on December 15, 1993, at an office Christmas party and told Whitehurst that his dictation in the World Trade case was too complex and that the U.S. Attorney's office was seeking to circumvent Whitehurst's testimony. Whitehurst claims he felt pressured by Haldimann to remove qualifying statements from his dictation and that Haldimann's statements may have reflected an effort by the U.S. Attorney's office to suppress evidence in a fraudulent and unethical way.



Whitehurst's allegations in this matter are unsupported. The reports in question were completed before Haldimann spoke to Whitehurst; Haldimann denies any effort to convince Whitehurst to modify the reports, but admits he asked Whitehurst why he worded things in a confusing way; and Haldimann states that no one directed him to talk with Whitehurst before they coincidentally met at the party. We do not find that Haldimann acted improperly in this matter or that it reflects any effort by the U.S. Attorney's Office to suppress evidence.

### **E.Ronald Kelly**

Ronald Kelly worked as a technician in the Laboratory from 1978 until February 1995, when he became an examiner in the CTU.

In the Shaw case discussed in Part Three, Section H7, Whitehurst alleged that CTU examiner Kelly, without being properly qualified, prepared a report concerning a pipe bomb sent to a federal judge. Whitehurst also claimed that the analysis was flawed because Kelly failed to determine if materials other than smokeless powder were present in the bomb. We find that Kelly did not violate any FBI policies or procedures through his work on the case. His identification of smokeless powder appears to be technically correct. Although the analyses he performed may not have identified other materials had they been present in the bomb, that point illustrates the need to integrate the CTU's protocols for the identification of smokeless powders and explosives rather than any improper conduct on Kelly's part.

### **F.Lynn Lasswell**

SA Lynn Lasswell worked as an examiner in the CTU from 1975 through 1994, when he transferred to the FBI's San Antonio field office as part of the general reassignment of agents from FBI Headquarters. We do not find that Lasswell engaged in misconduct in any of the matters we investigated.

In several letters to the OIG, Whitehurst has alleged: (1) that Lasswell was not trained as an examiner of explosives residue; (2) that he incorrectly identified smokeless powder as the main charge in an explosive device used in an attempted bombing of a federal building in San Diego, California; and (3) that in the World Trade case, Lasswell incorrectly identified urea nitrate on a tire fragment and altered the output of an IMS to incorrectly indicate the presence of urea nitrate.

These criticisms of Lasswell in part reflect Whitehurst's view that only examiners qualified by the MAU to examine explosives residue should have been analyzing explosives within the Laboratory. As we have noted earlier in this Report, the CTU also had some responsibility in explosives cases, as that unit had for several years worked on the identification of smokeless powders. The Laboratory never adopted written guidelines regarding the respective roles of the CTU and MAU in the analysis of explosives. Lasswell's working on smokeless powder cases or other cases involving the chemical analysis of explosives does not imply that he lacked necessary qualifications or violated Laboratory policies.

We did not identify a San Diego bombing case in which Lasswell incorrectly described the main charge by identifying only smokeless powder. In a subsequent letter to the OIG, Whitehurst claimed that the work was corrected in that case and no harm was done. As noted in our discussion of the Shaw case in Part Three, Section H7, we did observe that the protocol followed by the CTU for the identification of smokeless powder may not identify all materials present in a specimen. We also noted that the CTU needs to integrate the protocols for the analysis of smokeless powder and explosives residue.

In the World Trade case, Lasswell was incorrect in concluding that the concurrent identification of urea and nitrate with a MS was sufficient to identify urea nitrate on a tire fragment. We note that urea nitrate is not a common substance, and that when the identification was made, Lasswell's unit chief Roger Martz supported his interpretation of the data. As a result of concerns raised by Whitehurst and Burmeister, the Laboratory corrected the

identification in a later report, and we do not think Lasswell's incorrect identification reflects misconduct on his part.

Finally, Lasswell did not improperly alter the output of an IMS to indicate the identification of urea nitrate. Whitehurst's claims that Lasswell had done something unethical or amounting to scientific fraud are grossly overstated. The IMS is used as a screening device and its output does not conclusively identify a substance. In the World Trade case, Lasswell ran a sample of urea nitrate through an IMS, which produced a particular peak as its output. Lasswell then programmed the IMS to indicate the presence of urea nitrate when that peak reappeared. As discussed above in Part Three, Section C, Lasswell in identifying urea nitrate in sample Q65 did additional tests to confirm the preliminary indication from the IMS. We do not find that Lasswell attempted to misrepresent the output of the IMS or that he misinterpreted the significance of the results for Q65.

### **G.Richard Laycock**

Richard Laycock has worked in the FBI Laboratory as a technician since 1964 and currently is assigned to the Materials Analysis Unit. Whitehurst has alleged that Laycock has little education or training in the field of mass spectrometry, that he once failed to calibrate a mass spectrometer for two years, and that he had unknowingly used a mass spectrometer with a cracked injector port.

Laycock told the OIG that the instrument he primarily works with is an Incos 50 Mass Spectrometer. He said that he had not been formally trained by the FBI to use this device, but he had received training from various manufacturers of mass spectrometer equipment and he had also learned from working with an FBI examiner. Laycock said he maintains the mass spectrometer through regular tuning and calibration, and denies he ever failed to calibrate a mass spectrometer for two years. He acknowledged that he once discovered a cracked injector port on a particular mass spectrometer that was primarily used to identify polyethylene. Laycock said that after replacing the port he

reanalyzed certain materials and found that the results were the same and that the examiner involved knew of the situation.

We did not further investigate Whitehurst's allegations concerning Laycock or attempt ourselves to evaluate the adequacy of Laycock's training for his present assignment within the Laboratory. We do not find any misconduct by Laycock with regard to those matters that we investigated.

### **H. Thomas Mohnal**

Thomas Mohnal has worked as an examiner in the EU since 1989. As noted in Part Three, Section H9, we do not conclude that Thomas Mohnal acted improperly in publishing the article about the UNABOM case in July 1994 without first addressing concerns Steven Burmeister had raised about Rudolph's earlier work on that case. We could not confirm that Mohnal knew of Burmeister's concerns before the article was published, and the article was intended to develop leads in the investigation. We do not find any misconduct by Mohnal with regard to those matters we investigated.

### **I. Bruce McCord**

Bruce McCord is a research chemist in the Forensic Research Unit of the Laboratory. Whitehurst alleged that McCord had once told him he thought the Explosives Unit personnel could rightfully block Whitehurst's publication of papers on explosives. Whitehurst observed, If McCord feels that truth can be suppressed by these goons then he has lost any possibility of his opinion being respected by me. He will be guided by fear of these men that he feels dictate whether he can keep his job. In later letters to the OIG, Whitehurst stated that, to his knowledge, McCord had never committed any impropriety and Whitehurst did not believe he would do so. We do not find any misconduct by McCord with regard to those matters that we investigated.

## **J.Mark Olson**

Mark Olson currently is a supervisor in the Automation and Analysis Unit of the Laboratory. Whitehurst wrote in a December 5, 1994, memorandum to James Corby that Olson had not determined if his staff had followed his instruction to remove certain unauthorized game software from computers in the Explosives Unit. In a letter to the OIG, Whitehurst stated that his wife Cheryl, who works in Olson's unit, and other personnel had not removed the software because they were afraid of crossing EU Chief Thurman.

Whitehurst later wrote the OIG stating that he was thoroughly puzzled by any suggestion that he had accused Olson of impropriety and that he understood from his wife that Olson is a good supervisor. We do not find any misconduct by Olson with respect to those matters that we investigated.

## **K.Howard Shapiro**

Whitehurst suggested that FBI General Counsel Howard Shapiro, when an Assistant United States Attorney, may have engaged in misconduct in the VANPAC case through the presentation of testimony by Roger Martz and J. Thomas Thurman or by statements made in the closing argument. As described in Part Three, Section B, based on our investigation we do not find any basis to conclude that Shapiro knowingly presented any improper evidence or otherwise engaged in prosecutorial misconduct in this case.

In correspondence to the OIG, Whitehurst has complained that Shapiro is a liar because Shapiro assured Whitehurst that he would not suffer retaliation as a result of Whitehurst's deposition in connection with the January 1994 Salemeh trial, but within a few months after the trial, Whitehurst was reassigned to begin training as a paints and polymers examiner. Based on our investigation, we do not find any basis to conclude that Shapiro was involved in the decision to reassign Whitehurst or that Shapiro directed or otherwise participated in any retaliation against him.

#### **IV.FBI OPR and FBI OGC**

This section discusses our findings with respect to allegations by Whitehurst that FBI OPR or FBI OGC improperly failed to investigate certain of his allegations or retaliated against him because of concerns he raised about the Laboratory. The retaliation allegations are discussed at length in Part Four of this Report, and we only summarize our findings here.

As discussed in Part Three, Section A, we do not find that FBI OPR improperly attempted to dismiss or ignore allegations that Whitehurst made in 1991 concerning Terry Rudolph and Edward Bender. We do find that FBI OPR should have then investigated further Whitehurst's allegations about Bender's racial bias and Rudolph's perjuring himself and lying to an AUSA.

We also do not find that FBI OPR retaliated against Whitehurst in its handling of the investigation of his conduct in the Psinakis case; its investigations of his allegations that FBI personnel had improperly used bootleg software or that Agent Kenneth Neu had assaulted Whitehurst's wife, FBI employee Cheryl Whitehurst; or in its investigation concerning possible unauthorized disclosures by Whitehurst. With regard to specific individuals, we find no evidence suggesting that either Stephen Largent, who was involved in the investigation of the allegations of software theft and the assault, or Sarah Pickard, who was involved in the investigation of the possible unauthorized disclosures, engaged in retaliatory conduct against Whitehurst.

With regard to Whitehurst's allegations of software theft and the assault against Mrs. Whitehurst, we find no evidence that James Summerford, Joseph Koletar, or Kenneth Neu engaged in any retaliatory conduct. Nor do we find evidence suggesting that FBI OPR or other components of the FBI sought to ignore or cover-up Whitehurst's allegations on these matters.

Whitehurst alleges that he was subjected to retaliation when the FBI required him to submit to psychotherapy. We found no evidence that Thomas Pickard of the Personnel Unit acted with retaliatory intent in this matter. We are not able to reach a conclusion regarding employees in the EAP and HCPU, however. These employees informed us that they required a release from Whitehurst before they could discuss confidential medical information relating to the decision to refer Whitehurst to psychotherapy. Despite our repeated requests, Whitehurst did not provide such a release. Our investigation of this allegation was limited, and our findings are therefore qualified, because Whitehurst would not give a release to allow certain individuals to talk with us.

Finally, Whitehurst alleged that the FBI OGC retaliated against him by the release of so-called Henthorn materials (information that might materially impeach Whitehurst) to the prosecutors in the World Trade and Simpson cases. We do not find that the FBI OGC generally, or former Principal Deputy General Counsel Steven Robinson in particular, engaged in retaliatory conduct by the release of these materials.

## **V.Frederic Whitehurst**

Whitehurst is a complex figure. He is an experienced scientist who has expressed concern about the integrity and validity of the Laboratory's forensic work. He has identified significant problems in some cases and in certain practices by the Laboratory which have been confirmed in our investigation. In addition, however, Whitehurst has accused many of his colleagues of perjury, fabrication of evidence, conspiracy and similar intentional misconduct. Those allegations are not supported by the facts identified in our investigation. In his complaints within the FBI and to the OIG, Whitehurst has often accused others of wrongdoing when he did not know the pertinent facts, he has used hyperbole and incendiary language that blurs the distinction between facts and his own speculation, and he has otherwise displayed a serious lack of judgment.

Whitehurst justifiably raised concerns within the Laboratory about Rudolph's work habits, and Whitehurst's persistence on this issue ultimately resulted in

the FBI directing a review of all of Rudolph's cases. Similarly, Whitehurst correctly complained that EU examiners in certain cases have testified outside their expertise or issued opinions that are not scientifically supportable -- the World Trade, Avianca, and Oklahoma City cases being prominent examples. Whitehurst brought the Trepal case to the OIG's attention, and we identified several deficiencies in work done by Roger Martz in that case. We recognize also that Whitehurst's complaints have resulted in both internal reviews within the FBI and this OIG investigation, and thereby may have helped achieve changes that will enhance the objectivity and reliability of the Laboratory's forensic work, particularly in explosives-related cases.

In raising his concerns, however, Whitehurst has also made numerous serious allegations that are not factually supportable. For instance, we did not find facts to support his allegations that examiners J. Thomas Thurman and Roger Martz perjured themselves, fabricated evidence, and improperly circumvented Laboratory protocols in the VANPAC case. Nor did we find facts showing perjury by examiners Hahn in the Avianca case, Thurman in the Kikumura case, or Martz in the Simpson case.

Whitehurst himself has demonstrated poor judgment in several matters we reviewed. In the Psinakis case it was improper for him to communicate his concerns to defense experts without first talking with Rudolph himself, the MAU chief, or the prosecutor. Although Whitehurst reported what he had done to his superiors because he thought he may have violated an FBI policy, when he was later disciplined he did not appear to accept that he had done anything wrong.

In the Avianca case, Whitehurst failed adequately to review his own work and otherwise acted unprofessionally. As discussed in Part Three, Section E, Whitehurst in 1990 had examined evidence from the bombing of an Avianca airplane and found residues of PETN and RDX. According to Whitehurst, EU examiner Richard Hahn contacted him in June 1994 on the eve of the first trial and asked Whitehurst if he could rebut claims by an alleged confessor that an ammonium nitrate dynamite was in the bomb. Whitehurst then prepared a memorandum which raised certain questions about his own earlier identification of PETN and RDX and concluded that his findings were



consistent with the possible use of an ammonium nitrate explosive. Without talking to Hahn or sending him the memorandum, Whitehurst sent the memorandum directly to the prosecutor.

In his June 1994 memorandum, Whitehurst speculated that an instrumental overload in an LC/Chemiluminescence analysis performed in 1990 might have obscured the presence of nitroglycerine, a component of dynamite. In 1990, Whitehurst should have recognized this potential problem and had the test re-run in light of the overload. Moreover, in 1994 Whitehurst failed adequately to review his case notes. Those notes reflected that a thin layer chromatography (TLC) test was also performed in 1990, and it did not detect nitroglycerine. These results rebut Whitehurst's speculation that nitroglycerine may have been present but was obscured by an overload in the LC/Chemiluminescence analysis. Without adequately reviewing his own test results, Whitehurst concluded that his 1990 analyses might have obscured the presence of nitroglycerine, and he disseminated this incorrect information to the prosecutor.

Whitehurst committed several other errors in connection with his 1994 memorandum: he misstated his June 4, 1994, conversation with Hahn on a material point; he rendered a misleading and overstated opinion that suggested that his data was consistent with a possible defense; he raised questions whether contamination may account for his original findings of RDX and PETN, although there was no affirmative evidence of contamination, the circumstantial evidence was indicative of a lack of contamination, and he made no inquiries inside the Laboratory to determine whether his contamination concerns might have validity; and he released the memorandum outside the Laboratory without consulting with Hahn or at least sending him a copy. All of the errors in the memorandum tended to create problems for Hahn, the FBI, and the prosecution in an ongoing trial.

Whitehurst should have discussed his concerns with Hahn before sending the memorandum to the prosecutor. Had he done so, some of the questions he raised might have been resolved or at least narrowed. We find unconvincing Whitehurst's explanation that he did not tell Hahn about his concerns or send him a copy of the memorandum because Whitehurst believed Hahn would simply ignore him. Whitehurst was asked by Hahn to address a particular issue shortly before a trial began. Whatever their personal differences, it was inappropriate and unprofessional for Whitehurst to not respond directly to Hahn.

In his work on the investigation of the attempted assassination of former President George Bush, Whitehurst should have described in writing his comparison of explosives used in the Bush device with explosives found earlier in Southeast Asia. If Whitehurst had presented his conclusions in writing, it would have helped avoid his subsequent concerns that his results had been misreported by EU Chief J. Christopher Ronay or others.

Over the last two years, Whitehurst has written more than 200 letters to the OIG expressing his concerns about various aspects of the Laboratory. Many of those concerns seem to reflect an effort to identify any possible grounds to criticize other examiners who in his view are not appropriately qualified for their positions. Whitehurst has faulted others for drawing conclusions based on insufficient evidence. Ironically, he has exhibited that same fault in many of the accusations he has made against others in the Laboratory.

As described in Part Four, we do not find that Whitehurst was subjected to retaliation by the decisions to transfer the explosives residue program from the MAU to the CTU, to have Whitehurst remain in the MAU after the transfer, or to have Whitehurst begin training to become qualified as a paint examiner and then later to work on environmental crimes. Partly as a result of the sweeping accusations Whitehurst has made against others, it has become increasingly difficult for him to work with examiners in the EU and other units of the Laboratory. Moreover, Whitehurst appears to lack the judgment and common sense necessary for a forensic examiner, notwithstanding his own stated commitment to objective and valid scientific analysis.

Based on our investigation, we do not think that Whitehurst can effectively function within the Laboratory. We recommend that the FBI consider what role, if any, he can usefully serve in other components of the FBI. In making its decisions about Whitehurst, the FBI should bear in mind that some of his complaints were valid and that it is important not to discourage employees from appropriately raising concerns about the quality of the Laboratory's work.

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## **PART SIX: RECOMMENDATIONS FOR ENHANCING QUALITY IN THE LABORATORY**

As noted earlier in this Report, our investigation of Whitehurst's allegations has identified ways in which we think the FBI Laboratory's policies or practices can be improved. This part discusses our general recommendations. The Laboratory aspires to be foremost in the delivery of forensic examinations and other services to law enforcement through, among other things, a total commitment to quality. Although ambitious, that goal is appropriate and guides our comments here.

The FBI Laboratory has long been viewed as a leader in applied forensic science and has been involved throughout the world in investigations of major importance. By regulation, the Laboratory serves not only the FBI, but also -- and at no charge -- other parts of the U.S. Department of Justice, other federal agencies, and all duly constituted law enforcement agencies. The FBI also may respond to requests for assistance from foreign law enforcement agencies. As a result of this broad mandate, the Laboratory receives more than 20,000 requests for examination annually.

Assuring the quality of the FBI's forensic work is critical not merely because of the prominence of the Laboratory, but even more importantly, because of that work's effect in particular cases. Forensic evidence can powerfully influence whether a defendant is acquitted or convicted. With respect to such evidence, the interest of the Department of Justice, and the FBI Laboratory as one of its components, is that justice be done. Quality in the work of the Laboratory means that reliable and objective forensic results are presented to the contributing agency on a timely basis and, where applicable, in court.

Through our investigation, we have identified several recommendations that would promote the goal of assuring that the FBI Laboratory provides forensic services of the highest quality. In making that statement, we must add a

qualification. Agent Whitehurst's allegations concern almost exclusively the Explosives Unit (EU), the Chemistry-Toxicology Unit (CTU), and the Materials Analysis Unit (MAU) of the Laboratory. Our investigation has focused on those units. Although we have recommendations that, if implemented, would affect the Laboratory generally, we have not attempted to review the Laboratory overall. This report should not be interpreted as either criticism or approval of the Laboratory as a whole or of particular components that we have not addressed. We also recognize that the Laboratory has operated with limited resources and that implementing our recommendations may require increased funding for the Laboratory.

In response to a draft of this Report, the FBI accepted full responsibility for the failings that have been identified within the Laboratory, and stated that those that have not already been addressed will be addressed promptly. The FBI's response concurred with nearly all of the OIG's recommendations set forth in this Report and stated that the Laboratory has implemented or is taking steps to implement those recommendations. We commend these efforts. Practices in the Laboratory, as we acknowledge in Part Two above, have evolved significantly during the period addressed in this Report and are continuing to change. Adopting appropriate policies is a necessary step in assuring that the Laboratory continues to provide forensic services of the highest quality; that step must be followed by ensuring that those policies are strongly supported by Laboratory personnel and observed in practice. Successfully implementing the recommendations we present below, and otherwise enhancing the quality of the Laboratory, will be an on-going process that will impose significant demands on examiners and other Laboratory personnel. We believe that, with support from management of the Laboratory and the FBI, those demands can be met by the employees of the Laboratory.

## **I. ASCLD/LAB Accreditation and External Review**

The Laboratory should expeditiously pursue accreditation from the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and should solicit other external reviews of the Laboratory. To the extent our investigation identified shortcomings in the Laboratory's practices in particular cases, we believe that many of them would have been

absent if the Laboratory had become accredited a decade ago. Accreditation will also usefully provide external review through the application and inspection process, which must be repeated at five-year intervals if the Laboratory is to maintain accreditation. The Laboratory would also benefit from more frequent external reviews, which could be focused on particular areas or units, conducted with assistance from other forensic laboratories or the OIG Audit Division.

FBI Director Freeh and Laboratory Director Ahlerich determined in 1994 that the Laboratory should pursue accreditation at the earliest possible time. Achieving that goal should remain a top priority for the Laboratory. The Quality Assurance Unit (QAU) and other components of the Laboratory should receive sufficient support to allow the application process to proceed as soon as possible.

The Laboratory is, we understand, continuing to implement policies, procedures, and protocols aimed at satisfying the standards for accreditation. In response to a draft of this Report, the FBI advised that it fully concurs in the recommendation that accreditation be pursued at the earliest possible time. The FBI further has stated that it intends this year to obtain an external, pre-accreditation review by inspectors from the National Forensic Science Technical Center and that it intends to submit a written application to ASCLD/LAB near the end of 1997. Because applications are subject to an extensive review, accreditation may not be achieved until late 1998 or thereafter.

As part of the review process, ASCLD/LAB will send a team of inspectors to review not only whether the Laboratory has satisfactory procedures and protocols, but also whether they are demonstrably followed in practice. ASCLD/LAB bases accreditation on 128 objective criteria, which are categorized as Essential, Important, or Desirable. The 53 essential criteria address matters that directly affect and have a fundamental impact on the work product of the laboratory or the integrity of the evidence. Examples of essential criteria are that new procedures be validated before they are used in casework and that each examiner understand the equipment and procedures used.

Important criteria address standards that are considered to be key indicators of the overall quality of the laboratory but may not directly affect the work product or the integrity of the evidence. Examples are the requirements for a laboratory quality manual and annual quality audits. Desirable criteria deal with matters that have the least effect on the work product or the integrity of the evidence but which nevertheless enhance the professionalism of the laboratory. Examples are the need for written procedures for the maintenance and calibration of instruments.

A laboratory's compliance with the ASCLD/LAB criteria is evaluated by a team of qualified inspectors. After completing a thorough on-site review, the inspection team prepares a detailed written report to the Laboratory Accreditation Board. Accreditation is recommended only if a laboratory meets 100% of the essential criteria, 70% of the important criteria, and 50% of the desirable criteria. After the inspection report is prepared, the laboratory has one year in which to address any shortcomings before the Board acts on the application for accreditation.

Accreditation is granted for a five year term in which a laboratory is expected to continue to meet the ASCLD/LAB standards. Such compliance is monitored through annual reports that the laboratory director must file with ASCLD/LAB and by review of proficiency tests. At the end of the five year term, a laboratory that desires to remain accredited must reapply and complete the entire process as if it were a new applicant.

ASCLD/LAB does not accredit in all forensic disciplines conducted in the FBI Laboratory. At present, accreditation is available for eight: controlled substances, DNA profiling, serology, firearms/toolmarks, latent prints, questioned documents, toxicology, and trace evidence. Significantly, ASCLD/LAB does not provide accreditation for explosives analysis as a distinct discipline, and many laboratories characterize their analysis of explosives as an aspect of trace evidence. We note that in October 1995, former Laboratory Director Ahlerich approved a recommendation by Randall Murch, the Chief of the Scientific Analysis Section within the FBI Laboratory, that the

EU participate in the Laboratory's preparation for accreditation and adhere to the ASCLD/LAB standards. Subsequently, in response to a draft of this Report, the FBI stated that the Laboratory would require the EU, which the FBI intends to merge into a new Materials and Devices Unit, to model its substantive personnel qualifications, functions, practices and standards on those required for the eight disciplines subject to ASCLD/LAB accreditation.

The Laboratory, partly in anticipation of the accreditation requirements, has adopted new policies in various areas. Whether those policies satisfy the ASCLD/LAB requirements is beyond the scope of our investigation and will be addressed through the accreditation process. Several of the criteria for accreditation, however, are pertinent to issues identified during our investigation. In later sections of this part of the report, we discuss the ASCLD/LAB criteria as they relate to case file documentation, protocols, procedures for handling evidence, examiner training, and the monitoring of testimony.

The ASCLD/LAB criteria concerning internal organization and communication within a laboratory also merit comment. A laboratory desirably has clear vertical, horizontal and diagonal channels of communication within and external to the laboratory. Similarly, the organizational structure should group the work and personnel in a manner that allows for efficiency of operation, taking into account the interrelation of various forensic disciplines.

As noted earlier, the Laboratory has lacked clear guidelines for the respective responsibilities of the EU, CTU, and MAU with respect to the analysis of explosives. Even after the analysis of explosives residues generally was transferred from the MAU to the CTU in 1994, the CTU did not integrate its protocols related to explosives cases, as was illustrated in the Shaw case. That same case also reflected that there was no common understanding within the Laboratory as to the respective roles of the CTU and EU examiners in determining the procedures to be used. In the area of explosives analysis, the Laboratory should confirm that there are clear lines of communication and that work and personnel are efficiently grouped. This observation relates to our comments in the next section about restructuring the Explosives Unit.



Apart from the accreditation process, we think that the Laboratory should take advantage of opportunities to obtain external reviews of particular areas of Laboratory operations. We contemplate that these reviews would be narrower in focus than the more comprehensive review involved in the ASCLD/LAB accreditation process. Some external reviews could be conducted by the Audit Division of the OIG or by representatives, with appropriate technical expertise, from other forensic laboratories. Such reviews can provide a critical perspective different from that attainable by only internal reviews. Contacts with personnel from other laboratories will also provide information about other, perhaps better, ways of addressing various quality concerns. A related benefit that would result from accreditation is that FBI representatives could participate in ASCLD/LAB inspections of other laboratories and thereby obtain information about how others have addressed quality assurance issues.

ASCLD/LAB accreditation and other external reviews will enhance the quality of the Laboratory's forensic work and go some ways toward addressing certain issues we have identified in our investigation. As described in the following sections, we have other recommendations that we think would further enhance quality in the Laboratory.

## **II. Restructuring the Explosives Unit**

The Explosives Unit should be restructured to clarify its mission within the Laboratory and to assure that scientific analyses are performed by qualified examiners. As described earlier in this Report, we identified several cases in which examiners within the EU had testified outside their expertise, testified inaccurately or ambiguously, or stated opinions that are scientifically unsupportable. These problems largely reflect, in our opinion, that the examiners in the EU have lacked scientific backgrounds and that their separate and distinct roles as investigators and as forensic scientists have not been clearly distinguished.

Within the Laboratory, the EU's primary mission should be the forensic examination of evidence by qualified scientists. Examiners in the EU should have scientific backgrounds in pertinent disciplines such as chemistry, metallurgy, or engineering, as well as technical training in the assembly, deactivation, and use of explosive devices. The EU should retain its important function of reconstructing bombs and otherwise analyzing the mechanical aspects of explosive devices. As appropriately qualified examiners are brought into the EU, we recommend that the Laboratory transfer the chemical analysis of explosives from the CTU to the EU. More generally, EU examiners will need to coordinate the appropriate examination of evidence by examiners both within and outside the EU.

Examiners in the EU should continue to advise and assist in gathering evidence at bombing scenes, but primary responsibility for conducting investigations and directing crime-scene management should rest with components of the FBI outside the Scientific Analysis Section. Such investigative and crime-scene management functions could, for example, be handled through the FBI's Evidence Response Team (ERT) Unit and the ERTs in the FBI regional offices.

Historically, examiners in the EU have been non-scientist FBI agents with experience in military explosive ordnance disposal (EOD). That type of experience and knowledge can provide valuable expertise in the examination of improvised explosive devices and bombing scenes. Given the EU's role in the Laboratory, these individuals have served as the principal examiners or PEs in nearly all cases involving the Laboratory's examination of explosive devices. The EU examiners have prepared reports incorporating not only their own technical expertise, but also the conclusions of other examiners in other parts of the Laboratory. One consequence, which appears never to have been expressly considered or intended, is that EU examiners have sometimes been viewed, at least outside the Laboratory, as the generalist or comprehensive expert in their cases.

Consistent with a broad view of the role of its examiners, the EU identifies its mission as to examine evidence in bombing matters and present expert testimony in courts concerning forensic findings. The EU's mission statement explains:

The unit conducts forensic examinations of Improvised Explosives and Incendiary Devices and their remains. These examinations involve the identification of components used in the construction of these devices which include detonators, initiators, wires, tapes, timing mechanisms, electronic components, power sources, containers, and the main charge explosives. This mission includes direct field support in bombing matters and crime scene investigations, searches of bomb factories and safe houses where bombs and explosives may be encountered. The unit has the mission to conduct liaison with domestic and foreign manufacturers of explosives, maintain the Explosive Reference Files and data base used to support forensic examinations and conduct training in bombing crime scene investigations and laboratory capabilities in bombing matters.

The EU's current mission thus encompasses several functions, which include: (1) examining improvised explosive devices within the Laboratory; (2) providing reports and expert testimony about the results of the Laboratory's examination; (3) assisting in the management of complex crime scenes; (4) participating in investigations of bombing incidents; (5) collecting and disseminating information about bombing incidents; and (6) providing training programs. These multiple functions would be better achieved if primary responsibility for investigations and crime scene management was placed outside the Scientific Analysis Section and the functions appropriately left within the Laboratory were performed by qualified scientists.

Our conclusions here reflect certain trends in forensic science generally and in the examination of explosives in particular. Knowledge and analytical techniques concerning the forensic examination of bombings have become increasingly technical and sophisticated in recent years. As a result, specialized scientific knowledge is increasingly important to fully understand and utilize the techniques that may apply within a particular forensic field. This means, for example, that it is difficult for a non-scientific generalist, even a generalist in the area of explosives, to appreciate fully the capabilities or limits of examinations done by other more specialized analysts such as forensic chemists, metallurgists, or other scientists.

Another fact affecting our conclusion is that terrorists and other criminals are also becoming increasingly sophisticated in their use of explosives. There are literally hundreds of potential explosives, which themselves can be combined in innumerable variations. A military EOD background or experience as a bomb technician may provide some knowledge about military explosives and common propellants. Such knowledge will remain important for examiners in the EU, but it will also be increasingly important for examiners of bombing incidents to have scientific expertise about more complex and exotic explosives.

The EU should be reorganized and reconstituted. The EU unit chief and EU examiners should have scientific backgrounds in addition to experience or training in bomb reconstruction. Over time, this might allow particular examinations now conducted in other units, such as the identification of explosives residue or certain metallurgical analyses, to be conducted by appropriately qualified EU examiners. Existing examiners who lack scientific backgrounds should be reassigned outside the EU where their experience as agents could be very valuable in bombing investigations and crime scene management.

Examiners in a reconstituted EU should maintain expertise with respect to explosive devices and coordinate related examinations within the EU and other units of the Laboratory. As discussed in the next section where we address the roles of principal and auxiliary examiners, the EU examiner assigned to the case should serve as a contact or liaison between the contributing agency and the other components of the Laboratory responsible for the various examinations.

Emphasizing the coordinating function of the EU would help to promote more effective cooperation within the Laboratory. The process we envision is one in which the EU examiner involves others within and outside the EU at the initial stages of an investigation to solicit views on what procedures should be done and by whom. Such interaction would continue over the course of an investigation. Of course, an appropriately qualified EU examiner, such as a

forensic chemist or engineer, could also conduct analyses and prepare reports reflecting his or her area of expertise. As noted in Section IV below, we also recognize that an EU examiner may properly prepare a summary report interpreting for the contributing agency the overall significance of findings reported by various examiners.

Clarifying the EU's role and requiring EU examiners to have scientific backgrounds should also help reduce the likelihood that examiners will stray beyond their expertise in preparing reports or testifying. That danger is to some extent invited by the broadly phrased mission of the EU and the possibility that agent examiners without scientific training will not distinguish between investigative opinions and scientifically supportable conclusions. As a general matter, any scientific conclusions to be drawn in an explosives case should be presented by the examiner who has the appropriate expertise and did the underlying work. We recognize that in many cases there may be a role for a non-scientist expert in bomb assembly or bomb scene reconstruction who bases his or her opinion on conclusions of other experts. Such examiners, however, should not incorrectly suggest that their opinions are scientific in a way not supportable by analytical methods or data.

Finally, the role of the EU with respect to the receipt of evidence should be modified to strengthen protections against contamination. Instrumental techniques have become very sensitive in detecting minute traces of explosives, which only magnifies the importance of preventing contamination of the evidence by persons handling it or from other materials present in the work area. Swab kits, clothing, and evidence to be examined for traces of explosives would preferably first be sent to a designated area that is physically separate from the main EU facility. The area designated for the receipt of evidence requiring residue analysis should have strictly controlled access and appropriate procedures to monitor and prevent possible contamination.

In response to a draft of this Report, the FBI advised that it generally concurred with the OIG's recommendations, and noted that a reorganization is under way in which the Bomb Data Center will be established as a separate unit at the FSRTC and the EU will be merged with the greater part of the Materials Analysis Unit (MAU) in a new Materials and Devices Unit, which is to be

headed by Dr. Thomas Jourdan, the most recent chief of the MAU. The FBI disagreed with a draft recommendation by the OIG that the investigative and crime scene management functions of the EU should be transferred out of the Scientific Analysis Section, noting that EU examiners should participate in the on-scene investigation and collection of evidence in bombing cases. Based on the FBI's response, we have revised our recommendation to make clear that we do not intend to exclude EU examiners from assisting or advising at bombing crime scenes, but we do recommend that primary responsibility for conducting investigations and directing crime-scene management should rest outside the Scientific Analysis Section of the Laboratory.

### **III. Principal and Auxiliary Examiners**

In place of the existing distinction between principal and auxiliary examiners, the Laboratory should identify a coordinating examiner (CE) who would serve as the contact with the entity requesting the examination of evidence and who would coordinate work by other examiners in the case. The Laboratory should also develop guidelines for the respective roles of the coordinating examiner and other examiners in case work, preparation of reports, and the presentation of testimony.

The term principal or primary examiner is something of a misnomer and is potentially misleading to persons not familiar with the Laboratory. The principal examiner is not a comprehensive expert on every issue that may be addressed in a Laboratory report, but instead serves as the contact point between the contributing agency and others within the Laboratory. Accordingly, we think that the PE would be more accurately termed the coordinating examiner or CE.

The CE should serve the function of coordinating work by a team of other examiners within the Laboratory. In the process of report preparation, the CE should not unilaterally determine what procedures other examiners perform. Instead, such decisions should be made through collaboration among the examiners. If an examiner undertakes substantive work on a case, that examiner

must be responsible for determining the particular tests he or she will use to reach any conclusions and how those conclusions are reported.

The relationship between examiners also raises the issue of how disputes regarding forensic methods or the interpretation of results should be resolved within the Laboratory. The first step, of course, should be for the examiners involved to talk with each other and attempt to reach agreement. If that does not resolve the issue, the matter should be brought to the appropriate unit chief or chiefs. If the unit chiefs lack expertise in the areas of dispute, they should seek input from other knowledgeable scientists in the Laboratory. If the unit chiefs disagree, the chief of the Scientific Analysis Section should decide the matter, with advice from other experts if necessary. When supervisors become involved in resolving such disputes, it is important that their ultimate decision be clearly communicated to the examiners involved and that it be reflected in any resulting reports.

The Laboratory should develop clearer guidelines concerning the respective roles of examiners working on a case. We were surprised to learn in our investigation that there is no Laboratory-wide training program for examiners that addresses the respective roles of the PE and AE. Until relatively recently there were no written guidelines concerning the PE's use of AE conclusions or results in preparing reports. There apparently still are not any Laboratory-wide guidelines regarding one examiner testifying about another's forensic work.

Many persons told us that the unwritten rule in the Laboratory has long been that the PE, in preparing reports, must incorporate an AE's dictation verbatim unless the AE agrees to change the language. The first written statement of such a rule seems to have been in September 1994, when it was reflected in a memorandum by then-Laboratory Director Ahlerich that was distributed throughout the Laboratory. Our investigation suggests that even after Ahlerich's memorandum, EU examiners in some cases did not accurately incorporate the dictation of other examiners.

There also appears to have been a general understanding in the Laboratory that examiners should not testify outside their expertise or about work they did not do. Stated so broadly, this rule simply reflects basic requirements of the Federal Rules of Evidence concerning expert testimony and competence of lay witnesses. The unwritten rule about testimony also seems to have been qualified in that Laboratory examiners generally think it is acceptable to read into the record another examiner's results if this is permitted or requested by the court, but that the testifying examiner should be careful not to comment further on the other examiner's work.

The Laboratory would benefit from clearer guidelines concerning the relationship among examiners with respect to report preparation and testimony. As noted in the following section, each examiner who analyzes evidence should prepare his or her own report. That examiner, as a general rule, should be the person who appears at trial to testify about the results. If the results are to be admitted through another examiner, the testifying witness must be careful not to exceed his or her expertise or personal knowledge.

In response to a draft of this Report, the FBI advised that it has taken or is taking steps to implement the OIG's recommendations. These steps include redesignating the PE as the Coordinating Examiner or CE, circulating written guidelines regarding the respective roles of the CE and AE, and circulating procedures to be followed in the event a scientific dispute arises. In addition, the FBI advised that it is establishing a program in which a group of senior examiners will receive in-depth training in the management of major cases and will serve as a source of advice for CEs handling large or complex matters and for Laboratory management.

#### **IV. Report Preparation**

In place of the existing procedure whereby the principal examiner or PE assembles a report based on dictation from other examiners, each examiner who analyzes evidence in a case should prepare and sign a separate report. The coordinating examiner or CE that we have described in the previous section



could remain responsible for transmitting such reports to the contributing agency and would generally serve as the primary contact person. The Laboratory also should take steps to assure that all reports are substantively reviewed by a unit chief or another examiner with appropriate expertise and are subject to file reviews to confirm that there is adequate case documentation.

The standard format of FBI Laboratory reports does not clearly identify the examiners who did the work on particular parts of the report. The reports do list, by coded initials, the examiners involved. As we have described above, the PE is generally responsible for gathering the dictation from the various AE examiners and incorporating those results into a written report, which the PE returns to the contributing agency.

The potential dangers posed by this format of report preparation are illustrated in several cases we reviewed in the course of our investigation. An example is the Conlon case, where principal examiner Robert Heckman from the EU included language in the report concerning the significance of certain test results and the possible military origin of an explosive. This language appeared under the Instrumental Analysis section of the report, although it did not reflect any analysis or conclusions by the auxiliary examiner who actually performed the instrumental analysis. Similarly, questions about EU examiners such as J. Thomas Thurman and Wallace Higgins failing to include dictation by auxiliary examiners verbatim in the final reports might have been avoided if the examiners involved had prepared their own reports.

Over the last two years, the roles of the PE and AE in report preparation have been evolving. The guidelines for report preparation adopted by the Laboratory in September 1994 directed the PE to incorporate AE dictation without changes and to send each AE copies of the final report incorporating their dictation. A February 6, 1995, memorandum from Laboratory Director Ahlerich directed that AE results should be reported to the contributing agency as they are completed, rather than waiting for a final comprehensive report. The July 12, 1995, Ahlerich memorandum concerning case notes states that each examination that is reported must be initialed to reflect who conducted the work.

We recommend that the Laboratory adopt a policy that each examiner will prepare and sign a report concerning his or her examination of evidence in a case. This should help avoid any problems about whether one examiner's dictation is appropriately reflected in another's report. Moreover, having examiners prepare separate reports will more clearly identify responsibility and the work underlying particular conclusions, which in turn will help identify the examiners who should be witnesses in court proceedings. Given our review of the Rudolph matter, we also think the Laboratory should state clearly that the examiner remains responsible for any tests or hands on work he or she may assign to technicians, and the examiner must thoroughly review and understand the results obtained before relying on them to reach conclusions.

In some cases, it may also be desirable for the coordinating examiner or CE to prepare a summary report for the contributing agency that interprets the overall significance of findings reported by various examiners. Of course, the CE should be accurate and complete in describing the analyses or conclusions of others. The CE should also circulate drafts of any such summary report among the relevant examiners to solicit their views before it is released.

Reports should be clear, concise, objective and understandable. They should fully disclose the involvement of the issuing examiner in the particular case and all pertinent information and findings. At a minimum, the reports should describe: who received exhibits or specimens, how and when they were received, and their later disposition; the results obtained from the analyses; and the examiner's conclusions about the forensic significance of the results.

Examiners, in both reports and testimony, should limit their conclusions to those that logically follow from the underlying data and analytical results. An examiner should not draw conclusions that overstate the significance of the technical or scientific examinations. Nor should an examiner base forensic conclusions on unstated assumptions or information collateral to the examinations performed. For example, Rudolph could not properly identify PETN on a knife based on the investigator's suspicion that the defendant used the knife to strip detonating cord. Nor, given the facts before him, could David

Williams properly identify the explosives used in the World Trade or Oklahoma City bombings by relying on certain evidence associated with the suspects. Reports should be phrased so that the results will not be misunderstood or their significance exaggerated. In appropriate cases, reports should acknowledge reasonable alternative interpretations of the data.

In response to a draft of this Report, the FBI advised that it concurs with each of the OIG's recommendations concerning report preparation and is taking steps to implement them. The FBI stated that, for the last several months, it has required each Laboratory examiner to prepare and sign his or her own report. The FBI also advised that it has included detailed requirements concerning reports in the Laboratory's Quality Manual and that it will revise those requirements to the extent they do not specifically include the language recommended by the OIG.

## **V. Adequate Peer Review**

The Laboratory also should take steps to assure that findings or conclusions are substantively reviewed by another examiner before they are released in final reports. The September 1, 1994, memorandum by Laboratory Director Ahlerich generally requires the AE's unit chief to review dictation before it is sent to the PE and requires the PE's unit chief to review the final report before it is released. This policy has potential shortcomings where the unit chief is the reporting examiner or lacks expertise in the matter he is charged with reviewing. The Laboratory should address this problem by requiring peer review of reports or dictation by another qualified examiner in instances where the unit chief is the reporting examiner or lacks the requisite expertise to review another's work. Such review should be noted as part of the individual case record.

Adequate file review is also addressed by ASCLD/LAB. An essential criterion for accreditation is that reports be reviewed to ensure that the conclusions of [the] examiners are reasonable and within the constraints of scientific knowledge. Elaborating on this concept, two important criteria recommend that

supervisors carefully and objectively review laboratory activities, methods, and personnel and that a quality manager periodically assess the adequacy of report review activities.

The Rudolph matter, certain conclusions stated by David Williams in the Oklahoma City case, and other cases demonstrate the importance of assuring that reports are substantively reviewed by another qualified scientist before they are released. Stated differently, an examiner's conclusions should undergo internal peer review before they are made part of a final report. Such review can in theory occur through the unit chief's review of reports, but that review will not suffice if the unit chief lacks the necessary expertise or believes that the review is a formality or is limited to checking grammar and conformity to a particular format. The necessary review is intended to confirm that reported conclusions are reasonable and scientifically based. Our investigation suggests that some unit chiefs have not understood this point.

In response to a draft of this Report, the FBI advised that it fully concurs in the OIG's recommendations concerning adequate peer review and that it requires, in its current Quality Manual, that reports be reviewed by a unit chief or other qualified examiner for compliance with applicable requirements.

## **VI. Case Documentation**

Reports must be supported by adequate case files. Such files should include all notes, charts, and other documents related to the examiner's analysis. Work notes should be dated and initialed. Such notes should record relevant information concerning the receipt or disposition of evidence or samples, all methods employed, and the results achieved. Related charts, printouts, and similar items should be properly labeled and included in the file.

A frequent and serious problem that we encountered in attempting to review case files and in interviewing Laboratory personnel was incomplete or missing

documentation. Examiners recounted that they had sometimes retained notes or analytical results themselves because they were not confident that they could be retrieved if they were sent to the central file unit. Our investigation of the Rudolph matter suggests that at least certain examiners and supervisors failed to understand the fundamental importance of adequate documentation and file integrity and that the Laboratory has in the past lacked guidelines to assure that files were adequately documented.

In the Rudolph matter, both our investigation and the FBI's own internal reviews showed that scores of case files worked by Rudolph in the 1980s do not contain documentation sufficient to fully identify the procedures used or the analytical results. Rudolph attempted to justify the condition of the files by asserting that he prepared his work notes for his own reference; that he could remember what he did from what notes or charts were in the files; that certain materials were missing from the files; and that his supervisors had approved his conclusions based on the information in the files at the time they were reviewed. Such views misapprehend the very purpose of the requirement for adequate documentation: case files should contain sufficient information so that another qualified scientist can understand all the analyses that were done, the results obtained, and the basis for the examiner's conclusions. Such information is essential if the examiner's work is to be substantively reviewed within the Laboratory and if it is to withstand scrutiny outside the Laboratory.

The problem of inadequate file documentation appeared in our investigation of matters other than Rudolph. For example, our review of work done in the VANPAC case was hindered by missing documentation. Roger Martz identified high-explosive primer in that case through, among other things, the use of inductively coupled plasma atomic emission spectroscopy (ICP) analysis. The charts and related notes for this analysis could not be located. Charts for various analyses performed by Robert Webb in his examination of paints, adhesives, and tapes in the same case are also missing. In the World Trade case, David Williams said he based his testimony concerning the VOD of urea nitrate on conversations with persons outside the Laboratory, but the case notes do not describe or reflect any such conversations.

The problems with incomplete case files might have been avoided through accreditation. ASCLD/LAB requires, as one of its essential criteria, that the Laboratory maintain, in a case record, all the notes, worksheets, photographs, spectra, printouts, charts and other data or records used by examiners to support their conclusions. Similarly, an important criterion is a Quality Manual which requires control and maintenance of documentation of case records and procedure manuals. A desirable criterion is that the Laboratory have a clearly written and well understood procedure for the preparation, storage and disposition of case records or reports.

Retrospective case file reviews or audits -- which we distinguish from peer review and approval of reports by a unit chief or another qualified examiner -- are also critically important. The problems associated with Rudolph's case work largely reflect, in our judgment, a failure by the Laboratory to review case files to confirm that they contained records of procedures and analytical results sufficient to support the examiner's conclusions. The policies adopted by the FBI concerning case file documentation in September 1994 and concerning case notes in July 1995, are desirable steps. The Laboratory needs to confirm that these policies are understood and implemented, which can be monitored in part through an effective process of case file review.

In response to a draft of this Report, the FBI advised that it is taking steps to implement the OIG's recommendations concerning case files. These steps include requirements in the current Quality Manual concerning case file documentation, a contemplated communication to Laboratory personnel explaining the requirements, and internal audits to be conducted by the Quality Assurance Unit.

## **VII. Record Retention**

The Laboratory must develop a record retention system which assures that complete case files are maintained and are readily retrievable. Laboratory personnel whom we interviewed were nearly unanimous in criticizing the existing system for retaining case files. Many examiners observed that they

retained notes or data themselves because they were not confident they could later be retrieved from the central file unit. Many files we reviewed either referred to documents that could not be found or were otherwise visibly incomplete.

An adequate record retention system is critical to the Laboratory's forensic work. We have discussed the requirements for file documentation in earlier sections. Given the significance of this issue, we note again that case files should be sufficiently complete so that a competent, independent, qualified examiner could upon a review of the file understand the examinations and analyses performed, the results obtained, and the basis for any conclusions reached. Such information will provide the basis for peer review by unit chiefs or other qualified examiners when reports are prepared, will allow others to understand and assess the examiner's conclusions, and will serve as a necessary element for any program of file audit or review. These ends cannot be achieved if files are incomplete, spread among several different locations, or cannot be found.

The Laboratory should commit the time and resources necessary to assure that case work is documented by complete case files and that such files can be retrieved in a timely manner. The Laboratory should be responsible for its own case file system, rather than having its files included as part of the general case files maintained by the FBI's central filing system. The importance of the Laboratory's immediately developing an adequate file retention and retrieval system cannot be overstated.

In response to a draft of this Report, the FBI stated that it has taken steps to implement this recommendation and that the contemplated new Laboratory facility at Quantico will include a separate file system for Laboratory records. The FBI further advised that until the new Laboratory is completed, the Laboratory will maintain its case-related files in a separate room at FBI Headquarters. We note that an adequate record retention system will require effective file controls in addition to sufficient physical space and personnel.

## **VIII. Examiner Training and Qualification**

Our investigation showed that there is not a coordinated training program for examiners within the Laboratory overall or within the Scientific Analysis Section. Instead, the training of examiners has largely been conducted at the unit level. Over the last several years, as the Laboratory has implemented a more formal quality assurance program, units have been preparing written examiner training programs.

Under ASCLD/LAB, an essential criterion requires that the laboratory have and use a training program in each functional area. Such a program must emphasize and teach the skills and knowledge required to achieve the minimum standards of competence and good laboratory practice within a specific area of work. It must also develop the technical and personal skills to perform competently in court.

We recommend the following concerning the training and qualification of examiners: (1) the Laboratory should prepare a uniform curriculum to address certain common issues, such as general policies for case documentation, report preparation, examiner ethics, and testimony; (2) the moot courts conducted by particular units as part of the qualification process should address not only substantive knowledge and presentation skills, but also an examiner's ability to recognize the limits to his or her opinions and expertise; (3) the Laboratory should consider using experienced examiners from other forensic laboratories as participants in moot courts for the qualification of examiners; and (4) qualified examiners should participate periodically in exercises simulating court room testimony, both to reevaluate their skills and to provide training demonstrations for less-experienced examiners.

The uniform training curriculum should emphasize that the Laboratory's function is to provide reliable and objective forensic results. This means that examiners should be instructed, consistent with written guidelines, that opinions or conclusions must be based strictly on the data developed using recognized procedures; that examiners should not overstate the forensic



significance of their findings; that examiners should describe their analytical results and conclusions clearly in reports or testimony; and that examiners should not render opinions outside their expertise. The training program also should address the roles and responsibilities of the various Laboratory components and the importance of open communication and cooperation among examiners.

At the unit level, the training curricula should be clearly stated. Completion of the curriculum should be documented and should be required before an examiner issues reports or conclusions. Any departures from the specified training curricula should also be documented and should be approved by the unit chief and the SAS chief.

In response to a draft of this Report, the FBI stated that it concurs in all of the OIG's recommendations concerning examiner training and qualification. The FBI reported that the FSRTC is revising and expanding the core curriculum for new examiner training to address various issues, including case documentation, report preparation, quality control, examiner ethics, and the fundamentals of reliable expert testimony. The new curriculum is to be finalized by June 1, 1997. The FBI also stated that the Laboratory will use both experienced examiners from other laboratories and experienced trial attorneys to participate in moot courts used to qualify examiners. The Laboratory intends to hold an annual seminar for experienced examiners beginning next fall which will include exercises, discussion, and critiques related to expert testimony. Finally, the FBI stated that on-going refinements in training programs for different units are to be completed by June 1, 1997, and that all unit chiefs will be required to ensure that a new examiner's completion of the training program is documented.

## **IX. Examiner Testimony**

The FBI Laboratory has not had a uniform program for training examiners with respect to testifying in court, has not had clear guidelines concerning the scope of examiner testimony, and has not had a program for the effective monitoring

of testimony. Under ASCLD/LAB, an essential criterion is that the laboratory monitor the testimony of its examiners.

Adequate monitoring of testimony and appropriate follow up by supervisors might have avoided potential problems with examiners testifying outside their areas of expertise. Examples we have noted in our earlier discussion include Hahn testifying in the Avianca case about fire damage to human bodies, a matter within the expertise of a medical examiner or pathologist; Thurman in the VANPAC case inaccurately stating that DNA testing is based on an enzyme in saliva; and Williams testifying about stoichiometric calculations in the World Trade case. Effective monitoring of testimony could also help to prevent imprecise or ambiguous testimony of the sort illustrated by Martz's description in the Simpson case of the destruction of data or Martz's testimony in VANPAC about his attempts to determine whether smokeless powder samples came from the same lot.

The Laboratory should include courtroom testimony as part of a standardized curriculum for examiner training. In addition, the Laboratory should adopt written guidelines concerning examiner testimony. Such guidelines should expressly state that examiners in testifying should: (1) accurately and completely disclose their involvement in the matter; (2) be clear, straightforward, and objective in their answers to questions on direct and cross-examination; (3) limit their conclusions to those that logically follow from the underlying data and analytical results; (4) decline to answer questions beyond their expertise; (5) attempt to avoid phrasing their testimony in an ambiguous or possibly misleading manner; and (6) be accurate and complete in describing the analyses or conclusions made by others, while remaining careful not to stray beyond their own expertise. Where it will be necessary for one examiner to testify about work done by others, the Laboratory should attempt prospectively to identify which examiner is best able to address the various matters and to confirm that he or she is adequately prepared.

An effective program for monitoring testimony is necessary to help assure that examiners testify properly and consistently within Laboratory guidelines. In July 1995, the FBI adopted a testimony monitoring program in anticipation of applying for ASCLD/LAB accreditation. The FBI's program contemplates that

monitoring can occur through questionnaires submitted to courts and prosecutors, through transcript review, or through actual observation of live testimony. This program is a step in the right direction, but it should be strengthened.

The testimony of examiners should be reviewed at least once each year by the unit chief or another qualified examiner. Where necessary, the reviewing examiner could be from another forensic laboratory. Such review would ideally be based on actual observation, but if that is impractical, it should at least be based on a review of the transcript. This type of monitoring is necessary because other qualified examiners will likely be better able than judges or prosecutors to evaluate the substantive accuracy of testimony. In addition, regular post-testimony discussion sessions among members of particular units might provide a useful forum for exchanging information and advice.

In response to a draft of this Report, the FBI advised that it concurs in all of the OIG's recommendations. The FBI further stated that it has, as of February 6, 1997, adopted a new Court Testimony and Court Testimony Monitoring Policy. This policy incorporates the OIG's recommended guidelines for examiner testimony and is even more restrictive concerning one examiner's describing the analyses and conclusions of others. The FBI also noted that courtroom testimony will be a key part of the new core curriculum being developed for examiner training and will also be addressed in examiner moot courts and in the annual seminar, described above, for the Laboratory's experienced examiners. Finally, the FBI stated that it has amended its testimony monitoring policy to require unit chiefs to review an examiner's testimony at least annually either by direct observation or by transcript review.

## **X. Protocols**

ASCLD/LAB has adopted criteria to confirm that conclusions are supported by appropriate procedures and data. The essential criteria require that procedures used must be generally accepted in the field or supported by data gathered and recorded in a scientific manner and that new procedures be validated before

being used in casework. Written technical procedures must be available to the analysts and for review and should include descriptions of sample preparation methods, controls, standards, and calibration procedures as well as a discussion of precautions, possible sources of error and literature references.

If the Laboratory had met the ASCLD/LAB requirements for adequate file review and validated procedures, many of the problems we identified earlier in this Report might have been avoided. Meaningful peer review and reliance on validated procedures would have helped prevent, for example, conclusions reached by Rudolph that cannot now be confirmed, conclusions reached by examiner David Williams about the specific velocity of detonation in the World Trade and Oklahoma City cases that are not scientifically supportable, and Robert Webb's conclusions about the common origins of paint, tape, and adhesives in the VANPAC case that now appear to have been stated more strongly than was justified by the analyses and data.

The Laboratory should complete the preparation of authorized protocols that is under way as part of the accreditation process. Review by a unit chief or another qualified examiner should ensure that approved protocols have been used. If a novel methodology is proposed, its validity should be confirmed before it is used as the basis for conclusions or reports. If standard protocols are not followed in a particular case, the report and case notes should state the reasons for the departure. An effective program for file review should verify that the protocols are followed in practice.

In response to a draft of this Report, the FBI stated that it concurs in the OIG's recommendations and that the completion of written protocols, including ones for areas that are not subject to ASCLD/LAB inspection and accreditation, should be completed by June 1, 1997. The FBI also stated that all cases are now being technically reviewed before examiner reports are issued, and that the Laboratory intends the Quality Assurance Unit to create an internal audit group that will independently review a sampling of closed cases.

## **XI. Evidence Handling**

The Laboratory should continue to refine its protocols for the handling of evidence and measures to prevent contamination.

Issues concerning the integrity of evidence are also addressed by ASCLD/LAB. One of the essential requirements is that evidence be protected from loss, cross transfer, contamination, and/or deleterious change. Another essential requirement is that the Laboratory have a clearly written and well understood procedure for handling and preserving the integrity of evidence.

The Laboratory in September 1994 restated its procedures concerning the handling of evidence. A new evidence control policy was announced by Laboratory Director Ahlerich on September 9, 1995. Particular units also address this issue through their own manuals or policies.

Each item of evidence received should be appropriately safeguarded from loss, mishandling, avoidable deterioration, and unnecessary alteration from the time of its receipt by the Laboratory. Persons handling evidence should follow the evidence protocol and take other appropriate steps to avoid contamination. Many of these points are recognized by the evidence handling procedures described in the memoranda from Ahlerich dated September 1, 1994, and September 9, 1995. The Laboratory must confirm that these procedures are well understood and followed in practice.

Concerns for the appropriate handling of evidence and prevention of contamination should be incorporated into the design of the proposed new Laboratory facility. The FBI has announced that it hopes to break ground in 1998 for the new facility, which will be located at the FBI Academy in Quantico, Virginia. The target completion date is late 1999 or 2000. With respect to explosives cases, we have noted in Section II above that it would be desirable if swabs, clothing or other evidence to be examined for traces of explosives residue were first received in an area that is physically separate from

the EU and that has controlled access and appropriate monitoring for possible contamination.

The Laboratory also should support continuing efforts to address potential contamination issues. Examiners and technicians in the EU would benefit from a focused training program on this topic. Knowledge of contamination issues should be addressed in the training, qualification, and periodic review of all Laboratory examiners.

In response to a draft of this Report, the FBI advised that it concurs in each of the OIG's recommendations. The FBI noted that a new Evidence Control Policy was issued in November, 1996; that evidence handling and contamination avoidance is a high priority in the design of the new FBI Laboratory; that evidence control will be addressed in the core curriculum for new examiners and in the annual seminar to be attended by experienced examiners; and that greater collaboration between the EU and the CTU has taken place on the issue of contamination avoidance.

## **XII. The Role of Management**

The quality of a forensic laboratory ultimately reflects the laboratory's management. Effective management will also be critical to the successful implementation of other recommendations we have noted earlier in this Report. Recognizing these points, we conclude by discussing the role of management.

The Laboratory Director and others with significant management authority within the Laboratory should have a substantial scientific background, preferably in forensic sciences. Such persons must also be strongly committed to advancing the Laboratory's quality assurance program and to effective and responsive management. Ideally, these individuals would hold their managerial positions sufficiently long to allow continuity.

An important role for management is articulating the Laboratory's vision and goals and establishing priorities. Management should strongly reaffirm that providing reliable and objective forensic results is the Laboratory's primary function. In addition, management should seek to promote among examiners a stronger spirit of cooperation and commitment to objective inquiry than have existed in the past. We found that personality conflicts or apparent rivalries among units interfered with the Laboratory's forensic work in cases such as Avianca and World Trade. The Laboratory's mission would be better accomplished if all the examiners involved recognized that they are part of a team effort, that questions about methodology or interpretations of results are not necessarily personal attacks or challenges, and that the touchstone for their conduct is providing accurate results based on reliable methods and sufficient data.

Management must further communicate to Laboratory personnel and demonstrate through other actions that such results require effective quality controls and quality assurance. Quality assurance in turn means more than adopting protocols or obtaining accreditation from ASCLD/LAB. Effective quality assurance will result only if management and laboratory personnel generally recognize that the various components of a quality assurance plan, such as procedures for report writing or the review of examiner testimony, are not requirements externally imposed, but instead are central to the Laboratory's basic work. This point is well-illustrated by the requirement that work notes adequately explain what an examiner did in order to reach his or her conclusions. Assuring that such notes are included in case files is essential if the Laboratory is to provide reliable, objective forensic results that are viewed as credible when presented in reports or testimony.

The Laboratory's organization should recognize the importance of an effective quality assurance program. Quality assurance is a responsibility of senior management that cannot be met by simply delegating it to the QAU. Instead, the QAU's role must be one of assisting management, and the Laboratory more generally, in meeting the shared responsibility of providing objective and reliable forensic results. The chief of the QAU should report directly to the Laboratory Director, and the QAU should receive sufficient staffing and other resources. The unit responsible for quality assurance preferably would be

physically located where most of the Laboratory's scientific work is actually conducted. This should occur when the FBI Laboratory moves to the proposed new facility at Quantico, but in the meantime it would be desirable for the QAU to be relocated to FBI Headquarters.

The leadership of the Laboratory also desirably could promote more interaction with other laboratories. In recent years, the FBI has supported the exchange of information within the forensic community through technical working groups on such topics as DNA analysis and materials examination. These groups include representatives from various laboratories in the United States and other countries. They seek, among other things, to develop guidelines for examinations, to perform collaborative studies, and to review pertinent research and technology. Such efforts, we believe, can be very beneficial and should be further encouraged. The Laboratory could also draw on the powerful research capabilities of the multi-disciplinary national laboratories, such as those at Los Alamos and Oak Ridge. In appropriate cases, examiners should also be encouraged to consult with scientists in other laboratories who may have pertinent expertise.

Our final observation concerns the responsibility of management in responding to concerns about the quality of the Laboratory's work. Management must see that such concerns are investigated promptly and thoroughly, that the investigation is conducted by appropriately qualified persons, and that any necessary corrective steps are taken. Management similarly is responsible for assuring that disputes about methodology or the interpretation of data are resolved professionally based on the pertinent scientific knowledge and that the resolution is clearly communicated to those involved.

Such issues pose important, and often difficult, challenges for management. If our investigation established anything, however, it is that the challenges compound enormously if management fails to assure that concerns about quality are appropriately addressed and that Laboratory practices meet current standards for forensic science.



In response to a draft of this Report, the FBI described steps that it is taking consistent with the OIG's recommendations concerning the role of management. The FBI advised that a search is under way for a new Laboratory Director to lead the FBI Laboratory, that search will encompass individuals outside the FBI, and that the principal qualifications for the position will be an outstanding academic and practical background in forensic science and a reputation for excellence in the forensic community. The FBI also reported that the Laboratory is creating a new position of Deputy Assistant Director (DAD) for Science and Operations. The DAD, who is to have outstanding scientific credentials and extensive experience in forensic science, will be responsible for the Laboratory's quality assurance program and accreditation. Consistent with the OIG's recommendation, the Quality Assurance Unit will be transferred to the Laboratory's headquarters and will report to the DAD.

The FBI further advised that the Laboratory is creating four supergrade level science positions in the areas of biological science, chemical science, physical/materials sciences, and computer/information sciences. These individuals will have management responsibilities that include special problem solving, liaison with the relevant scientific communities, and quality assurance. In November 1996, Acting Laboratory Director Donald Thompson transmitted to the Laboratory employees a statement of the Laboratory's Core Values, which include integrity, excellence, responsibility, respect, teamwork and growth. The FBI stated that the Laboratory will reinforce these core values through regular staff conferences, seminars, and communications to employees. Finally, the FBI said in its response that it will continue to interact with other laboratories both through work on specific cases and by participating in technical working groups and maintaining liason with organizations such as ASCLD and the American Academy of Forensic Science.

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## **PART SEVEN: SUMMARY OF OIG RECOMMENDATIONS FOR THE FBI LABORATORY**

This section presents in outline format the OIG's recommendations for the FBI Laboratory that are discussed at greater length in the preceding section.

### **I. ASCLD/LAB Accreditation and External Review**

1. The Laboratory should pursue accreditation at the earliest possible time.
2. In addition to the inspection required for accreditation, external reviews of the Laboratory should occur periodically through audits by the OIG or reviews involving scientists from other forensic laboratories.

### **II. Restructuring the Explosives Unit**

1. The Explosives Unit should be restructured to clarify its mission and to assure that scientific analyses are performed by qualified examiners.
2. Within the Laboratory, the primary mission of the Explosives Unit should be the forensic examination of evidence by qualified scientists.
3. The Explosives Unit should advise and assist in gathering evidence at bombing scenes, but primary responsibility for conducting investigations and

directing crime-scene management should rest with components of the FBI outside the Scientific Analysis Section.

4. The unit chief and examiners in the Explosives Unit should have scientific backgrounds in pertinent disciplines such as chemistry, metallurgy, or engineering, as well as technical training in the assembly, deactivation, and reconstruction of explosive devices and the examination of bombing scenes.

5. To avoid contamination, swab kits, clothing, and evidence to be examined for traces of explosives would preferably first be sent to a designated area that is physically separate from the main Explosives Unit facility. The area designated for the receipt of evidence requiring residue analysis should have strictly controlled access and appropriate procedures to monitor and prevent contamination.

### **III. Principal and Auxiliary Examiners**

1. In place of the existing distinction between Principal and Auxiliary examiners, the Laboratory should instead identify a Coordinating Examiner for each case. That person would serve as the contact with the entity requesting the examination of evidence and would coordinate work by other examiners within the Laboratory.

2. The Laboratory should develop guidelines for the respective roles of the coordinating examiner and other examiners in case work, preparation of reports, and the presentation of testimony.

3. Disagreements among examiners over forensic methods or the interpretation of results should be resolved based on pertinent scientific knowledge. If supervisors become involved in resolving such disputes, it is important that

their ultimate decision be clearly communicated to the examiners involved and that it be reflected in any resulting reports.

#### **IV. Report Preparation**

1. In place of the existing procedure whereby the principal examiner assembles a report based on dictation from other examiners, each examiner who analyzes evidence should prepare and sign a separate report.

2. In cases where it is desirable for the coordinating examiner to prepare a summary report interpreting the overall significance of findings by other examiners, the CE should circulate drafts of the summary report among the relevant examiners to solicit their views before the report is released.

3. Reports should be clear, concise, objective and understandable. They should fully disclose the involvement of the issuing examiner in the case and all pertinent information and findings.

4. Examiners should limit their conclusions to those that logically follow from the underlying data and analytical results. An examiner should not draw conclusions that overstate the significance of the technical or scientific examinations; nor should an examiner base forensic conclusions on unstated assumptions or information that is collateral to the examinations performed.

#### **V. Adequate Peer Review**

1. Before being released, each report should be substantively reviewed to confirm that its conclusions are reasonable and scientifically based. This review should be done by the unit chief or by another qualified examiner in instances

where the unit chief is the reporting examiner or lacks the requisite expertise to review another's work.

## **VI. Case Documentation**

1. The Laboratory should assure that case files include all notes, printouts, charts and other data or records used by examiners to reach their conclusions.

2. The case files should contain sufficient information so that another qualified scientist can understand all the analyses that were done, the results obtained, and the basis for the examiner's conclusions.

3. Retrospective case file reviews or audits -- which we distinguish from a substantive review at the time of report preparation -- should be conducted periodically to assure that reports are supported by appropriate analysis and documentation.

## **VII. Record Retention**

1. The Laboratory must develop a record retention and retrieval system that assures case files are complete and readily retrievable.

## **VIII. Examiner Training and Qualification**

1. The Laboratory should implement a uniform curriculum for examiner training that addresses common issues such as case documentation, report preparation examiner ethics, and testimony.

2.The moot courts used in the qualification process should address not only substantive knowledge and presentation skills, but also an examiner's ability to recognize the limits to his or her opinions and expertise.

3.The Laboratory should consider using experienced examiners from other laboratories as participants in moot courts for examiner qualification.

4.Qualified examiners should participate periodically in exercises simulating court room testimony, both to reevaluate their skills and to provide training demonstrations for less-experienced examiners.

5.The uniform training curriculum should emphasize that the Laboratory's function is to provide reliable and objective forensic results. The training program should also address the roles and responsibilities of the various Laboratory components and the importance of open communication and cooperation among examiners.

6.Training curricula for specific units should be clearly stated. Documented completion of the approved curriculum should be required before an examiner issues reports or conclusions. Any departures from the specified curriculum should also be documented and approved by both the unit chief and the SAS chief.

## **IX.Examiner Testimony**

1.The Laboratory should include courtroom testimony as part of the uniform training curriculum for new examiners.

2.The Laboratory should adopt written guidelines concerning examiner testimony. Such guidelines should expressly state that examiners in testifying should: (a) accurately and completely disclose their involvement in the matter; (b) be clear, straightforward, and objective in their answers to questions on direct and cross-examination; (c) limit their conclusions to those that logically follow from the underlying data and analytical results; (d) decline to answer questions beyond their expertise; (e) attempt to avoid phrasing their testimony in an ambiguous or possibly misleading manner; and (f) be accurate and complete in describing the analyses done or conclusions made by others, while remaining careful not to stray beyond their own expertise.

3.Where it will be necessary for one examiner to testify about work done by others, the Laboratory should attempt prospectively to identify which examiner is best able to address the various matters and to assure that he or she is adequately prepared.

4.Testimony by examiners should be monitored at least once each year through observation or transcript review by the unit chief or another qualified examiner.

## **X.Protocols**

1.The Laboratory should complete the preparation of written protocols that is under way as part of the accreditation process.

2.Through an effective program of file review, the Laboratory should assure that the authorized protocols are followed in practice.

## **XI.Evidence Handling**

1.The Laboratory should continue to refine its written procedures for handling evidence and for avoiding contamination.

2.Concerns for the appropriate handling of evidence and prevention of contamination should be incorporated into the design of the proposed new Laboratory facility.

3.The Laboratory should support continuing efforts to address contamination issues. Examiners and technicians in the Explosives Unit should receive focused training on this topic. Knowledge of contamination issues should be addressed in the training, qualification, and periodic review of all Laboratory examiners.

## **XII.The Role of Management**

1.The Laboratory Director and others with significant management responsibilities in the Laboratory should have scientific backgrounds, preferably in forensic sciences. Such persons must also be strongly committed to advancing the Laboratory's quality assurance program and to effective and responsive management.

2.Management should strongly reaffirm that the Laboratory's primary function is providing reliable and objective forensic results.

3.Management should seek to cultivate among examiners and other Laboratory personnel a stronger attitude of cooperation and commitment to objective inquiry.



4.The Quality Assurance Unit (QAU) should be physically located where the Laboratory's forensic work is primarily conducted, and the person in charge of the QAU should report directly to the Laboratory Director.

5.Management should promote more interaction with other laboratories through such things as technical working groups and, in appropriate cases, FBI examiners consulting with scientists from other laboratories.

6.In responding to concerns about the quality of the Laboratory's work, management must assure that issues are investigated promptly and thoroughly, that the investigation is conducted by appropriately qualified persons, and that any necessary corrective steps are taken. Disagreements about methodology or the interpretation of data must be resolved professionally based on pertinent scientific knowledge and the resolution must be clearly communicated to those involved.

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## **PART EIGHT: CONCLUSION**

The FBI Laboratory has an important national law enforcement function, and it is critical that the Laboratory meet its goal of being foremost in the delivery of forensic examinations and other services to law enforcement through, among other things, a total commitment to quality. Although our investigation identified some significant problems in the Laboratory, we believe the FBI's adoption of our systemic recommendations will help prevent the recurrence of such problems.

This report reflects an exhaustive effort to examine the multitude of allegations and technical issues raised by Agent Whitehurst concerning Laboratory personnel and management. We concluded that most of Whitehurst's claims were unfounded, but that some had merit. Our inquiry primarily concerned three units of the Laboratory -- the Explosives, Chemistry-Toxicology, and Materials Analysis units. Findings of deficiencies in these units should not be extrapolated to other units in the Laboratory, and in the three units that were the focus of our inquiry, and in other parts of the Laboratory, we observed some examples of impressive forensic work. In addition, we identified important issues that apply throughout the Laboratory. In Part Five of this Report, we discuss the allegations directed at specific individuals. Most of the persons named in the allegations are exonerated.

We have shared our information and conclusions with the Criminal Division of the Department of Justice. That Division has assembled a team that is working with prosecutors to address the disclosure implications of the Whitehurst allegations in individual cases.

Our objective was not only to review and resolve the Whitehurst allegations in a fair and impartial manner, but also to identify and comment on issues that should be addressed by the Laboratory to achieve excellence in forensic science. To that end, we have made recommendations in Part Six of this Report

to help correct faulty or absent processes and other problems in Laboratory operations. We believe that full implementation of these recommendations -- although requiring a significant commitment of time, effort, and resources -- will bring the FBI closer to its goal of having one of the finest scientific laboratories in the law enforcement community.

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Michael R. Bromwich

Inspector General

Members of the Scientific PanelSpecial Investigative Counsel

Nicholas S. CartwrightBarry Rand Elden

Dr. Paul B. FerraraScott Bales

Douglas M. LucasNicole Cubbage

Dr. Gerard MurrayLawrence Lincoln

Dr. Richard Schwoebel

Principal Contributors

Office of the Inspector General

David C. Frederick

Alison Murphy

Special Agent Robert Mellado

Special Agent Joseph LeStrange

Special Agent Kimberly Thomas

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