

Michael G. Haag

EDUCATION

Bachelors of Science in Chemistry from the University of Arizona
Math/Physics Minor

EMPLOYMENT

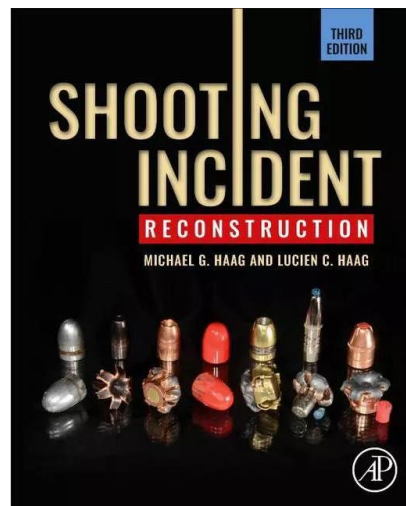
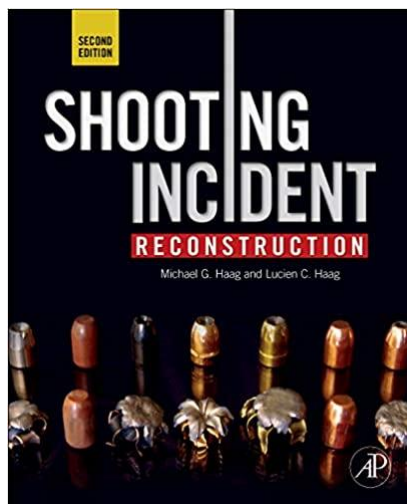
Forensic Science Consultants
Independent Forensic Services
www.forensicfirearms.com
(1999-present)

Albuquerque Police Department
(1998 – 2022 retired)
Supervisor Physical Identification Unit (Firearms, Controlled Substances, Blood/Breath Alcohol)
Technical Leader (Firearm and Toolmark Unit)
Firearm & Tool Mark Examiner (SCIII)
Major Crime Scene Team
Controlled Substances Analyst
Blood Alcohol Analyst

Forensic Science Services Inc.
Independent Forensic Laboratory, Carefree, AZ
(~1990-1998)

AUTHOR

SHOOTING INCIDENT RECONSTRUCTION (2nd Edition and 3rd Edition)
Haag and Haag
Elsevier / Academic Press Copyright 2011 and 2020



PROFESSIONAL MEMBERSHIPS

**Association of Firearms and Toolmarks Examiners
(AFTE)**

Distinguished Member

AFTE Member of the Year (Walter Howe Award) 2012-2013

AFTE Key Member of the Year (Steve Molnar Award) 2006-2007

**American Academy of Forensic Sciences
(AAFS)**

**European Network of Forensic Science Institutes
(ENFSI)**

**Southwest Association of Forensic Scientists
(SWAFS)**

**Association for Crime Scene Reconstruction
(ACSR)**

CERTIFICATIONS / LICENSES

Association of Firearm and Tool Mark Examiners (AFTE) Certifications:

Firearm Identification

Gunshot Residues & Distance Determination

Tool Mark Identification

**Technical Working Group 3D Toolmark Technologies (TWG3D2T)
2020-**

NIST / Organization of Scientific Area Committees (OSAC) for Forensic Science

Firearm and Tool Mark Subcommittee (~2014-2017)

Crime Scene Subcommittee (~2017-2020)

International Association for Identification (IAI) Certification:

Certified Crime Scene Reconstructionist (Discontinued by IAI)

New Mexico State DPS Certified Instructor:

Firearm and Tool Mark Forensics

Trajectory Analysis

Serial Number Restoration

Shooting Scene Reconstruction

New Mexico State Certified Law Enforcement Firearms Instructor

NRA Certified:

Range Safety Officer, Pistol Instructor, Rifle Instructor, Shotgun Instructor
Personal Protection in the Home, Firearms Safety in the Home

TRAINING / SEMINARS / CONFERENCES

Association of Firearms and Toolmarks Examiners (AFTE) Conferences

2022, Atlanta
2021, Miami
2019, Nashville
2018, Charleston
2017, Denver
2015, Dallas
2014, Seattle
2013, Albuquerque (host)
2012, Buffalo
2010, Henderson
2009, Miami Beach
2005, Indianapolis
2004, Vancouver
2002, San Antonio
2001, Newport Beach
2000, St. Louis
1999, Williamsburg
1998, Tampa Bay
1997, Annapolis
1996, Milwaukee

Association of Firearm and Tool Mark Examiners (AFTE) Committees

Board of Directors – Member at Large (2021-2023)
Assistant Editor – AFTE Journal
AFTE Journal Editorial Review Committee
Past Editor – AFTE News
Chairman AFTE Journal OCR Committee
BYOS (2013-present)
AFTE Training Committee
AFTE 2013 Host Committee
AFTE 2017 Host Committee

Effective Preparation for Evidentiary Hearings

Advanced Training for Firearm and Toolmark Examiners
July 2020

Winchester Ammunition - Wound Ballistics Workshop

Albuquerque, New Mexico, February 2019

European Network of Forensic Science Institutes (ENFSI)

2018, Copenhagen, Denmark

Trajectory of Vehicles: Rods, Strings, and Lasers
June 6, 2018

Understanding the Math of Bullet Path Analysis
June 3, 2018

American Academy of Forensic Science (AAFS) Conferences
Washington DC, 2013
Washington DC, 2008

Western States Joint International Association for Identification (IAI)
April 30 - May 2, 2018

Pacific Northwest International Association for Identification
June 6-8, 2017

The Reconstruction of Vehicle Shootings
May 19, 2017

Subclass Characterisitcs Workshop
May 19-20, 2016

Metalurgy for Non-Metalurgists
May 29, 2015

Toolmarks on Reloaded Ammunition Forensic Training Course
September 22-24, 2014

Practical Considerations of Ammunition Reloading Workshop
May 11, 2014

International Forensic Services Conference
Pretoria, South Africa, 2014

ASCLD / LAB International Measurement Confidence Level 100A 100B 100C
February 7 - 9, 2012

Southwest Association of Forensic Scientists
Scottsdale, AZ October 2012

Federal Bureau of Investigation Wound Ballistics Presentation
Albuquerque, NM August 2012

**Midwestern Association of Forensic Scientists Conference
and
Crime Scene Investigation Symposium**
Kansas City, MO
October 4th -8th, 2010

California Association of Criminalists Conference
April 20th -23rd, 2010
Yosemite, CA
**Tenth International Police Workshop
"Photogrammetry and Laser Scanning"**
July 20th – 24th, 2009
Neuss, Germany

**Federal Bureau of Investigation
Shooting Incident Reconstruction**
September 8th – 11th, 2008
Fort Dix, NJ

State of New Mexico Law Enforcement Firearms Instructor's Course
2008

BernalilloCounty Sheriff's Department Basic Field Investigations Course
Albuquerque, NM February 2008

Polarized Light Microscopy
McCroneCollege of Microscopy
Westmont, IL June 11th – 15th 2007

Leica Geosystems High-Definition Surveying Scanner Training
Albuquerque, NM
January 2006 - 5 days

Leica Geosystems High-Definition Surveying Scanner Training
Albuquerque, NM
October 2006 - 4 days

Leica Geosystems High-Definition Surveying Scanner Training
Albuquerque, NM
December 2006 - 4 days

Alliant Techsystems (ATK) - Wound Ballistics Workshop
Albuquerque, New Mexico June 2006

First Choice Body Armour - Soft Body Armour Workshop
Albuquerque, New Mexico
May 2006

Glock Armorer's Course
September 14, 2006

Urban Rifle Course and Certification
Albuquerque Police Department
October 3-5, 2005

**National Law Enforcement and Corrections Technology Center
DNA Evidence from Crime Scene to Courtroom**
Albuquerque, NM
January 26th-27th, 2005

Hi Point Armorer's Course
Vancouver, BC 2004

Criteria for Identification Workshop
Vancouver, BC
May 23rd and 28th, 2004

**Federal Bureau of Investigation
Techniques in Firearms Identification**
Quantico, VA
April 14th – 18th, 2003

SIG Sauer Armorer's Course
San Antonio, TX 2002

NIBIN/IBIS Operators Training Course
Largo, FL
June, 2002

AFTE Ballistics Workshop
Shooting Reconstruction Techniques
June 2001

California Criminalistics Institute (CCI) Courses
Firearms and Tool Marks Introduction I
Firearms and Tool Marks Introduction II
Sacramento, California
Sept.-Oct. 2000

San Diego City Police Department Firearms Unit, Cross Training
San Diego, CA June 1999

Modern Pistol and Shotgun Technique
(Albuquerque 79th Police Academy Class)
17 week class ending in April 99

Bureau of Alcohol Tobacco and Firearms Serial Number Restoration Course
Albuquerque, Spring 1998

Albuquerque Police Department Field Investigations Course
Albuquerque, NM March 1998

Firearms Related Crime Scene Reconstruction Class
Mesa, AZ 1997

Internship, Bundeskriminalamt (BKA)
German Federal Law Enforcement
Wiesbaden, Germany Sept.-Nov. 1997

Joint CAC and United Kingdom Forensic Science Service Meeting
Harrogate, UK July 1997

Bloodstain Evidence Institute Course
Corning, NY Fall 1996

Annual U.S. Army Yuma Proving Grounds Trajectory Workshops
1993, 1994, 1996, 1997, 1998, 2003

PRESENTATIONS

Shooting Incident Reconstruction (SIR): Fundamentals and Nuances of the Current State of Shooting Incident Reconstruction

2021 Asian Forensic Sciences Network

Phillipines (virtual)

Bullet Deflection as a Result of Perforation

2019 AFTE Conference

Nashville, TN

Two Bullets, One Gunshot Wound, the Limited Universe, and Squibs

2018 AFTE Conference

Charleston, WV

and

2018 ENFSI Conference

Copenhagen, Denmark

The Determination of Bullet Impact Sites by Detection of Common Bullet Metals

2017 Pacific Northwest International Association for Identification Workshop

Bend, OR

The Determination of Bullet Impact Sites by Detection of Common Bullet Metals

2017 AFTE Workshop

Denver, CO

Designing Practical Experiments: Concepts and Procedures Using the Caracano Rifle and JFK Assassination as a Template

2015 AFTE Workshop

Dallas, TX

1260 Smith & Wesson M&P9 Pistols Inter-Compared Using MatchPoint:

An Evaluation of the Science of Firearm and Tool Mark Identification

2014 AFTE Conference

Seattle, WA

Terminal Ballistics and Ricochet,

The Gun and Its Condition

and

Chemical Tests at Suspected Bullet Impact Sites

2014 National Forensic Services Conference

Pretoria, South Africa

**Presenting Scan Data to
Juries, Judges, Attorneys, Investigators, and Command Staff**
2012 Leica World Wide Users Group
Las Vegas, NV

3D Laser Scanning and the Daubert Criteria
2011 Leica World Wide Users Group
Orlando, FL

ScanStation Validation in the Post-NAS Report Environment
2010 Leica World Wide Users Group
San Ramon, CA

Fundamentals of Shooting Incident Reconstruction
2010 Crime Scene Investigation Symposium
Kansas City, MO

**The Case of the Sniped Sniper: A Long Distance Trajectory and Reconstruction
and
A Long Distance Trajectory Reconstruction: The Random Shot?**
2009 AFTE Conference
Miami, FL

**Validation and Accuracy Assessments for
Law Enforcement Uses of 3D Laser Scanners
and
Trajectory Extrapolation Using Leica Cyclone 6.0, and the Accuracy and Precision
of Trajectories with 3D Laser Scanning**
2009 International Association of Forensic and Security Metrology (IAFSM)
Denver, CO
and
2009 Tenth International Police Workshop "Photogrammetry and Laser Scanning"
Neuss, Germany

**Technical Overview and Application of 3D Laser Scanning
for Shooting Reconstruction and Crime Scene Investigations**
2008 American Academy of Forensic Sciences (AAFS)
Washington, DC
and
2008 International Association of Forensic and Security Metrology (IAFSM)
Houston, TX

Firearms Myths and Misconceptions
2007 and 2008 Office of the Medical Investigator (OMI)
Advanced Training Conference
Albuquerque, NM

**Case Study of Officer Homicide
Wound Ballistics**

2007 California Detective Conference (POST)
San Francisco, CA

Presidential Assassination Attempt in Taiwan

2007 California Association of Criminalists (CAC)
Orange County, CA
and
2006 ACSR Conference
Albuquerque, NM

Chemical Tests at Suspected Bullet Impact Sites

2006 ACSR Conference
Albuquerque, NM

Interior Ballistic Deformation

2000 AFTE Conference
St. Louis, MI

**A Scientific Examination and Comparison of
Skin Simulants for Distance Determinations**

1999 AFTE Conference
Williamsburg, VA

**Some Observations on Threshold Velocities Necessary
to Perforate Skin and Skin Simulants**

1998 AFTE Conference
Tampa, FL

**The Physical and Chemical Properties
of Shotgun Buffer Material**

and

**Projectiles Through Glass: Characteristics
Present on Recovered Projectiles**

1997 AFTE Conference
Annapolis, MD

**The Exterior Ballistics of Contemporary
Air Guns and BB Guns**

1997 Joint CAC and United Kingdom Forensic Science Service Meeting
Harrogate, England

**2-Nitroso-1-Naphthol vs. Dithiooxamide in
Trace Copper Detection at Bullet Impact Sites**

1996 IABPA/ACSR Meeting
Albuquerque, NM

PUBLICATIONS

Comparative Evaluation of Potentially Radiolucent Projectile Components by Radiographs and Computed Tomography

Co-authored with Miller, Gerrard, et. al.

Journal of Forensic Sciences

January 2017

Asymmetrically-Positioned Concentric and Radial Cracks at Shallow Angle Glass Impact Sites for Determination of Projectile Direction of Travel

AFTE Journal Vol. 48 No. 3

The Production and Persistence of Gunpowder Tattooing and Stippling of Human Skin

Co-authored with Lucien C. Haag and Aaron Brudenell

AFTE Journal Vol. 46 No. 2

A Ballistics Study of the Winchester Supreme Elite PDX1 Ammunition

Academic Forensic Pathology Journal

(National Association of Medical Examiners)

Vol. 3 Issue 2

Cartridge Mismatch: 9x19mm in a 357 SIG

AFTE Journal Vol. 45 No. 2

A Stable Reagent for Nitrate / Nitrite Detection and the Verification of Suspected Gunpowder Particles

AFTE Journal Vol. 44 No. 3

Bore Lapping Compounds and Their Effect on Traditional Firearms Identification

AFTE Journal Vol. 41 No. 3

Ejection Patterning – Standard Testing and the Effects of Non-Standard Angles, Orientations, and Maneuvers

AFTE Journal Vol. 41 No. 2

The Accuracy and Precision of Trajectory Measurements

AFTE Journal Vol. 40 No. 2

Trace Bullet Metal Testing for Copper and Lead at Suspected Projectile Impacts

Co-authored with Lucien C. Haag, Forensic Science Services Inc.

AFTE Journal Vol. 38 No. 4

Shotgun Pellet Pattern: Federal Flite Control Law Enforcement Shotgun Shell
AFTE Journal Vol. 38 No. 4

The Forensic Effects of Aftermarket Porting of a Glock Model 23
Journal of the Association for Crime Scene Reconstruction
Vol. 11 Issue 3
and
AFTE Journal Vol. 37 No. 3

Skin Perforation and Skin Simulants
Co-authored with Lucien C. Haag, Forensic Science Services Inc.
(Presented in part AFTE 1998 by Michael Haag)
AFTE Journal Vol. 34 No. 3

The Reconstructive Aspects of Bullet Jacket and Core Weights
AFTE Journal Vol. 34 No. 2

The Analysis and Comparison of Shotgun Shell Buffers
Co-authored with Lucien C. Haag, Forensic Science Services Inc.
(Presented AFTE 1997 by Michael Haag)
AFTE Journal Vol. 32 No. 3

**A Rapid Non-Destructive Method for Analyzing
and Comparing Bullet Lubricants**
Co-authored with Lucien C. Haag, Forensic Science Services Inc.
AFTE Journal Vol. 32 No. 2
and
Southwestern Association of Forensic Scientists (SWAFS) Journal Vol. 23 No. 1

**A Scientific Examination and Comparison of
Skin Simulants for Distance Determinations**
Co-authored by Gene Wolberg, San Diego PD
AFTE Journal Vol. 32 No. 2

**Applications of Focused Ion Beam Systems
in Gunshot Residue Investigation**
Co-authored with Ludwig Niewöhner, Bundeskriminalamt (BKA), Germany
Journal of Forensic Sciences Vol. 44 No. 1, p. 105
January 1999

**The Exterior Ballistics of Contemporary
Air Guns and BB Guns**
AFTE Journal Vol. 30 No. 2

**2-Nitroso-1-Naphthol vs. Dithiooxamide
in
Trace Copper Detection at Bullet Impact Sites**
AFTE Journal Vol. 29 No. 2

East German 7.62x39mm Übungsmunition
AFTE Journal Vol 27 No. 1

INSTRUCTOR

Practical Trajectory Reconstruction: Training and Test
Pacific Northwest Division International Association for Identification, Bend, OR
June 20-23 2022

**Shooting Incident Reconstruction with 3D Laser Mapping
Using the Leica Scan Station**
Las Vegas, NV May 1, 2018

**3D Laser Scanning of Crime Scenes
and
Shooting Reconstruction Based on 3D Laser Scanning**
San Diego, CA February 27, 2014
and
Olathe, KS August 31, 2013

Shooting Incident Reconstruction -Introduction
Southwest Association of Forensic Scientists, Scottsdale, AZ
October 22-23 2012

Shooting Scene Reconstruction and Trajectories with 3D Laser Scanning
Leica World Wide Users Group, Las Vegas, NV
June 4th 2012

Shooting Scene Reconstruction and Trajectories with 3D Laser Scanning
Leica World Wide Users Group, Orlando, FL
June 5th 2011

Shooting Scene Reconstruction and Trajectories with 3D Laser Scanning
Leica World Wide Users Group, San Ramone, CA
October 24th 2010

Bullet Penetration, Perforation and Deflection Workshop
Association of Firearm and Tool Mark Examiners Conference
Henderson, NV May 7th 2010

Proper Trajectory Measurement
Association of Firearm and Tool Mark Examiners Conference
Henderson, NV May 6th 2010

3D Laser Scanning of Shooting Scenes and Trajectories
California Association of Criminalists
April 20th, 2010

Introduction to Crime Scene Investigation

International Association for Forensic and Security Metrology (IAFSM)
Instructor
Houston, TX 2007 and 2008

Proper Trajectory Measurement
California Association of Criminalists (CAC)
Orange County, CA May 8th 2007

Proper Trajectory Measurement
Association for Crime Scene Reconstruction
Albuquerque, NM February 10th 2006

Forensic Shooting Scene Reconstruction Courses and Host Agency / Location

Oregon State Patrol and Bend Police Department
Bend, OR June 13-17, 2022

Ohio Attorney General Office
Columbus, OH October 18-22, 2021

Albuquerque Police Department
Albuquerque, NM October 26-30, 2020

Los Angeles Police Department
Burbank, CA September 30-October 4, 2019

Danish National Police
Copenhagen, Denmark October 8-12, 2018

Montana State Crime Lab and Billings Police Department
Billings, MT July 23-27, 2018

Washington State Patrol
Snoqualamie, WA September 18-22, 2017

Larimer County Sheriff's Department
Fort Collins, CO July 24-28, 2017

Oregon State Police
Bend, OR October 18-20, 2016

Ventura County Sheriff's Office
Camarillo, CA August 10-14, 2016

Chartered Society of Forensic Sciences, United Kingdom
Faldingworth, UK June 20-24, 2016

Indiana State Police

Danville, IN September 23-25,2015

Toronto Police Service

Toronto, Canada January 12-16, 2015

Indiana State Police

Greencastle, IN September 17-19,2014

San Diego County Sherriff's Office

San Diego, CA February 24-26, 2014

Ohio Bureau of Criminal Investigation

London, OH 2013

Johnson County Sherriff's Office

Olathe, KS August 28-30, 2013

Glendale Police Department / Arizona Homicide Investigators

Glendale, AZ March 20-22, 2013

Georgia Bureau of Investigation

Forsythe, GA September 12-14 and 17-19, 2012

South Dakota Criminal Bureau of Investigation

Mitchell, SD May 7-9, 2012

San Diego Police Department

San Diego, CA January 18-20, 2012

Los AngelesCountySheriff's Department

Los Angeles, CA May 23-25, 2011

Naval Criminal Investigation Service

Washington, DC November 1-5, 2010

LGC Forensics

Leeds, United Kingdom June 29-July 1st, 2009

ZurichStadtpolizei

Zurich, Switzerland June 22-26, 2009

BernalilloCounty Sheriff's Office

Albuquerque, NM March 23-27, 2009

GUNSITE

Paulden, AZ September 29-October 3, 2008

Eugene Police Department

Eugene, OR August 4-8, 2008

Royal Canadian Mounted Police

Vancouver, BC Canada February 26-27, 2008

GUNSITE

Paulden, AZ October 29-November 2, 2007

Centre of Forensic Sciences

Toronto, Ontario Canada September 10-14, 2007

Albuquerque Police Department

Albuquerque, NM June 18-22, 2007

GUNSITE

Paulden, AZ October 16-20, 2006

Los Angeles Police Department

Burbank, CA December 2-4, 2005

Arizona Homicide Investigator's Association

Show Low, AZ July 6-8, 2005

GUNSITE

Paulden, AZ October 17-21, 2005

Los Angeles County Sheriff / Long Beach Police Department

Long Beach, CA February 16-18, 2005

GUNSITE

Paulden, AZ November 8-12, 2004

Los Lunas New Mexico

Los Lunas, NM June 14-18, 2004

Forensic Science Consultants Inc.

Castle Rock, CO July 14-18, 2003

GUNSITE

Paulden, AZ October 14-18, 2002

Miami-Dade Police Department

Miami, FL March 27-30, 2001

RECURRENT INSTRUCTORSHIPS

**Bureau of Alcohol Tobacco and Firearms (BATF)
Trajectory Analysis and Shooting Reconstruction Instructor
National Firearms Examiners Academy (NFEA)**

Ammendale, MD April 19-22, 2022
Ammendale, MD July 19-22, 2021
Ammendale, MD May 7-10, 2019
Ammendale, MD April 17-20, 2017
Ammendale, MD April 3-4, 2014
Ammendale, MD May 2-5, 2011
Ammendale, MD May 10-13, 2010
Ammendale, MD May 4-7, 2009
Ammendale, MD Nov 5-8, 2007
Ammendale, MD May 8-11, 2006
Ammendale, MD Oct. 26-29, 2004
Ammendale, MD Oct. 20-24, 2003
Rockville, MD Oct. 28-30, 2002
Rockville, MD Oct. 31-November 2, 2001
Rockville, MD Oct. 30-31, 2000

Bullet Trajectory Workshop for APD Field and Crime Scene Investigators
1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012,
2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022
Albuquerque, New Mexico

Crime Scene Firearms Safety and Documentation
2003, 2004, 2005, 2006, 2007, 2008, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021,
2022

Forensic Firearms Terminal Ballistics and Wound Ballistics for Pathologists
2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013,
2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021

Tactical Forensic Firearms for Officers
2007, 2008, 2009

FIREARMS RELATED TOURS

TECHNICAL

Glock USA – Smyrna, GA
G2 Research- GA
Nosler Bullets- Bend, OR
Colt- Canada
Elysium Barrels- Raton, NM
HPR Ammunition- Payson, AZ
TASER International- Scottsdale, AZ
Winchester Ammunition Plant-East Alton, IL
Obermeyer Barrel Manufacturers-Milwaukee, WI
Accu-Match Barrel Manufacturers-Mesa, AZ
Smithsonian American History Museum Firearms Collection-WashingtonD.C.
Precision Made Cartridge (PMC) Ammunition Plant-Boulder City, NV
Sturm Ruger Firearms Manufacturing Plant-Prescott, AZ
Leica Geosystems- Heerbrug, Switzerland
Leica Microsystems- Heerbrug Switzerland
Royal Armouries- Leeds England

CRIME LABORATORIES

Colorado Springs PD
Salt Lake City PD
Utah State
Denver Police Department
Oregon State Patrol - Bend
Oklahoma State Bureau of Investigation
RCMP Vancouver
Centre of Forensic Science Toronto
Miami Dade County
Mesa PD
West Valley PD
Dallas PD
Southwest Institute of Forensic Science
Milwaukee PD
Arizona DPS Phoenix
Arizona DPS Tucson
Arizona DPS Flagstaff
Tucson PD
San Bernardino County
Los Angeles PD
New Mexico State
Long Beach PD
San Diego PD
San Diego County
Zurich Stadt Polizei

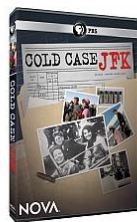
Bayern Landesamt
Bundeskriminalamt (old and new facility)
LGC Forensics UK
Eugene PD
FBI Quantico and FBI Washington DC
Virginia State Norfolk
Taiwan National Laboratory (CIB)
Contra Costa County Sheriff's Office
Los Angeles Sheriff's Department
Scottsdale Police Department
United States Army Crime Lab (USACIL)
Johnson County Sheriff's Office
South African Police Services, Pretoria

6/22

Michael G. Haag

*Forensic Scientist
Supervisor – Physical Identification Unit
Firearm and Tool Mark Examiner
Shooting Scene Reconstructionist
Criminalist
Major Crime Scenes*

(505) 401-6225



PBS's acclaimed NOVA science program featured Haag



Taiwan's 2004 Presidential assassination attempt was investigated onsite by Haag