

12-17803

IN THE
United States Court of Appeals
FOR THE NINTH CIRCUIT

ESPANOLA JACKSON; PAUL COLVIN; THOMAS BOYER; LARRY BARSETTI;
DAVID GOLDEN; NOEMI MARGARET ROBINSON; NATIONAL RIFLE ASSOCIATION
OF AMERICA, INC.; SAN FRANCISCO VETERAN POLICE OFFICERS ASSOCIATION,
Plaintiffs-Appellants,

v.

CITY AND COUNTY OF SAN FRANCISCO; EDWIN M. LEE, Mayor for the
City and County of San Francisco; GREG SUHR, San Francisco Police Chief,
Defendants-Appellees.

*Appeal From the United States District Court
for the Northern District of California, San Francisco
Case No. 3:09-cv-02143-RS, Richard Seeborg, District Judge*

**AMICI CURIAE BRIEF FOR SPORTING ARMS AND
AMMUNITION MANUFACTURERS' INSTITUTE, INC.
AND NATIONAL SHOOTING SPORTS FOUNDATION
IN SUPPORT OF PLAINTIFFS-APPELLANTS**

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IDENTITY AND INTERESTS OF AMICI¹²

Amicus Sporting Arms and Ammunition Manufacturers Institute, Inc. (“SAAMI”) is the technical trade association of the nation’s leading manufacturers of firearms, ammunition and ammunition components. SAAMI was founded in 1926 at the request of the federal government. SAAMI routinely publishes standards and technical data related to firearms and ammunition to promote safe firearm practices. The American National Standards Institute (“ANSI”) has accredited SAAMI as an active and independent “standards developer” for firearms industry test methods, definitive proof loads, and ammunition performance standards. Through ANSI’s standards development framework, SAAMI works to create one body of standards for arms and ammunition manufacturers to rely on to make safe products. Recognizing SAAMI’s contribution to public safety in the United States, the United Nations accredited SAAMI as an Economic and Social Council Non-Government Organization. In that capacity, SAAMI and its members serve as technical resources for the U.N. on transportation and small arms/light weapons issues.

¹ All parties have consented to the filing of this brief.

² This brief was prepared with the assistance of Dr. Gary K. Roberts, DDS, and J. Buford Boone, III, retired Supervisory Special Agent of the Federal Bureau of Investigation in charge of that Agency’s Ballistic Research Facility. Their *curricula vitae* are attached as exhibits A and B, respectively.

SAAMI's interest in this case stems from its commitment to educating the public about safe practices involving firearms and ammunition, and assuring that a cartridge made by any manufacturer will operate safely and reliably in any appropriate firearm made by any other manufacturer. SAAMI is in a unique position to provide the Court with reliable facts regarding firearms and ammunition.

Amicus National Shooting Sports Foundation (the "NSSF") is the trade association for the firearms, ammunition, hunting, and shooting sports industry. Formed in 1961, the NSSF is a Connecticut non-profit tax-exempt corporation with a membership of more than 10,000 federally licensed firearms manufacturers, distributors, and retailers (also known as "federal firearms licensees" or "FFLs"), sportsmen's organizations, shooting ranges, gun clubs, publishers, hunters and recreational target shooters. The NSSF's mission is to promote, protect and preserve hunting and the shooting sports. The NSSF provides trusted leadership in addressing industry challenges, advances participation in and understanding of hunting and the shooting sports, reaffirms and strengthens its members' commitment to the safe and responsible use of their products, and promotes a political environment that is supportive of America's traditional hunting heritage and firearms freedoms. As a guardian of our nation's rich hunting and shooting traditions, the NSSF believes that lawful commerce in firearms and firearm-related

products must be protected - and that, in particular, no law or regulation should unreasonably limit the possession of firearms and ammunition by responsible, law-abiding adults who have individual constitutional rights guaranteed by the Second Amendment to the United States Constitution to purchase, own, possess and use such firearms and ammunition. The NSSF's interest in this action derives principally from the fact that the NSSF's FFL manufacturer, distributor, and retailer members provide the lawful commerce in firearms and ammunition that makes the exercise of Second Amendment rights possible. NSSF's individual members have sold in San Francisco, and will continue to sell nationwide, the ammunition being restricted.

CORPORATE DISCLOSURE STATEMENT

Neither *Amici* have a parent or corporate affiliate.

RULE 29(C)(5) STATEMENTS

No party's counsel authored this brief in whole or in part. No entity or person other than *Amici* contributed money to fund the preparation and filing of this brief.

INTRODUCTION

San Francisco has adopted an ordinance that prohibits the sale, lease, or transfer of ammunition that:

(1) Serves no sporting purpose³;

³ While this brief focuses primarily on the self-defense aspect of the banned ammunition, it is indisputable that the banned ammunition serves a sporting

- (2) Is designed to expand upon impact and utilize the jacket, shot or materials embedded within the jacket or shot to project or disperse barbs or other objects that are intended to increase the damage to a human body or other target (including, but not limited to, Winchester Black Talon, Speer Gold Dot, Federal Hydra-Shok, Hornady XTP, Eldorado Starfire, Hollow Point Ammunition and Remington Golden Sabre ammunition[]); or
- (3) Is designed to fragment upon impact (including, but not limited to, Black Rhino bullets and Glaser Safety Slugs).

San Francisco Police Code (“S.F. Code”) § 613.10(g). In support of these provisions, San Francisco made a number of specific findings regarding the banned ammunition. S.F. Code § 613.9.5(2)-(4). While this Court may accept the findings of a local legislature, it “should not credit facially implausible legislative findings.” Panel Op. at *37. Because the legislative findings that undergird the challenged ammunition restrictions are “facially implausible,” the Court should grant rehearing *en banc* to reconsider whether San Francisco has carried its burden to establish that the challenged ordinance is constitutional.

ARGUMENT

I. Expanding and Fragmenting Ammunition Is Not More Likely to Cause Death than Non-Expanding or Non-Fragmenting Ammunition.

San Francisco’s first finding related to the rationale behind adopting this regulation states:

purpose. Aerodynamically, typical hollow-point ammunition is considerably more accurate than typical full metal jacket ammunition; the extreme outside spread of a grouping of hollow-point ammunition fired at a target has shown to be approximately half that of a grouping of full metal jacket rounds. This increase in accuracy is critical to competitive shooters and hunters.

[e]nhanced-lethality ammunition [the banned ammunition] is designed to tear larger wounds in the body by flattening and increasing the diameter on impact and/or exploding and dispersing shrapnel throughout the body. These design features increase the likelihood that the bullet will hit a major artery or organ, that it will take a more circuitous path through the body to create more widespread damage, and that it will release all of its propulsive force inside the body to cause maximum injury. Accordingly, enhanced-lethality ammunition is more likely to cause severe injury and death than is conventional ammunition that does not flatten or fragment upon impact.

S.F. Code § 613.9.5(2). This finding is contradicted by ballistic testing of the banned ammunition.⁴ The design features of the banned ammunition do not increase the likelihood that a bullet will cause severe injury or death; they actually increase the effectiveness of the ammunition in rapidly stopping an aggressor with the least number of shots required. Ammunition that uniformly expands, while resisting fragmentation, tends to travel a straighter path in tissue than ammunition that does not expand, or does so only slightly. This is because a non-expanding

⁴ Generally speaking, it is practically impossible to describe, predict or determine the terminal ballistics (the behavior of the projectile from the time of initial impact until it stops moving) of any particular projectile simply from its outward appearance. See <http://www.dtic.mil/ndia/2012armaments/Parks.pdf>. For that reason, this brief properly only addresses the design of the banned ammunition and its effects, both intended and actual, as opposed to its appearance. Accordingly, *Amici* urge this Court to ignore the physical appearance of the banned ammunition in making its determinations. Furthermore, there are very few projectiles that are designed not to expand or fragment upon impact. It is commonly accepted that most projectiles will expand or fragment if striking tissue at close range (*e.g.*, less than 25 yards). It is for this reason that the FBI dropped all 20 yard handgun test events from its testing protocol.

projectile typically yaws⁵ in tissue and, therefore, can change course as the yawing occurs.

Expanding ammunition had its genesis in the solid lead-ball ammunition of smooth-bore firearms of the seventeenth and eighteenth centuries. The soft lead ball fired from a musket would deform upon impact with a target, flattening to a diameter larger than the original ball projectile. Even with the advent of rifling, the solid lead projectiles of the day would expand upon impact, potentially to double their original size. In the mid-1800s, the first bullets that were designed specifically to expand upon impact were created for express rifles (medium bore, high velocity rifles). These early expanding rounds were designed to be more effective in taking wild game.

Today, the most common forms of expanding ammunition are hollow-point ammunition and soft-point ammunition. Hollow-point ammunition consists of fully-jacketed bullets⁶ that have a cavity in the center. This design is intended to reduce the penetration of the bullet by causing it to expand, and slow down, upon impact with a target. The expansion effect is caused by the pressure in the cavity of

⁵ Yawing is the motion in which the tip of a bullet rotates such that the bullet is no longer facing the direction it was when it entered the target.

⁶ A jacketed bullet is one that has a copper (or other metal) cover that surrounds the lead core. A fully jacketed bullet has a cover that, generally, surrounds everything but the base of the projectile. The reason for this cover is to increase the strength of the bullet, to maintain its integrity as it travels down the bore at high velocity, and to reduce lead fouling within the barrel of a firearm.

the bullet forcing the material outward, into a shape resembling a mushroom. Soft-point ammunition is semi-jacketed ammunition that has exposed lead at the tip of the bullet. Because the soft lead expands, a typical soft-point bullet will usually expand similarly to a typical hollow-point round.

The wound created by an expanding bullet that fully deforms will have a larger diameter than that created by a non-expanding bullet. It does not follow, however, that an expanding bullet: 1) has an increased chance of hitting an artery or organ; 2) will take a “more circuitous path through the body;” or 3) is more likely to cause severe injury or death.

First, the chances of hitting an artery or organ depend on both shot placement and penetration depth. If a round does not strike in an area with a vital organ or artery, there is no chance that it will hit either, regardless of the ammunition type used. Because an expanding bullet is designed to penetrate less than a non-expanding bullet, it actually has a reduced likelihood of hitting a vital organ or artery. For example, FBI tests have demonstrated that the permanent cavity of a .355 inch projectile (9mm) that expands to two times its original diameter only extends .1775 inch farther from the center than that of a nonexpanding projectile, which represents a negligible increase in the probability of striking an artery or organ, particularly when considering the elasticity of most tissue.

Second, it is simply not true that an expanding or fragmenting bullet “will take a more circuitous path through the body.” S.F. Code § 613.9.5(2). To the contrary, there is a clinical expectation that a non-expanding bullet will yaw when it impacts a solid target. The largest wounds (calculated by maximum diameter and total penetration depth) are often created when a non-expanding bullet with a greater length than diameter yaws to ninety degrees and travels sideways. It is common to encounter rifle bullets, and some handgun bullets, that are designed with a pointed, “Spitzer” tip. In a non-expanding projectile, a pointed tip routinely contributes to the projectile yawing after impact, increasing the area of damage to tissue. Expanding ammunition, on the other hand, decelerates due to increased surface area and resists the tendency to yaw once it is in the target. This creates a more linear path that both is less “circuitous,” and covers less of an area.

Fragmenting ammunition is even less likely to take a “circuitous” route after entering a target. Fragmenting ammunition rapidly breaks apart upon impact, generally decreasing penetration depth due to the small fragments’ rapid loss of momentum. Fragmenting and expanding rounds do not travel nearly as far or as deep once entering the target as does a non-expanding or non-fragmenting round.⁷

⁷ This feature may be an important consideration for individuals who need to use a firearm to defend themselves in a home where there are other people, or in a densely populated urban area, because it minimizes penetration of walls and, thereby, the risk to bystanders. For example, the Glaser Safety Slug, expressly banned by the challenged ordinance, greatly reduces the danger to bystanders caused by overpenetration or a missed shot that could ricochet, as it breaks apart after contacting a hard surface. It is sold all over the world to hospital security,

Expanding and fragmenting handgun ammunition also poses less of a threat to law enforcement officers wearing ballistic armor than non-deforming ammunition. Because of their increased surface area following impact, they are less likely to penetrate the typical law enforcement vest than a non-deforming round.

Finally, San Francisco's finding that expanding and fragmenting ammunition is "more likely to cause severe injury and death" is facially implausible. As explained above, San Francisco's other findings are not tenable and do not support this conclusion. The controlling factor in whether a gunshot wound will cause severe injury or death is the location of the wound. Thus, it is shot placement, and not the structure of the projectile itself, that will determine whether a gunshot causes severe injury or death. No published data support a finding that the banned ammunition is more likely to cause severe injury or death.⁸

airport security, theme park security, and anywhere else where a shooting might occur in a crowded environment. It is called a "Safety Slug" precisely because it breaks upon striking a hard surface. Furthermore, many indoor ranges prohibit the use of handgun ammunition manufactured with full metal jacket, non-expanding bullets due to concerns about backstop damage in general, and the increased possibility of ricochets in particular. This concern is especially acute when firing at steel plate targets, a popular form of sport shooting.

⁸ Hollow point and fragmenting rounds are not designed to be more lethal than other types of ammunition, but are more effective on a bullet-by-bullet basis. The banned ammunition is designed to incapacitate an assailant as quickly (*i.e.*, with as few shots) as possible. A civilian should consider using the same ammunition for his or her defensive firearm as is used by the police for theirs. Reliance upon the same ammunition generally relied upon by law enforcement officers may reduce the number of shots fired to stop a threat, limiting the number of wounds suffered by an assailant, minimizing the injury to bystanders and increasing the chances of successful treatment of the assailant's injuries. There is

Moreover, this finding is refuted by the exemption for law enforcement use, including San Francisco Police and Sheriff's Departments, which use expanding hollow point ammunition.⁹ Can it really be public policy for law enforcement officers to use rounds designed to be more likely to cause severe injury or death?

II. Anecdotal Accounts of Mass Shootings Are Not Sufficient Support for the Conclusion That the Banned Ammunition Is Any More Lethal Than Other Ammunition.

San Francisco found that the banned ammunition “has been used in shooting massacres both in San Francisco and abroad.” In support of this statement, it notes that Gian Luigi Ferri in San Francisco and Anders Behring Breivik in Norway used hollow-point bullets in their crimes. While perhaps true, this is not a sufficient basis to infringe on the rights of law-abiding citizens to defend themselves.

As the Supreme Court noted in *District of Columbia v. Heller*, 554 U.S. 570 (2008), the fact that a particular group of firearms were used disproportionately in crimes was not sufficient to overcome the Second Amendment interest in permitting law-abiding, responsible citizens to acquire the defensive firearms of their choosing:

no basis for San Francisco's finding that the banned ammunition is more lethal than other ammunition.

⁹ As of the last qualification period, the San Francisco Police Department issued its officers Winchester T-Series 180 grain hollow point ammunition chambered in .40 S&W, which is a successor design of the banned Black Talon ammunition without the black surface coating.

We are aware of the problem of handgun violence in this country and we take seriously the concerns raised by the many *amici* who believe that prohibition of handgun ownership is a solution. The Constitution leaves the District of Columbia a variety of tools for combating the problem, including some measures regulating handguns. But enshrinement of constitutional rights necessarily takes certain policy choices off the table. These include the absolute prohibition of handguns held and used for self-defense in the home.

Id. at 636. San Francisco’s prohibition of ammunition that is widely chosen by both civilian and law enforcement officers as the most effective self-defense ammunition available runs afoul of the Second Amendment in the same way as D.C.’s ban on commonly owned firearms did. Accordingly, while the events referenced by San Francisco are undoubtedly tragic, they cannot form the basis for restricting the constitutional rights of all San Francisco residents. This is especially true when there is no attempt to establish any causative relationship between the ammunition used in these attacks and their outcomes in terms of severity of injury or lethality.

III. Banning the Sale of Expanding and Fragmenting Ammunition Substantially Burdens Self-Defense in the Home.

San Francisco made the self-serving finding that banning expanding and fragmenting ammunition “does not substantially burden the right of self-defense.” S.F. Code § 613.9.5(4). It based this finding on the apparent belief that the banned ammunition “is not in general use, and this unusually injurious ammunition has

been banned outside the United States.” *Id.* Both of these beliefs are manifestly erroneous.

As an initial matter, the fact that such ammunition may or may not be banned in other countries is of no moment, given that this Court is necessarily concerned with the interplay of the Second Amendment to the United States Constitution and the challenged ordinances. No other country has such a constitutional limitation on its enacting firearms regulations. Moreover, the single example cited by San Francisco is the Hague Convention of 1899, which applies only to militaries in wartime,¹⁰ and to which the United States is not a signatory.¹¹ This has no bearing on whether American civilians can purchase or own expanding or fragmenting bullets.

¹⁰ See, e.g., Hague Convention, July 29, 1899, *Laws of War: Laws and Customs of War on Land*, Article I (“The High Contracting Parties shall issue instructions to their armed land forces....”), and *Laws of War: Declaration on the Use of Bullets Which Expand or Flatten Easily in the Human Body* (“The present Declaration is only binding on the Contracting Powers in the case of a war between one or more of them.”).

¹¹ The United States is a signatory to *Laws and Customs of War on Land*, but is not a signatory to *Declaration on the Use of Bullets Which Expand or Flatten Easily in the Human Body*. See http://www.icrc.org/applic/ihl/ihl.nsf/vwTreatiesByCountrySelected.xsp?xp_countrySelected=US&nv=4. The most probable reason that this resolution was adopted was a miscomprehension of the science of wound ballistics and an absence of modern medical knowledge. In fact, the Convention delegates for both the United States and Great Britain voted against that resolution, expressing doubt that expanding bullets caused the types of wounds the Convention ostensibly sought to prevent. *THE HAGUE CONVENTIONS OF 1899 AND 1907* 33-35 (J.B. Scott ed., 1915)(setting forth the Report of Captain Crozier to the Commission of the United States of America to the International Conference of the Hague Regarding the Work of the First Committee of the Conference and its Sub-Committee).

San Francisco’s assertion that the banned ammunition “is not in general use” is not only facially implausible, but demonstrably false. Expanding and fragmenting ammunition is sold throughout the nation in immense quantities. First, nearly all hunting ammunition is designed to expand. Second, a brief survey of major online retailers of hunting and self-defense supplies illustrates that there are literally hundreds of different types of expanding and fragmenting ammunition available for sale to the public.¹² The banned ammunition is commonly used across the nation.

San Francisco’s finding that banning expanding and fragmenting ammunition “does not substantially burden the right of self-defense” is manifestly incorrect and is, therefore, not facially plausible. Even setting aside the incorrectness of San Francisco’s findings described above, the law itself illustrates that the ultimate conclusion reached by San Francisco regarding the utility of the banned ammunition for self-defense is unsupported.

¹² See, e.g., the websites for Brownell’s, <http://www.brownells.com/ammunition/index.htm?k=hollow+point&ksubmit=y> (last visited May 13, 2014)(a search of their ammunition products for “hollow point” returned 101 results), and MidwayUSA, Inc., <http://www.midwayusa.com/find?usersearchquery=hollow+point&itemsperpage=24&newcategorydimensionid=13950&statuses=In%20Stock&statuses=Available&statuses=Closeout%20Special&searchscope=all> (last visited May 13, 2014)(a search of their ammunition products for “hollow point” returned 360 results).

The law makes an exception for purchases of hollow-point ammunition by law enforcement officers for law enforcement purposes. S.F. Code § 613.10(g)(“This subsection does not apply to conventional hollow-point ammunition with a solid lead core when the purchase is made for official law enforcement purposes and the purchaser is authorized to make such a purchase”). Law enforcement officers routinely choose to use hollow-point bullets because they are more effective at subduing a threat, which protects both the public and the law enforcement officer.¹³ The exception for law enforcement officers recognizes this fact and permits them to arm themselves with the tools most useful for self-defense.

Law enforcement officers, however, are permitted to use their firearms against others only in defense of themselves or others.¹⁴ Their goal when deploying their firearm is to stop the aggressor, not to kill him or her. *See* San Francisco Police Department General Order 5.01 (Revised 10/04/95) – Use of Force. Yet, these officers, who can only fire in defense and are not intending to kill, are permitted to purchase and use the banned ammunition. S.F. Code § 613.10(g).

¹³ The use of expanding ammunition by law enforcement agencies is not limited to the United States. Law enforcement agencies in the United Kingdom, France, Germany and Switzerland, to name but a few, use expanding ammunition. The London Metropolitan Police switched to expanding ammunition from full metal jacket after extensive testing.

¹⁴ *See* San Francisco Police Department General Order 5.02(c)(Revised 03/16/11) – Use of Firearms. Furthermore, the only time that someone may use a gun on another person lawfully is in self-defense or defense of another. *See* CAL. PENAL CODE § 417 (West 2011).

Furthermore, they are issued hollow point handgun ammunition for duty use. The reason for this is clear: the banned ammunition is better suited to end the aggressive encounter quickly, while minimizing the number of shots fired and thereby decreasing the risk of severe injury or death to the officer, bystanders or the assailant.

The same concerns that drive the law enforcement exception require the conclusion that civilians should be permitted access to the banned ammunition. Every individual who needs to use a firearm in self-defense wants to end the encounter as quickly as possible with as few shots fired as possible, and with the least risk of severe injury or death to self, bystanders, and even an assailant. Denying the citizens of San Francisco the ability to so defend themselves, and limiting their self-defense options to ammunition that is likely to require more shots that could result in bullet overpenetration, danger to bystanders (including the families of those defending themselves), and more bullet wounds to the assailant or assailants, is a substantial burden on the core Second Amendment right of self-defense in the home.

CONCLUSION

This Court should grant rehearing *en banc* to address the clearly erroneous determinations of the district court and panel that give inappropriate deference to the demonstrably false and facially implausible findings of San Francisco denying

Plaintiff-Appellants their fundamental rights. This Court should conclude the banned ammunition is commonly used for self-defense, is not more lethal than other types of ammunition, and poses less of a threat to law enforcement officers and innocent bystanders than the ammunition San Francisco is forcing its citizens to purchase. The inescapable conclusion is that the banned ammunition is the best-suited ammunition for self-defense, and its prohibition is offensive to the Second Amendment.

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitations of Ninth Circuit Rule 29-2 because this brief contains less than 4200 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii). This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2007 in 14-point Times New Roman font.

Dated: July 3, 2014

/s/ Tara Sky Woodward
Tara Sky Woodward

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 3rd day of July, 2014, this brief of *Amici Curiae* Sporting Arms and Ammunition Manufacturers Institute, Inc., and National Shooting Sports Foundation, was served, via electronic delivery to all parties' counsel via CM/ECF system, which will forward copies to Counsel of Record.

/s/ Tara Sky Woodward
Tara Sky Woodward

CERTIFICATE FOR BRIEF IN PAPER FORMAT

(attach this certificate to the end of each paper copy brief)

U.S. Court of Appeals Docket Number(s): 12-17803

I, Tara Sky Woodward, certify that this brief is identical to the version submitted electronically on [date] Jul 3, 2014, pursuant to Rule 6(c) of the Administrative Order Regarding Electronic Filing in All Ninth Circuit Cases.

Date Jul 3, 2014

Signature /s/ Tara Sky Woodward

EXHIBIT A

Curriculum Vitae of Gary K. Roberts, DDS

CURRICULUM VITAE

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June 2014

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EDUCATION

1989 United States Navy Hospital Oakland, General Practice Residency
1988 University of the Pacific, School of Dentistry, D.D.S.
1984 University of the Pacific, College of the Pacific, B.A.

LICENSURE

1993 California Conscious Sedation Permit (CS257)
1990 DEA Controlled Substance Registration Certificate (BR2268705)
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EMPLOYMENT

1989-Present Private Practice: Palo Alto, CA (*General and Hospital Dentistry*)
1986-2008 United States Navy Reserve (*2205 General Dentistry/1705S Oral Surgery*)
2013-Present Stanford University, Plastic Surgery Department, Clinical Instructor

HOSPITAL and CLINIC APPOINTMENTS

1997-Present Stanford University Hospital, Palo Alto, CA
1997-Present Lucille Salter Packard Children's Hospital, Palo Alto, CA
1992-2001 Sequoia Hospital, Redwood City, CA
1990-1997 Naval Dental Center, San Francisco, CA
1989-1996 Naval Hospital Oakland, CA
1989-1990 Naval Hospital Roosevelt Roads, Puerto Rico
1989-1990 Naval Dental Clinic, Long Beach, CA

HONORS and AWARDS

1992 Federal Employee of the Year for Scientific Research
1992 American Society for Public Administration, San Francisco Bay Area Chapter:
William J. Sheppard Award for exemplary public service
1980 Eagle Scout Award

PROFESSIONAL ORGANIZATIONS

1993-Present Dental Board of California (*Anesthesia Evaluator*)
1992-Present Mid-Peninsula Dental Society (*Peer Review Committee--2005 to present;*

	<i>Ethics Committee—2012 to present)</i>
1992-Present	American Dental Society of Anesthesiology/California Dental Society of Anesthesiology
1989-2001	Association of Firearms and Toolmark Examiners (<i>Technical Advisor</i>)
1989-1999	International Wound Ballistics Association
1988-2008	Association of Military Surgeons of the United States
1988-2005	Academy of Osseointegration
1988-Present	California Dental Association (<i>Council on Peer Review—2012 to present</i>)
1988-Present	American Dental Association

SCHOLARLY AND TEACHING ACTIVITIES

OPEN SOURCE PUBLICATIONS

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4. Roberts GK & Lazzarini D: "Preliminary Evaluation of .357 Sig Jacketed Hollow Point Bullets Intended for Law Enforcement Duty Using 10% Ordnance Gelatin as a Tissue Simulant." **Wound Ballistic Review**. 4(4):32-33, Fall 2000.
5. Roberts GK: "Terminal Performance of .38 Special and .380 ACP Hollow Point Bullets Intended for Law Enforcement Back-up and Off Duty Self-Defense Using 10% Ordnance Gelatin as a Tissue Simulant". **Wound Ballistic Review**. 4(3):35-38, Spring 2000.
6. Roberts GK: "Law Enforcement General Purpose Shoulder Fired Weapons--The Wounding Effects of 5.56mm/.223 Carbines Compared With 12 ga. Shotguns and Pistol Caliber Weapons using 10% Ordnance Gelatin as a Tissue Simulant". **Wound Ballistics Review**. 3(4):16-27, 1998.
7. Roberts GK: "Terminal Performance of 9mm 147 gr Jacketed Hollow Point Bullets fired from the HK MP-5, using 10% Ordnance Gelatin as a Tissue Simulant". **AFTE Journal**. 30(2):330-333, Spring 1998.
8. Roberts GK: "Preliminary Evaluation of the Terminal Performance of the 5.7 x 28 mm 23 Grain FMJ Bullet Fired by the New FN P-90 Using 10% Ordnance Gelatin as a Tissue Simulant". **AFTE Journal**. 30(2):326-329, Spring 1998.
9. Roberts GK: "Comparison of the Terminal Performance of 9mm Parabellum, .40 S&W, and .45 ACP Jacketed Hollow Point Bullets Intended for Law Enforcement and Military Special Operations Applications, Using 10% Ordnance Gelatin as a Tissue Simulant". **Wound Ballistics Review**. 1 (4):32-37, 1994.
10. Roberts GK and Bullian ME: "Protective Ability of the Standard U.S. Military Personal Armor System for Ground Troops (PASGT) Fragmentation Vest Against Common Small Arms Projectiles". **Military Medicine**. 158:560-563, August 1993.
11. Roberts GK and Bullian ME: "Comparison of the Wound Ballistic Potential of 9mm vs.

- 5.56mm (.223) Cartridges for Law Enforcement Entry Applications". **AFTE Journal**. 25(2):142-148, April, 1993.
12. Roberts GK: "Preliminary Report on the Performance of the New Winchester .45 ACP 230 Grain Jacketed Hollow Point Bullets in 10% Ordnance Gelatin". **Wound Ballistics Review**. 1(2):21-23, Winter 1992.
 13. Roberts GK and Wolberg EJ: "Book Review—*Handgun Stopping Power: The Definitive Study by Marshall EP and Sanow EJ. Boulder, Paladin Press, 1992*". **AFTE Journal**. 24(3):383-387, October 1992.
 14. Corzine AJ and Roberts GK: "Correlation of Ordnance Gelatin Penetration Results Between 20% Gelatin at 10oC and 10% Gelatin at 4oC". **AFTE Journal**. 25(1):2-5, January 1993.
 15. Fackler ML and Roberts GK: "Failure to Expand: Federal 7.62x39mm Soft Point Bullets". **Wound Ballistics Review**. 1(2):18-20, Winter 1992.

RESTRICTED ACCESS PUBLICATIONS AND SEMINARS

List available to authorized entities on request.

RECENT LECTURES AND SEMINARS PRESENTED

- 6/19/14 "Head Trauma and TBI" -- Stanford University Medical Center (1 hour)
- 4/14/14 "Wound Ballistics for LE" – Firearms Instructor Class, Santa Clara SO (2.5 hours)
- 3/14/14 "Oral Health Concerns Following Oropharyngeal Cancer Therapy" -- Stanford University OHNS (1 hour)
- 2/28/14 "Oral Pathology: Soft Tissue Mouth Lesions" -- Stanford University Medical Center (1 hour)
- 1/14/14 "Dental Concerns in the Geriatric Patient" -- Stanford University Medical Center (1 hour)
- 1/13/14 "Introduction to Wound Ballistics; Pathophysiology of Penetrating Trauma" – Stanford University Medical Center (1 hour)
- 11/13/13 "Wound Ballistics and Pathophysiology of Penetrating Trauma for the ED" – Stanford University Medical Center ED Grand Rounds (1.5 hours)
- 10/2/13 "Wound Ballistics for LE" – CA POST Firearms Instructor Certification, Santa Clara PD (4 hours)
- 9/5/13 "Introduction to Dentistry: Common Dental Problems Encountered by Healthcare Providers" – Stanford University Medical Center (1 hour)
- 8/19/13 "TMJ, Mandibular Dislocations, and Maxillofacial Trauma" -- Stanford University Medical Center (1 hour)
- 6/20/13 "Head Trauma and TBI" -- Stanford University Medical Center (1 hour)
- 2/26/13 "Introduction to Oral Pathology" -- Stanford University Medical Center (1 hour)
- 1/15/13 "Dental Concerns in the Geriatric Patient" -- Stanford University Medical Center (1 hour)
- 1/14/13 "Introduction to Wound Ballistics; Pathophysiology of Penetrating Trauma" – Stanford University Medical Center (1 hour)
- 10/11/12 "Oral Pathology Review" -- Vaden Health Center, Stanford University (1 hour)
- 9/5/12 "Introduction to Dentistry"-- Stanford University Medical Center (1 hour)
- 8/20/12 "TMJ Disorders, Mandibular Dislocations, Maxillofacial Fractures" -- Stanford University Medical Center (1 hour)

- 4/13/12 “LE Wound Ballistics” -- Morgan Hill and Gilroy Police Departments (3 hours)
- 3/16/12 “Oral Health Concerns Following Oropharyngeal Cancer Therapy” -- Stanford University OHNS (1 hour)
- 3/1/12 “Introduction to Oral Pathology” -- Stanford University Medical Center (1 hour)
- 1/18/12 “Dental Concerns in the Geriatric Patient” -- Stanford University Medical Center (1 hour)

RECENT CONTINUING EDUCATION COURSES ATTENDED

- 3/6/14 “Perils and Pitfalls in Treating Drug-Resistant Patients with Sedation and General Anesthesia” Steven Ganzburg & CDSA (8 hours)
- 2/27/14 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 12/30/13 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 10/14/13 “Expanding Restorative Options Using Next-Generation Bone Level Implants” -- Ophir Fromovich & Nobel Biocare (3 hours)
- 10/4/13 “Case Planning for the Edentulous Arch” -- Will Perry & Nobel Biocare (3 hours)
- 8/22/13 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 8/21/13 “Bloodborne Pathogen & Office Safety Training” -- Carolyn Mortensen (2 hours)
- 7/31/13 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 3/14/13 “Always Being Prepared for the Unexpected; Cognitive and Procedural Errors in Office-Based Anesthesia” -- Robert Campbell, Joel Weaver, & CDSA (7 hours)
- 2/21/13 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 10/19/12 “Mastering Adhesive & Restorative Dentistry” -- Jeff Brucia/ADA (2.5 hours)
- 10/19/12 “Root Canals Gone Wild” -- David Beach/ADA (2.5 hours)
- 10/18/12 “Adhesive Material Update” -- Jeff Brucia/ADA (2.5 hours)
- 10/18/12 “Pulp Therapy for Young Permanent Teeth” -- Joe Camp/ADA (2.5 hours)
- 6/29/12 “Basic Bone Grafting for the Dentist” -- Mike Chen (7 hours)
- 6/8/12 “Dental Trauma” -- Paul Suber & Stanford University Medical Center (1 hour)
- 5/7/12 “Anesthesia Evaluator” -- CA State Dental Board (2 hours)
- 4/20/12 “Global Diagnosis” -- William Robbins & MPDS (7 hours)
- 4/4/12 “OSHA Blood Borne Pathogen Training” -- Carolyn Mortensen (2 hours)
- 3/23/12 “Recent Advances in Implant Treatment” -- Dennis Tarnow & MPDS (7 hours)
- 3/9/12 “Metabolic Concerns and Oral Health” -- Nasser Said-Al-Naieff & Stanford University Medical Center (1 hour)
- 3/8/12 “Patient Evaluation for Office Based Sedation & GA: Patient Safety for All Ages” Steven Ganzburg & CDSA (7 hours)
- 3/2/12 “Peer Review Calibration” -- CDA (7 hours)

EXHIBIT B

Curriculum Vitae of J. Buford Boone, III

J. Buford Boone III
Curriculum Vitae
Updated 06/24/2014

May, 1984, BA degree, General Management, University of Alabama

July, 1984 - Nov. 1985, Management trainee, Smith Newspapers, Inc, Thomaston Times, Thomaston, Ga. Shortly after my arrival, the only photographer resigned. Due to my being the only person with darkroom qualifications, I became the primary photographer. Additionally, I was training in all other aspects of a small newspaper.

September, 1984 - Nov. 1985, Reserve Deputy Sheriff, Upson County Sheriff's Office.

Nov. 1985 - July 1987, Management trainee, Boone Newspapers, Inc., Raton Daily Range and Trinidad Plus, Raton, New Mexico. Performed duties in most aspects of a small newspaper to include advertising sales, reporting, photography, composition and printing of the paper.

January. 1986 - July 1987, Reserve Deputy Sheriff, Las Animas County Sheriff's Department. Achieved rank of Sgt.

October, 1986 - July 1987, Reserve officer, Trinidad Police Department, Trinidad, Colorado.

July 1987 - May 1988, unemployed, Tuscaloosa, Alabama, in application process for the DEA and FBI.

July 1987 - May 1988, Special Deputy, Sheriff's Reserve, Tuscaloosa County Sheriff's Department.

May, 1988 - July 1988, Police Officer, Tuscaloosa Police Department.

July 25, 1988, appointed to FBI, began New Agent Training at FBI Academy, Quantico, Va.

October, 1988, graduated from FBI Academy, assigned to the New Haven Division

October 1988 - June 1990, Reactive Squad

July 28, 1989, Firearms Instructor Certification, FBI Academy, Quantico

August, 1989, General Police Instructor Certification, FBI Academy, Quantico

September 1989 - March 1996, Sniper on New Haven Division SWAT Team

September 1989 - March 1996, Assistant Instructor for approximately six (6) Basic SWAT Schools (40 hours).

May, 1990, Observer/Sniper Certification, FBI Academy, Quantico.

July 1990 - March 1996, Organized Crime/Drug squad (worked primarily on Joint Gang Task Force)

September, 1990, SWAT Certification, FBI Academy, Quantico.

SWAT Senior Team Leader Conference, 1990, Quantico

September 1990 - Present, Primary Instructor of FBI Basic LE Sniper School. I have taught 48 schools with approximately 924 students attending. Nine hundred eight (908) of these students have successfully completed the course. I have taught this course primarily in the United States, from Hawaii to Connecticut. I have also taught this course in Helsinki, Finland.

Basic Drug Investigator, 1991, Quantico

Informant Development Inservice, 1992, Quantico

December 1992 - March 1996, Principal Firearms Instructor, New Haven Division, Oversaw firearms training program of approx 93 agents and 30 Task Force officers.

December 1992 - March 1996, Instructor at Municipal Police Training Academy, Meriden, Ct., Basic Concept of SWAT (2 hour block) - approx. 8 times.

Firearms recertification, 07/93, Quantico

Hostage Rescue Team Selection, 11/93, Quantico

Principal Firearms Instructor Conf., 1993, Quantico

Principal Firearms Instructor Conf., 1994, Quantico

March 31, 1994 – Received Performance Award in recognition and appreciation of exceptional performance of official duties throughout the past year.

June 16, 1994 – Received cash award and letter from FBI Director in recognition of investigative efforts in connection with drug gang investigation.

May 1995 - March 1996, Principal Tactics Instructor, New Haven Division

Principal Defensive Tactics Instructor seminar, 02/95, Quantico

Tactical Instructor Certification 05/95, Quantico

SWAT Specialized Team Training, 1995, Quantico

Principal Firearms Instructor Conf., 1995, Quantico

Regional Principal Tactical Instructor Conf., 1995, Quantico

March 1996 - April 1997, Firearms Training Unit - Supervisory Special Agent - Firearms Instructor.

April 1997 – August 2012, Firearms Training Unit (Later split off to form Defensive Systems Unit) - Supervisory Special Agent - Ballistic Research Facility.

Completed Glock Armorer's Course, 07/97, Quantico

Attended Contracting Officer's Technical Representative training, 12/97, Management Concepts, Vienna, VA.

January 1998 - Attended SHOT Show, Las Vegas, Nv.

April, 1998 - Attended Oehler Ballistic Testing Workshop, Fredericksburg, Tx

January 2000 Attended SHOT Show, Las Vegas, Nv.

September 2000, - Attended Glock Armorer's Course, Quantico, Va.

May 15 – 17, 2001 - Attended Contracting Officer's Technical Representative refresher training.

April 2001 - Attended Oehler Ballistic Testing Workshop, Fredericksburg, Tx

January, 2002, provided training on proper weapon selection to National SWAT Sniper Symposium, Gaithersburg, Maryland.

February, 2002, Attended SHOT Show in Las Vegas, Nv.

June 2002, Attended meeting in Darligen, Switzerland to assist the United States in negotiations with NATO and other European governments in an attempt to prevent the modification of the Hague Declaration of 1899 (prohibiting the use of expanding ammunition). A portion of the proposed modification would have made the Hague restrictions applicable to law enforcement as well as military personnel. The proposal was not only defeated but one participant (Sweden) reversed its opinion. Its law enforcement officers now utilize expanding ammunition and make decisions based on testing protocols which closely resemble those created by the BRF.

October, 2002 - Present, Core member of Joint Services Wound Ballistic Integrated Product Team.

This team is attempting to evaluate the effectiveness of military small arms ammunition.

January 9, 2003 - Conducted preliminary 6.8 SPC testing for Legal Review for 5th Special Forces Group.

January 2003 - Oversaw testing for joint FBI/DEA .223 Carbine Procurement

April 2003 - Conducted ballistic demonstration and discussion of exterior ballistics for USMC Scout Sniper Instructor School Instructor Students.

May 2003 - Attended Joint Services Wound Ballistic Workshop/meeting at Picatinny Arsenal, NJ.

May 2003 - Taught Sniper School in Alpena Michigan.

June 2003 Attended Oehler Ballistic Troubleshooting Workshop.

June 2003 Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

July 2003 Taught Basic Sniper School to USMC Scout Sniper Instructor Cadre and local LE officers.

September 2003 Taught Basic Sniper School in Simsbury, Connecticut.

September 2003 successfully completed GS15 Leadership Skills Assessment.

October 2003, taught Basic Sniper School in Minden, Nv.

October 2003, conducted demonstration of test protocol for Joint Services Wound Ballistic IPT

October 2003, conducted accuracy and abuse testing of Sniper Rifles for procurement.

November, 2003, conducted testing of known munitions and provided High-Speed video of ballistic test for presentation at Snipemur trial.

November, 2003, requested to provide expert witness testimony at Snipemur trial. Defense objected, due to (claimed) prejudicial nature of video demonstrating projectiles impacting tissue simulant. Judge sustained the objection.

December, 2003, Informant training, FBI Academy, Quantico.

January 2004, attended National SWAT Sniper Symposium.

February, 2004, conducted HS Video of projectile impacts for the Firearms Toolmarks Unit of the Lab.

February, 2004, Attended SHOT Show

February, 2004 – June, 2007, Core member of Blended Metal Technology Integrated Product Team evaluating the properties of supposed new small arms ammunition. BRF examination proved the ammunition to be commercially available projectiles. Referred to criminal division for fraud against the government investigation.

February, 2004, taught Basic Sniper School in San Antonio, Tx.

March, 2004, Conducted HS Video for Explosives Unit.

April, 2004, terminal ballistics discussion and demonstration for USMC Scout Sniper Instructor School.

April, 2004, taught Basic Sniper School in Tuscaloosa, Alabama.

April, 2004, conducted decibel test of various firearms for Health and Safety officer.

May, 2004, taught Basic Sniper School in El Paso, Tx.

May, 2004, Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

May, 2004, shot accuracy test of 7.62 AA11 ammunition for USMC.

June 2004, Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for Latin American Law Enforcement Executive Development Society.

June 2004, attended the Blended Metal Technology meeting at SOCOM in Tampa, Florida.

August, 2004, Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

August, 2004, presentation at PFI conference.

August, 2004, Photo Shop basic class in Richmond.

Sept. 2004, taught Basic Sniper School in San Diego.

Sept. 2004, completed training to participate on Career Boards.

Sept. 2004, attended Joint Services Wound Ballistics IPT meeting at Picatinny, NJ.

October 2004, taught Basic Sniper School in Minden, Nv.

October, 2004, provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

November, 2004, Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

November 8, 2004 – Acting Unit Chief of National Firearms Program Unit.

December, 2004, conducted HS Video for Explosives Unit.

January, 2005, provided presentation on Accuracy Expectations and Ammunition Selection Methods at National SWAT Sniper Symposium, Gaithersburg, Md.

January, 2005 - Attended SHOT show in Las Vegas.

February, 2005 - Demonstration for officials from Jordan. Live fire gelatine shots and discussion of wound ballistics.

February, 2005 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

February, 2005 - Taught Basic Sniper School in Los Angeles, Ca.

March, 2005 - Shot HS Video for Explosives Unit.

March, 2005 - Shot HS Video of various projectiles impacting 40 lb. blocks of gelatine.

March, 2005 - provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

March, 2005 - Taught Basic Sniper School in Tuscaloosa, Al.

April, 2005 - Consulted with Danish National Police and Special Forces on Wound Ballistics and ammunition selection.

April, 2005 - Consulted with Swedish Defence Research Agency (FOI) on FBI method of ammunition selection, weapon selection and wound ballistics theory.

April, 2005 - Consulted with the Stockholm County Police SWAT Unit on wound ballistics, ammunition and weapon selection.

April, 2005 - Taught Basic Sniper School to the Helsinki, Finland, National Counter terror team in Helsinki.

May 3, 2005 - Met with Universal Training Munitions to view their manufacturing facility in the United Kingdom and be briefed on their products.

May 9, 2005 – Provided photographic assistance to FBI gunsmiths in photographing M4 parts.

May 12, 2005 – Provided wound ballistics and cartridge/weapon selection brief to Connecticut State Police (Mike Woodson) and couple of other other NA Students.

May 16 – 20 - Taught Basic Sniper School at Fort Pickett, Va.

May 25, 2005 – Conducted High Speed video of M4 functioning for FBI Gunsmiths.

May 26, 2005 – Conducted gelatin testing of subsonic .223 ammunition for government partners.

May 27, 2005 – Briefed HRT on 6.8x43 SPC cartridge and capabilities.

May 31, 2005 – Conducted gelatin and accuracy testing of .308 ammunition.

June 7, 2005 – Conducted ballistic training for LAPD firearms officers. Training was centered around manufacture of gelatin, verification of validity, test methods, recording and reporting data.

July 6, 2005 - Acting Unit Chief of National Firearms Program Unit.

July 11, 2005 – Conducted debriefing of manufacturer that participated in the .223 ammunition contract .

July 19, 2005 – Provided wound ballistics and cartridge/weapon selection briefing to head of Kuwaiti Firearms Training Unit.

July 26, 2005 – Conducted terminal ballistic discussion and demonstration for FBI Interns.

August 2, 2005 – Conducted accuracy test of HK M4 type carbine.

August 10, 2005 – Created and implemented training of newly assigned Engineering Technician,

Ballistics.

August 11, 2005 – Participated in FBI firearms acquisition committee meeting.

August 15, 2005 - Conducted terminal ballistic discussion and demonstration for Chief Medical Examiner of Maryland.

August 19, 2005 - Acting Unit Chief of National Firearms Program Unit.

August 24, 2005 – Provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

September 1, 2005 – Consulted two NA students on wound ballistics, ammunition and weapon selection.

September 14, 2005 – Conducted body armor test for DEA

September 15, 2005 – Provided presentation to FBI Principal Firearms Instructors. Topics included: Ammunition testing and high speed video evaluation showing the superior effectiveness of rifle and shotgun ammunition over handgun ammunition and the over-penetration potential of 00buckshot if used for close quarters battle, the .223 ammunition contract award, how FBI ammunition procurements are conducted and explanation of .40 Smith & Wesson recoil issues compared to performance.

September 22, 2005 – Conducted high speed video for explosives unit

September 25 – 29, 2005 – Traveled to Pueblo, Colorado to conduct high speed video of explosive breaching for HRT.

October 3 – 7, 2005 - Taught Basic Sniper School in Columbia, SC.

October 13, 2005 – Completed Blood Borne Pathogen training.

October 19, 2005 – Attended “Green Ammunition” meeting at Picatinny Arsenal, NJ.

October 26, 2005 – Conducted tour and ballistic demonstration for personnel from America’s Most Wanted.

October 27, 2005 – Conducted test of plexiglass ability to resist projectiles fired from a .22 LR.

November 2, 2005 – Conducted ammunition testing informational meeting with personnel from Remington Ammunition.

November 4, 2005 – Conducted terminal ballistic demonstration and discussion of appropriate

methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

November 8, 2005 – Conducted wound ballistics overview including ammunition and weapon selection for Virginia State Police Firearms Instructor Class.

November 8, 2005 – Met with USMC Systems Command Lt. Col. and Major regarding proposed new USMC rifle and cartridge.

November 9, 2005 – Attended FBI Legal training.

November 9, 2005 – Conducted ballistic test of 9mm ammunition against human head model.

November 10 – 12, 2005 – Attended Chandler Advanced Rifle III training, Moyock, NC.

December 5, 2005 – Attend Standards of Conduct training.

December 7, 2005 – Attend FBI Legal training.

December 7, 2005 – Conduct standard gelatin test of Black Hills .308 180gr. Accubond.

January 11, 2006 – Conduct gelatin test of Swift 75 gr. Scirocco with owner of Swift in attendance.

January 13, 2006 – Conduct test of body armor.

January 17, 2006 – Assisted multiple Govt. agencies in identification of projectile recovered from US service member in Iraq.

January 18, 2006 – Hosted meeting with representatives of ATK (Speer and Federal Ammunition).

January 24, 2006 – Hosted demonstration of SureFire suppressors.

January 25, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

February 6, 2006 – Conducted velocity testing of various munitions fired from an M4 carbine. Thereafter created ballistic charts showing projectile velocity and impact at various distances.

February 8 – 11, 2006 – At SHOT Show, Las Vegas, NV. Attended multiple meetings with manufacturers to discuss ammunition and firearms for FBI use.

February 14, 2006 – Meeting with two Major Officers of USMC Systems Command.

February 15, 2006 - Acting Unit Chief of National Firearms Program Unit.

February 21, 2006 - Acting Unit Chief of National Firearms Program Unit.

February 22, 2006 – Conducted penetration and barrier test of Federal 9mm 147gr. HST. Modified ammunition test database.

February 23, 2006 – Modified ammunition test database.

February 27 – March 3, 2006 – Taught Basic Sniper School in Sacramento, Ca.

March 7, 2006 – Assisted USMC with measuring and calculating Minute of Angle adjustments of SR25 rifles they were using.

March 9, 2006 – Conducted tour and discussion of wound ballistics and ammunition/weapon selection for Police Chief from Alexander City, Al.

March 9, 2006 – Met with USMC to discuss appropriate plan for ammunition test they requested the BRF conduct.

March 10, 2006 – Conducted tour and discussion of wound ballistics and ammunition/weapon selection for visiting police officer.

March 14, 2006 – Attended FBI Cultural Diversity Training.

March 17, 2006 – Attended live fire demonstration of HK417 rifles at USMC Scout Sniper Instructor School.

March 17, 2006 - Conducted tour and discussion of wound ballistics and ammunition/weapon selection for 5th Special Forces (Airborne) Master Sgt.

March 21, 2006 - Provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

March 29, 2006 – Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy Associates.

March 29, 2006 – Completed Information Security training.

April 2, 2006 – Served as ranking member on Career Board for vacant SSA position.

April 10, 2006 – Assisted Federal Game Warden with eradication of deer from airfield.

April 11, 2006 – Assisted Henrico County, Va. with diagnosis of pistol malfunctions they were experiencing when utilizing weapon-mounted lights.

April 17 – 21, 2006 – Taught Basic Sniper School in Tuscaloosa, Al. Contemporaneously conducted “Train the Trainer” course for FBI basic LE Sniper Observer Instructors.

May 2, 2006 – Conducted troubleshooting investigation of Nikon D2H camera used at BRF.

May 9, 2006 - Provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

May 10, 2006 – Conducted high speed video of disruptor used to counteract improvised explosive devices.

May 11, 2006 – Conducted debriefing of H&K personnel on the failure of the UMP during acceptance testing.

May 16, 2006 – Troubleshoot and reset Viatran voltage meter on piezoelectric conformal transducer calibration equipment.

May 19, 2006 – Conducted gelatin test for USASOC.

May 31, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for Latin American Law Enforcement Executive Development Society Students.

June 21, 2006 – Conducted velocity test and created ballistic charts for HRT rifles.

June 22, 2006 – Meeting with Lt. Col from USMC Systems Command regarding ammunition testing done for the USMC.

June 22, 2006 – Meeting regarding FBI Body Armor Protocol.

June 26, 2006 – Attended less lethal options meeting at FBI Critical Incident Response Group.

June 27, 2006 – Conducted review of DOD partner’s evaluation of 12.7mm Raufous (MK211) ammunition.

June 29, 2006 – Conducted gelatin test of Winchester .308 Ballistic Silvertip.

July 6, 2006 – Assisted Federal Game Warden with eradication of deer from airfield.

July 12, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods

of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for Arabic Language Law Enforcement Executive Development Society students.

July 19, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for Thailand major case seminar participants.

July 21, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

August 2, 2006 – Provide presentation to FBI Principal Firearms Instructors conference. Topics covered included: FBI ammunition contracts, FBI Submachine gun program and UMP failure of same, New FBI Body Armor Test Protocol, identification of defective ammunition and FBI LE Basic Sniper School “Train the Trainer” program.

August 3, 2006 – Hosted demonstration of Glock G37 (.45 GAP).

August 7, 2006 – Failure analysis of catastrophic destruction of M4 carbine.

August 8, 2006 – Pressure and accuracy testing of frangible ammunition used during catastrophic destruction of M4 carbine.

August 8, 2006 – Record intentional catastrophic destruction of M4 carbine to aid in investigation.

August 9, 2006 – Conducted research and testing of film intended to make vehicle glass more resistant to projectile insults.

August 9, 2006 – Provided professional consultation and guidance to Indiana State Police in the investigation of a murder which involved a long-range rifle shot.

August 20, 2006 - Acting Unit Chief of National Firearms Program Unit.

August 24, 2006 – Conduct gelatin test of 6mm TSWG and H&K 4.6 PDW for USASOC.

August 29, 2006 – Conduct pressure, velocity and function testing of .223 training ammunition sent in by Salt Lake Division and reported as suspected to be causing system malfunctions.

September 7, 2006 – Investigated and located source of FBI information leak over the internet.

September 11, 2006 – Meeting with USMC Systems Command Major and Engineer regarding 5.56 and 7.62 ammunition.

September 12, 2006 – Calculate maximum range of FBI munitions for FBI Norfolk to use during investigation of claimed projectiles escaping the range used for qualifications.

September 13, 2006 – Completed Hazardous Waste training.

September 14, 2006 – Explained to safety mechanics of airborne lead when firing small arms ammunition and the proposed, but not implemented remedy for use in all weather ranges.

September 14, 2006 – Tour and demonstration of FBI wound ballistic test methods for medical Doctor consulting with the FBI.

September 14, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulants with and without intervening barriers, for National Academy class.

September 19, 2006 – Hosted meeting with USMC Systems Command to discuss proposed Phase II testing for USMC alternate caliber program.

September 25 – 29, 2006 - Taught Basic Sniper School at Fort Dix, Nj. Contemporaneously conducted “Train the Trainer” course for FBI basic LE Sniper Observer Instructors.

October 12, 2006 – Hosted USMC High Risk Personnel instructors to discuss wound ballistics, ammunition and weapon effectiveness and selection.

October 18, 2006 – Completed NSB computer based training.

October 19, 2006 – Provided tour for US Department of State personnel. Discussion included FBI ammunition testing and procurement methods and how the USDOT could participate in FBI contracts.

October 23, 2006 – Conduct standard performance test of Federal 9mm EFMJ.

October 24, 2006 – Conduct body armor test.

November 13, 2006 – Conduct high speed video of blood splatter test for FBI Laboratory.

November 14, 2006 - Conduct standard performance test of Federal .40 S&W EFMJ.

November 15, 2006 – Conduct test of ballistic plates for FBI.

November 21, 2006 – Completed FBI Ethics training.

November 29, 2006 – Conduct high speed video for FBI Explosives Unit and the USMC.

November 29, 2006 – Conduct meeting with Winchester Ammunition representative.

December 4 – 6, 2006 – Attend FBI Firearms Instructor recertification.

December 6, 2006 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

December 8, 2006 – Hosted meeting with two Baltimore Police SWAT officers to discuss terminal ballistics, ammunition and weapon selection.

December 12, 2006 – Attended FBI Legal training.

December 13, 2006 – Attended Equal Employment Opportunity training.

December 14-15, 2006 - Acting Unit Chief of National Firearms Program Unit.

December 15, 2006 – Host members of Hazelton PD to discuss wound ballistics and likely reasons for their ammunition performance during an officer involved shooting. Conducted gelatin testing for them to demonstrate FBI test method and wound ballistic theory.

December 18, 2006 – Meeting with DOD representatives to discuss ballistic research.

December 19, 2006 – Conduct gelatin test of M855 ammunition.

January 10, 2007 – Attend meeting on USMC Alternate Ammunition test plan.

January 16, 2007 – Provided expert opinion of Legal review of ammunition proposed to be used by USASOC.

January 22, 2007 – Performed review of USSOCM Blended Metal IPT report.

January 23, 2007 – Attended meeting regarding proposed build-out of HRT rifle range.

January 24, 2007 – Brief FBI FTU personnel on Hazelton PD shooting.

January 26, 2007 – Provide presentation on ammunition selection at Operational Tactics SWAT Sniper Symposium.

January 31, 2007 – Conducted meeting with Winchester ammunition representative.

March 2, 2007 – Conducted chronograph testing of HRT firearms.

March 6, 2007 – Assist FBI Office of General Counsel with ballistic analysis of testimony to be

given by expert witness.

March 8, 2007 – Shoot test of ballistic plates.

March 13, 2007 – Host meeting with engineers and technicians of ammunition manufacturer (ATK) to discuss ammunition and test procedures.

February 21, 2007 – Participate in teleconference to discuss USSOCOM Blended Metal IPT final report.

February 22, 2007 – Received training on terminating RG59 cables with BNC connectors.

February 22, 2007 – Hosted personnel from HP White Laboratory to demonstrate BRF methods of high speed video capture.

February 27, 2007 – Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for FBI Laboratory Firearms Toolmarks Unit.

February 28, 2007 – Conducted ballistic plate test.

March 1, 2007 – Conducted pressure test of 12 ga. Breaching rounds.

March 6, 2007 – Met with USMC Systems Command to provide consultation on creating their own gelatin test laboratory.

March 19-23, 2007 - Taught Basic Sniper School at Eglin AFB. Contemporaneously conducted “Train the Trainer” course for FBI basic LE Sniper Observer Instructors.

March 27, 2007 – Met with representatives of Prince William, Va., Police Department to discuss ballistics.

March 28, 2007 – Review and provide comments on legal review for ammunition requested to be used by USASOC.

March 30, 2007 – Review of ARDEC technical report on RBCD ammunition.

April 9-13, 2007 - Taught Basic Sniper School at Tuscaloosa, Al. Contemporaneously conducted “Train the Trainer” course for FBI basic LE Sniper Observer Instructors.

April 24, 2007 – Conducted accuracy testing of MK262 Mod1 5.56 NATO ammunition.

April 25, 2007 – Met with Winchester Ammunition representative to discuss ammunition issues.

April 26, 2007 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulants with and without intervening barriers, for Latin American Law Enforcement Executive Development Society Students.

May 2, 2007 – Conduct gelatin test for Richmond Police Department.

May 17, 2007 – Conduct chronograph testing for HRT.

May 17, 2007 - Assisted Federal Game Warden with eradication of deer from airfield.

May 21, 2007 – Attended Sentinel seminar.

May 31, 2007 – Assisted Hazardous Materials Response Unit with chronograph, high speed video and still photography.

June 1, 2007 - Provided demonstration and discussion of wound ballistics to USMC SSIS Advanced course. Chronographed ammunition from their rifles.

June 4 – 8, 2007 - Taught Basic Sniper School at Beaver Falls, Pa. Contemporaneously conducted “Train the Trainer” course for FBI basic LE Sniper Observer Instructors.

July 11, 2007 – Provided tour and explanation of FBI ammunition test method for SSA from Counter Terror Division.

July 16 & 17, 2007 - Acting Unit Chief of National Firearms Program Unit.

July 20, 2007 – Assist USMC with gelatin test of Simunition.

July 23-24, 2007 - Acting Unit Chief of National Firearms Program Unit.

July 25, 2007 – Assist USMC with gelatin test of Simunition.

July 31, 2007 – Hosted meeting with representatives from Corning to discuss ballistic glass.

August 3, 2007 – Shoot SCAR light and heavy rifles for familiarization and to provide input regarding their function.

August 3, 2007 – Tour of BRF, discussion of wound ballistics and FBI test method and live fire demonstration for US DOD Judge Advocate General representatives.

August 15, 2007 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulants with and without intervening barriers, for Arabic Language Law Enforcement Executive

Development Society students.

August 20-24, 2007 - Taught Basic Sniper School at Minden, Nv. Contemporaneously conducted "Train the Trainer" course for FBI basic LE Sniper Observer Instructors.

September 7, 2007 – Conducted meeting on .40 S&W and 9mm ammunition contracts.

September 10, 2007 – Completed Performance Appraisal training.

October 1, 2007 – Begin environmental testing of .40 S&W contract ammunition.

October 2, 2007 – Meet with OGC representative to discuss zylon as used in body armor.

October 15, 2007 – Conducted pressure testing of 9mm RFP ammunition.

October 16, 2007 – Conducted pressure, velocity and accuracy testing of 9mm RFP ammunition.

October 17, 2007 – Conducted velocity, accuracy and muzzle-blast testing of 9mm RFP ammunition.

November 1, 2007 – Conduct test of Body Armor for US Dept. of State.

November 13 – 15, 2007 – Observe and record FTU instructors function test of 9mm RFP ammunition.

November 19, 2007 – Observe and record FTU instructors function test of 9mm RFP ammunition.

November 20, 2007 – Attend bloodborne pathogen training.

December 7, 2007 – Attend FBI legal training.

December 11, 2007 – Photograph Springfield 1911 pistols that experienced catastrophic failures.

December 12, 2007 – Conduct body armor test.

January 9, 2008 – Conduct ballistic demonstration and tour for Dallas and Miami PFIs.

January 14, 2008 – Observe and record FTU instructors function test of 9mm frangible ammunition.

January 17, 2008 – Repair PCB charge amplifier.

January 18, 2008 – Assist HRT with explanation of .223 wound ballistics.

February 2 – 5, 2008 – Attend SHOT Show, Las Vegas, NV. Attended multiple meetings with manufacturers to discuss ammunition and firearms for FBI use.

February 20, 2008 – Shoot gelatin test for USASOC.

February 21, 2008 – Conduct manufacturer debriefing for ammunition contract.

February 21, 2008 – Meet with representative for manufacturer of ballistic material.

February 22, 2008 – Participated in conference call with the Colorado Bureau of Investigation regarding the catastrophic failure of a Colt pattern rifle. Provided information on logical investigation to pursue.

February 26, 2008 – Conducted chronograph testing for HRT Snipers.

February 29, 2008 – Participated in meeting to discuss considerations for formation of Rapid Response Team at the FBI Academy. I was subsequently named a Team Leader.

March 5, 2008 – Conduct ballistic test of DHS armored vehicle.

March 10, 2008 – Host Technical Services Working Group members to discuss demonstration.

March 18, 2008 – Meeting with US DOD personnel to discuss M855LFS.

March 19, 2008 – Shoot high speed video of various cartridges impacting gelatin at 10' for inclusion in a composite video to demonstrate their potential effectiveness.

March 20, 2008 – Tour, discussion of FBI test method and theory and live fire demonstration for members of Government partner agency.

March 25, 2008 – Shoot high speed video of the function of a Glock pistol.

March 28, 2008 – Merged multiple high speed videos into a single video to demonstrate the potential effectiveness of various cartridges.

March 28, 2008 - Created a PowerPoint presentation to be given to HRT Operators to assist them in understanding the ballistic capabilities of FBI weapon platforms.

April 1, 2008 – Participated in telephone call with USDOD Program Manager regarding the “green” M855 ammunition.

April 1, 2008 – Participated in telephone call with the Explosives Unit regarding armored car testing.

April 3, 2008 – Consulted with OGC regarding suit against the FBI Chicago firing range.

April 3, 2008 – Conducted high speed video recording of tracer ammunition being fired into an earthen berm. This video to be used in suit against the FBI Chicago firing range.

April 3, 2008 - Assisted Federal Game Warden with eradication of deer from airfield.

April 8, 2008 – Met with representatives from Remington Ammunition to discuss ammunition testing procedures.

April 8, 2008 – Met with Army Research Laboratory personnel to discuss new 5.56 projectile.

April 10, 2008 – Conducted briefing on wound ballistics, ammunition and weapon selection for HRT operators.

April 15, 2008 – Debriefing for Speer regarding ammunition contract.

April 16, 2008 – Host meeting with manufacturer to discuss helmet testing protocol.

April 16, 2008 – Conduct tour and discussion of BRF mission and method for USMC Body Armor program representatives and instructors from the Federal Law Enforcement Training Center.

April 18, 2008 – Meet with FBI attorney from OGC to discuss defense of lawsuit over Chicago firing range.

April 22 – 23, 2008 – Tour Winchester ammunition plant, East Alton, Il.

April 28, 2008 – Travel to Chicago, Il. To function as expert counsel to FBI during live fire test, ordered by Federal judge, at FBI firing range.

April 30, 2008 – Conducted body armor test.

April 30, 2008 – Participated in telephone call to consult on Chicago range test.

May 1, 2008 – Hosted members of the Bureau of Alcohol, Tobacco, Firearms and Explosives to discuss FBI wound ballistic theory and test methods.

May 2, 2008 – Attended Diversity and Cultural Awareness training.

May 2, 2008 – Hosted meeting with representatives from DHS to discuss FBI wound ballistic theory and test methods.

May 6, 2008 – Test protective steel plates and investigate cause of failures.

May 7, 2008 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for FBI Principal Tactical Firearms Instructor's Conference attendees.

May 8, 2008 – Meet with FBI Laboratory Agent to discuss testing of ballistic protective vehicle.

May 12, 2008 – Conduct testing to diagnose failures of ammunition.

May 14, 2008 – Conduct ballistic test of M855LFS for DOD.

May 15, 2008 – Draft report of observations at Chicago range test.

May 20, 2008 – Attend NDIA Small Army Symposium in Dallas, Tx., to receive Carlos Hathcock Award.

June 4, 2008 - Meet with DOD Agent to discuss testing of ballistic protective vehicle.

June 9, 2008 – Completed training on “The New Field Intelligence”.

June 11, 2008 – Conduct high speed video of Glock 27 malfunctioning with the last two rounds in the magazine.

June 12, 2008 – Attend Quantico Action Response Group (ARG) meeting on "Direct Action" concept for TD and ARG mission for active shooter.

June 13, 2008 – Meeting with Secretary of the Army, in his Pentagon office, and JAG representative, to discuss M855 5.56 NATO ammunition.

June 17, 2008 – Conduct high speed video of Glock pistol malfunctions.

June 25, 2008 – Meet with HRT Sniper Team Leader to discuss projectile trajectories and a computer program to predict them.

July 1, 2008 – Meet with USASOC personnel to discuss M855A1 5.56 NATO ammunition performance.

July 11, 2008 – Ballistic presentation and live fire demonstration for Technical Services Working Group and congressional representatives.

July 16, 2008 – Meeting with LAPD and New Smyrna, Fl, PD executive officers to discuss FBI wound ballistic theory and proper ammunition and weapon selection.

July 16, 2008 - Acting Unit Chief of National Firearms Program Unit.

July 17, 2008 – Conduct ballistic test of armored vehicle.

July 24, 2008 – Conduct testing of ballistic protective plates.

July 25, 2008 – Conduct body armor testing.

July 29, 2008 – Meet with US AWG representatives to discuss high speed video, FBI wound ballistic theory, test methods and ammunition/weapon selection.

July 30, 2008 – Conduct high speed video for FBI Laboratory Firearms Toolmarks Unit.

August 1, 2008 – Conduct demonstration of potential for new munition to penetrate FBI issue body armor and make request for Finance Division to provide funding for enhanced protection.

August 1, 2008 – Provide counsel to Office of Professional Responsibility Agent regarding the function of the M4 rifle.

August 5, 2008 – Attend meeting regarding 5.56 NATO ammunition procurement.

August 8, 2008 – Meeting with Department of State representative to discuss wound ballistics and ammunition selection.

August 11, 2008 – Shoot ballistic protective plates.

August 13, 2008 – Provide presentation to FBI Firearm Instructor class. Conduct terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers

August 14, 2008 – Provide training to FTU instructor regarding high speed video camera.

August 15, 2008 – Conduct chronograph testing of HRT rifles.

August 20, 2008 – Conduct high speed video of gelatin testing and muzzle flashes for USASOC.

September 2, 2008 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

September 9, 2008 – Conduct high speed video of rifle function.

September 10, 2008 – Host meeting of ATK representatives to discuss ammunition testing methods.

September 18, 2008 – Conduct test of Body Armor.

September 22, 2008 – Shoot high speed video of HK416 function.

September 24, 2008 – Show high speed video to H&K engineers. Shoot additional video to diagnose malfunctions.

September 24, 2008 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for Latin American Law Enforcement Executive Development Society.

September 25, 2008 – Shoot gelatin test of .223 Partition ammunition thru short barrel M4 carbines.

October 6 – 9, 2008 – Attend Personal Armor Systems Symposium, Brussels, Belgium. Provide presentation on the FBI Body Armor Test protocol.

October 15, 2008 – Conduct gelatin test of ammunition fired from HK MP7.

October 16, 2008 – Conduct accuracy test of HRT rifles.

November 5, 2008 – Conduct test of SOST rounds for US DOD.

November 7, 2008 – Conduct test of ballistic plates.

November 12, 2008 – Conduct test of 4.6 for HRT.

November 18, 2008 – Attend government issued credit card training.

November 19, 2008 – Conduct training on high speed video equipment.

November 24-25, 2008 – Consult with USASOC regarding wound ballistics and ammunition selection.

December 3, 2008 – Conduct gelatin test of foreign threat ammunition.

December 4, 2008 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

December 8, 2008 - Acting Unit Chief of National Firearms Program Unit.

December 10, 2008 – Conduct test of Sig Sauer P250 for DEA.

December 11, 2008 – Conduct obstructed bore test of Sig Sauer P250 for DEA.

December 16, 2008 – Attend briefing on Technical Services Working Group project.

December 17, 2008 - Acting Unit Chief of National Firearms Program Unit.

December 17, 2008 – Meet with USMC CWO4 to discuss terminal performance of M855LFS.

December 18, 2008 – Acting Unit Chief of National Firearms Program Unit.

January 5, 2009 – Met with HRT members to discuss potential effectiveness of personal defense weapons.

January 8, 2009 – Met with DOD personnel to discuss issues with M855.

January 9, 2009 – Participated in FBI Career Board.

January 12, 2009 – Conducted quality control testing of .40 S&W and 9mm ammunition.

January 13, 2009 – Conducted tour and discussion of FBI wound ballistic theory and test methods for Canadian Special Operations Forces.

January 14, 2009 - Assisted Federal Game Warden with eradication of deer from airfield.

January 21, 2009 – Conduct body armor testing

January 26, 2009 – Tour and discussion of FBI wound ballistic theory and test methods for members of US DOD JAG.

January 27, 2009 – Conduct test of ballistic protective plate for US DOD.

January 28, 2009 – Shoot function test of Glock 23 pistols with FTU personnel present.

January 28, 2009 – Shoot vest test for U.S. Department of State.

January 29, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for USMC CWO (Gunner) class.

February 5, 2009 – Shoot glass test for FBI and DOD entities.

February 10, 2009 – Chronograph rifles for HRT.

February 17, 2009 – Travel to Afghanistan to exchange equipment.

February 27, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

March 3, 2009 – Consulted with FBI Agent regarding test of armored vehicle.

March 4, 2009 – Met with CWO4 and Colonel from USMC to discuss FBI wound ballistic theory and test method.

March 6, 2009 – Met with DEA Firearms instructor to discuss Glock pistol function issues.

March 9, 2009 – Travel to Aberdeen proving ground to witness test of 6.8x43 SPC against body armor.

March 12, 2009 – Attended CTTSO/TSWG/TOS Ammunition Initiatives Meeting (AIM). Provided presentation on FBI wound ballistic theory, testing and ammunition/weapon selection.

March 19, 2009 – Meet with Winchester Ammunition representatives to discuss ammunition issues.

March 20, 2009 – Conduct examination of LAPD pistols and provide guidance to their armors with respect to likely cause of damage and logical next investigative steps.

March 24, 2009 – Met with US Customs and Border Protection representative to discuss the applicability of the .308 carbine to their mission.

March 31, 2009 – Conduct body armor quality control test.

April 2, 2009 – Conduct gelatin test of Winchester 10mm ammunition.

April 6, 2009 – Telephone call with United States Secret Service materials engineer regarding body armor and the FBI test protocol.

April 7, 2009 – Participate in first meeting of Military Body Armor Test Standardization program.

April 15 – 21, 2009 – Participate in numerous conference calls with ammunition manufacturer to discuss cause of defects experienced and proposed remedy.

April 24, 2009 – Conduct high speed video of Glock pistol function.

April 27, 2009 – Conduct high speed video of Glock pistol function.

April 28, 2009 – Attend function testing of service ammunition.

April 29, 2009 – Conduct gelatin test of service ammunition and high speed video of Glock pistol function.

April 30, 2009 – Conduct accuracy test of training ammunition.

May 11, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

May 13, 2009 – Interview with USMC Weapons Training Personnel regarding ballistics.

May 15, 2009 – Met with members of Fairfax, Va. Police Department to explain FBI wound ballistic theory, test method and selection of ammunition and weapons for law enforcement use.

May 18, 2009 – Met with members of a DOD entity to discuss projectiles, explain FBI wound ballistic theory, test method and selection of ammunition and weapons for law enforcement use.

June 2, 2009 – Met with USASOC at Fort Bragg to discuss wound ballistics and ammunition performance.

June 10, 2009 – Gelatine test of Barnes 110 gr. .308 projectile.

June 26, 2009 – Conduct ballistic plate test.

June 26, 2009 – Conduct accuracy test of HRT rifles.

July 7, 2009 – Attended training on Domestic Investigation Operational Guidelines.

July 13-14, 2009 – Tested 5.56 carbine throat erosion suspected to be caused by ammunition.

July 15, 2009 – Conducted accuracy testing of .308 and .223 ammunition.

July 16, 2009 – Conducted body armor quality control test.

July 21, 2009 - Acting Unit Chief of National Firearms Program Unit.

July 22, 2009 – Conducted accuracy and velocity test of .300 Winchester Short Magnum.

July 22, 2009 – Photograph carbine that had experienced catastrophic destruction.

July 23, 2009 - Assisted Federal Game Warden with eradication of deer from airfield.

July 24, 2009 - Acting Unit Chief of National Firearms Program Unit.

July 27, 2009 – Conducted accuracy testing.

July 29, 2009 – Conducted accuracy test of Winchester 10mm 180 grain bonded ammunition.

July 30, 2009 – Conducted test of Hornady SST Interlock .308 ammunition and Winchester 10mm 180 grain bonded when fired from an MP5-10.

August 4, 2009 – Conduct test of ammunition at extreme temperatures for USASOC.

August 6, 2009 – Shoot gelatin test of Winchester 10mm.

August 7, 2009 – Shoot 100 yard gelatin test of Winchester 10mm.

August 10, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for DEA PFI conference attendees.

August 11, 2009 – Attend LWRC armorers course.

August 19, 2009 – Host Remington to demonstrate ACR and MSR rifles.

August 24, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

August 31, 2009 - Acting Unit Chief of National Firearms Program Unit.

September 1, 2009 – Acting Unit Chief of Defensive Systems Unit.

September 1, 2009 – Shot velocity test of frangible ammunition used by FBI field office.

September 9, 2009 – Conduct high speed video for DOD entity.

September 9, 2009 – Conduct high speed video training.

September 10, 2009 – Conduct HS video of muzzle movement, tape over the muzzle of a sniper rifle and LWRC piston system function.

September 16, 2009 – Shoot ballistic test of protective vehicle.

September 16, 2009 - Assisted Federal Game Warden with eradication of deer from airfield.

September 22, 2009 – Meet with Federal Prosecutors to provide ballistic expertise with respect to a Federal prosecution.

September 22, 2009 – Shoot gelatin test of 64gr. Gold Dot in 8” barrel 5.56 carbine.

September 23, 2009 – Meet with Finnish SUPO officer to discuss FBI wound ballistic theory, test method and selection of ammunition and weapons for law enforcement applications.

September 25, 2009 – Shoot armored vehicle in support of Federal prosecution.

October 6-8, 2009 – Instructor at Alabama Tactical Officer’s Association. Classes taught included: Accuracy Expectations, Ammunition Selection, Body Armor testing - the FBI protocol and Weapon Selection.

October 15, 2009 – Conducted gealtine test of Federal .223, 55gr. Trophy Bonded fired from an 8” carbine.

October 20-21, 2009 – Assisted ATF with conducting accuracy testing of pistols for their procurement.

October 23, 2009 – Conducted high speed video of simunition projectile impacts on safety glasses.

October 26, 2009 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulat with and without intervening barriers, for National Academy class.

October 30, 2009 – Conducted high speed video of demonstration of effect of bomb for criminal case in the New York Division.

November 10, 2009 – Conducted body armor test of wet vests.

November 18, 2009 – Troubleshoot and repair Oehler acoustic target system.

November 30, 2009 – Meeting with USASOC, Fort Bragg, NC.

December 01, 2009 - Acting Unit Chief of Defensive Systems Unit.

December 7, 2009 – Test training ammunition in M4 carbines for Field Division (Norfolk) experiencing issues.

December 14, 2009 - Acting Unit Chief of Defensive Systems Unit.

December 15, 2009 – Hosted meeting to discuss 5.56mm NATO ammunition request for proposal.

January 5, 2010 – Conduct pressure test of .40 S&W ammunition.

January 6, 2010 – Conduct accuracy testing of LaRue OBR.

January 7, 2010 – Meeting with ammunition manufacturer to discuss issues experienced with their ammunition. Observe their technicians firing the ammunition in service weapons. Document and diagnose malfunctions.

January 8, 2010 – Chronograph rifles for HRT.

January 12, 2010 – Participate in teleconference of Armor Piercing Ammunition Working Group.

January 15, 2010 – Teleconference with engineers of ammunition manufacturer to discuss observations from 01/07/2010 test.

January 17-22, 2010 - Attend SHOT Show, Las Vegas, NV. Attended multiple meetings with manufacturers to discuss ammunition and firearms for FBI use.

January 28, 2010 – Conduct high speed video of muzzle flashes for HRT.

January 28, 2010 – Conducted tour and terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for United States Air Force Major General.

February 3, 2010 – Conduct ballistic testing for USASOC.

February 4, 2010 – Host meeting with ammunition and firearm manufacturer to observe firing of proposed ammunition modification for FBI weapons.

February 25, 2010 – Conduct meeting with ammunition manufacturer representatives.

February 26, 2010 – Conduct test of body armor for HRT.

March 3, 2010 – Host Director of Research and Development of AAC Silencers for sharing of high speed video and lighting techniques and their application for ballistic testing.

March 4, 2010 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

March 8, 2010 – Design, modify, retrofit and test chronograph setup in attempt to more accurately record projectile velocity.

March 10-11, 2010 – Construct fixture to allow precise measurement of projectile time in the bore of a handgun barrel. Ultimately energized the fixture with a 9v battery and recorded electrical changes via an oscilloscope, acoustic microphone and high speed video.

March 12, 2010 – Observe firing of new ammunition. Record, document and investigate malfunctions experienced.

March 12, 2010 – Conduct pressure test of .40 S&W ammunition.

March 17, 2010 – Attend Ammunition Initiatives Meeting II.

March 25, 2010 – Conducted high speed video of primer setback. Discovered and documented cause of breach face damage experienced in FBI and other pistols.

April 1, 2010 – Observed firing of modified ammunition, documented results and investigated any malfunctions which occurred.

April 1, 2010 – Conducted high speed video of primer setback.

April 6, 2010 – Custom loaded dud ammunition for use in undercover operation.

April 12, 2010 - Provided presentations to the Program Manager's (Principal Firearms Instructor) conference. Topics covered included identification and disposition of defective ammunition, FBI wound ballistic theory and test method, ammunition and weapon selection for FBI use.

April 13, 2010 – Provided training to USMC Precision Weapons Section personnel on operation of the Phantom high speed video camera.

April 15, 2010 – Participate in teleconference of the Ammunition Working Group.

April 20, 2010 – Conduct pressure and velocity testing of .223 ammunition.

April 27, 2010 – Conduct accuracy testing of 5.56 ammunition.

April 28, 2010 – Attend Cultural Diversity training.

April 29, 2010 – Attend live fire rehearsal for congressional demonstration by the USMC.

April 30, 2010 – Discovered postings on an internet forum which jeopardized security of DEA personnel in Afghanistan. Alerted DEA of their existence.

May 6, 2010 – Host ballisticsian from projectile maker to discuss FBI wound ballistic theory and ammunition test methods.

May 10, 2010 – Meet with ammunition manufacturer engineers and conduct ammunition testing.

May 11-12, 2010 – Attend meeting with USASOC and manufacturer of Oehler ballistic measurement equipment to discuss potential improvements in data acquisition.

May 24, 2010 – Provide training on Oehler ballistic instrumentation to USASOC personnel.

May 27, 2010 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

May 27, 2010 – Conduct gelatin test of MP7 for HRT.

June 8, 2010 – Observe New Agent trainees firearms training. Document and investigate malfunctions experienced.

June 17, 2010 - Acting Unit Chief of Defensive Systems Unit.

June 21, 2010 – Conduct velocity measurements for HRT.

June 22, 2010 - Assisted Federal Game Warden with eradication of deer from airfield.

June 24, 2010 – Receive training on the use of a small metal working lathe.

June 29, 2010 – Host employees from Dayton T Brown engineering and testing laboratory to discuss and demonstrate FBI wound ballistic theory, test method and selection of ammunition and weapons for FBI use. Also discussed and demonstrated FBI Body Armor Test protocol.

July 9, 2010 – Provided consultation to HRT with respect to short barrel 5.56 carbines and the expected effect on the terminal performance of currently issued ammunition.

July 12-13, 2010 – Attend Firearms Instructor Recertification training.

July 20, 2010 - Assisted Federal Game Warden with eradication of deer from airfield.

July 22, 2010 – Host DOD personnel to shoot LaRue OBR rifles.

July 26, 2010 – Participate in teleconference of Ammunition Working Group.

July 28, 2010 - Acting Unit Chief of Defensive Systems Unit.

July 29, 2010 – Conducted vest test for Pennsylvania State Police.

August 3, 2010 – Host meeting to discuss 5.56mm NATO ammunition submissions.

August 9, 2010 – Conduct gelatin test of 5.56mm NATO ammunition submissions.

August 10, 2010 - Conduct gelatin and accuracy test of 5.56mm NATO ammunition submissions.

August 11, 2010 – Conduct accuracy test of 5.56mm NATO ammunition submissions.

August 12, 2010 - Conduct muzzle flash test of 5.56mm NATO ammunition submissions.

August 24, 2010 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

September 9, 2010 – Meet with Olympus representatives for demonstration of their high speed video systems.

September 13 – 16, 2010 – Attend Personal Armor Systems Symposium in Quebec City, Canada.

September 27 – 30, 2010 – Attend armorers course on the M4 carbine and hand fitting parts to create a 1911 style pistol.

October 4, 2010 - Observe New Agent trainees firearms training using 5.56mm NATO contract ammunition. Document and investigate malfunctions experienced.

October 6, 2010 – Meet with Training Division Assistant Director and Deputy Assistant Director. Provide tour of BRF and describe its creation and mission. Conduct terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers. Also demonstrate FBI body armor test protocol and effectiveness of FBI issued body armor.

October 15, 2010 – Participate in presenting overview of Defensive Systems Unit to FBIHQ personnel.

October 26, 2010 – Provide debriefing of successful competitor in 5.56mm NATO ammunition procurement.

October 27, 2010 - Provide debriefing of successful competitor in 5.56mm NATO ammunition procurement.

October 28, 2010 – Investigate and document malfunctions experienced with 5.56mm NATO ammunition.

October 29, 2010 – Speak at Pentagon retirement ceremony of USDOD Senior Associate Deputy (General Counsel International Affairs) W. Hays Parks.

November 4, 2010 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

November 29 & 30, 2010 – Consulted with USASOC at Fort Bragg regarding ballistic test methods, measurement of velocity, group size and ballistic coefficient using Oehler M85, M57 and acoustic target. Also consulted on terminal and exterior ballistics.

December 1, 2010 - Attended Deadly Force Training at FBI Academy.

December 2, 2010 – Met with HRT Sniper Team Leader to discuss 7.62 carbines.

December 2, 2010 – Attend debriefing of USMC testing of 5.56mm NATO M855A1 and SOST.

December 7, 2010 – Conduct gelatin test of 6.8x43 110 Accubond.

December 14, 2010 – Conduct velocity measurements of HRT rifles.

December 14, 2010 - Assisted Federal Game Warden with eradication of deer from airfield.

January 6, 2011 – Conduct body armor test for HRT.

January 11, 2011 – Conduct pressure test of .40 S&W ammunition.

January 13, 2011, accompanied DOD JAG personnel to witness live fire testing and provide terminal ballistic opinion on MK211 Raufoss ammunition impacting ballistic gelatine at Aberdeen Proving Ground.

Jan 14, 2011 - consulted with Montgomery County, Md., SWAT regarding the Discovery Channel Headquarters incident where an individual with a bomb took hostages. The incident ended in a tactical assault and shooting. Consultation was related to the performance of the ammunition used by the SWAT Team.

January 14, 2011 – Conduct velocity measurements for HRT.

January 18, 2011 – Conduct velocity measurements for HRT.

January 20, 2011 – Conduct accuracy test of .308 ammunition.

January 21, 2011, Met with representative from United Kingdom Home Office Scientific Development Branch regarding FBI wound ballistic theory, ammunition test method and cartridge/weapon selection for law enforcement applications.

January 24, 2011 – Shot velocity test of .40 S&W ammunition.

January 31, 2011 - Met with representative from Danish Institute of Forensic Medicine regarding FBI wound ballistic theory, ammunition test method and cartridge/weapon selection for law enforcement applications.

Feb. 2011 – Retirement - Participated in research and development of .300 BLK loadings (both super and sub-sonic).

February 7, 2011 – Conducted high speed video of buckshot impacts in gelatin for FBI Laboratory Firearms Toolmarks Unit.

February 8, 2011 – Conduct 100 yard gelatin testing of ammunition fired from HK416C.

February 10, 2011 – August 31, 2012 - Assisted HRT with concept and development of switch-barrel sniper rifle with both supersonic and subsonic capabilities.

February 14, 2011 – Meet with USMC PWS personnel to discuss ballistic test methods.

February 18, 2011 – Meet with USASOC representatives to discuss FBI wound ballistic theory, ammunition test method and cartridge/weapon selection for military purposes.

March 4, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

March 7-8, 2011 – Travel to Fort Bragg to assist USASOC in function test of 5.56 weapon systems. Provided consultation regarding ballistic test methods, measurement of velocity, group size and ballistic coefficient using Oehler M85, M57 and acoustic target. Also consulted on terminal and exterior ballistics.

March 14, 2011 – Met with representatives of the FBI Engineering Research Facility to discuss measurement of firearm reports and possible methods of locating the firearm/shooter acoustically.

March 15, 2011, Consulted with United Kingdom Ministry of Defence regarding FBI wound ballistic theory, ammunition test method and cartridge/weapon selection for military applications.

March 17, 2011, provided presentation on the FBI Ballistic Research Facility, FBI test method and wound ballistics to the Ammunition Initiatives Meeting III, hosted by the Technical Services Working Group in Tyson's Corner, Va.

March 21, 2011 – Conducted accuracy testing of AB39 ammunition for HRT.

March 22, 2011 – Conducted velocity measurements for HRT.

March 22, 2011 – Attended training in calibrating piezoelectric transducers.

March 23, 2011, Received FBI Performance Management Training.

March 24, 2011 – Attended demonstration of acoustic target system.

March 24, 2011 – Shot accuracy test of .308 carbines for DSU enhanced range carbine program.

March 30, 2011 - Consulted with DHS National Firearms Unit personnel on FBI test methods, high speed video and ballistic research.

March 30, 2011 – Consulted with USASOC representatives to discuss FBI wound ballistic theory, ammunition test method and cartridge/weapon selection for military purposes.

April 4, 2011 – Conducted test of firing pin damage in Glock pistols.

April 4, 2011 – Completed COOP training.

April 6, 2011 – Conducted test of firing pin damage in Glock pistols.

April 7, 2011 – Conducted test of firing pin damage in Glock pistols, met with Gunsmiths to discuss results.

April 8, 2011 – Conduct chronograph and Oehler M83 ballistic computer training for SSA assigned to replace me upon my retirement.

April 12, 2011 – Reorganization of chronographs and test of multiple systems.

April 13, 2011, participated in “Counsel of Colonels” meeting on medium caliber issues.

April 14, 2011 – Gelatine test of .300 Blackout 110gr. TSX.

April 19, 2011 – Captured high speed video of flex of FBI Sniper rifle mounts during recoil.

April 19-20, 2011 - Consulted with Technical Services Working Group and Special Operations forces on ballistic instrumentation to record velocity and Ballistic Coefficient. Conducted high speed video of weapon systems while firing.

April 27, 2011 – Load development of .300 Blackout ammunition.

May 6, 2011 – Experiment with wireless communication systems for Oehler M83 system.

May 9, 2011 – Attend training on discovery issues.

May 10-11, 2011 – Test prototype compact sniper rifles.

May 13, 2011 - Shot high speed video of .308 rounds thru automobile glass.

May 16, 2011 – Test prototype compact sniper rifles.

May 18, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

May 23 - 27, 2011 - Attended Accuracy 1st long-range rifle class in Canadien, Texas.

June 3, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for USMC new CWO (Gunner) class.

June 3, 2011 - consulted with Texas Rangers SWAT Team Captain regarding wound ballistics and ammunition/weapon selection for law enforcement applications.

June 13, 2011 - taught class on basic ballistics to HRT Sniper Team.

June 17-20, 2011 - consulted with U.S. Department of Commerce (DOC) regarding catastrophic failure they experienced with LWRC 6.8 PSD. Participated in meeting between the DOC, LWRCI and the ammunition manufacturer to attempt to identify the cause of the failure.

June 24, 2011 - Conducted briefing on wound ballistics and the FBI BRF for the Wounded Warrior visitors to the FBI Academy.

July 1, 2011 - Provided consultation to DEA FAST Unit regarding .308 rifles and .338 Lapua Mag rifles.

July 12 - 14, 2011 - Participated in the Technical Services Working Group Joint Medium Caliber Working Group at Harpers Ferry, West Virginia.

July 20 - 21, 2011 - Consulted with USASOC at Fort Bragg.

July 26, 2011 - Conducted High Speed video of FBI Sniper rifles and Night Vision Mounts.

July 27, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for FBI Field Firearms Program Manager Conference.

August 1 - 3, 2011 - Assisted USASOC with first article testing (accuracy) of 7.62 battle rifle at

Knight's Armament, Titusville, Fl.

August 8 – 10, 2011 – Conducted testing of Rock River .40 S&W pistols.

August 10, 2011 - Performed as a voting member on Career Board for Firearms Training Unit SSA position.

August 11, 2011 - Performed Gel testing of .308 ammunition.

August 11 - 12, 2011 - Performed temperature extreme testing of Rock River pistols.

August 23, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

August 29, 2011 - Completed Active Shooter Awareness training.

August 31 - Sept. 2, 2011 - Consulted with USASOC at Fort Bragg.

Sept. 6-8, 2011 - Conducted testing for USASOC, to include High Speed Video, at the BRF.

Sept. 12 - 16, 2011 - Attended NDIA International Ballistics Symposium, Miami, Florida.

Sept. 17 – October 21, 2011 - Consulted with Tuscaloosa Metro Homicide on the possibility of a 9mm projectile penetrating sufficient tissue, if fired from approximately 417 yards, to cause a death. Researched the most probable cartridge used in the homicide, conducted test shots into gelatine at 420 yards and also downloaded projectiles to simulate extreme ranges. Reported results of testing for use in criminal prosecution.

Sept. 26, 2011 - Consulted with personnel from other Govt Agencies on body armor and penetration potential of uncommon cartridges.

September 28, 2011 – Hosted meeting with manufacturer of triggers for Colt pattern carbines.

September 29, 2011 – Met with USMC Range Control personnel to discuss possible BRF range improvements.

October 3, 2011 – Met with representative of Alcohol, Tobacco, Firearms and Explosives to assist in diagnosis of ammunition issues they were experiencing.

October 3, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for DOD Director of Testing and Evaluation.

October 13, 2011 – Conduct test of body armor in presence of manufacturer.

October 25, 2011 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

October 25, 2011 - Took aerial photos of the BRF and FBI Academy range complexes.

October 26, 2011 - Presenter at the USMC Combat Marksmanship Symposium. Presented on the FBI BRF creation and mission and FBI wound ballistic theory, test method and ammunition/weapon selection.

November 2, 2011 - Presenter at the 57th Allied Land Warfare Technical Intelligence Conference at the National Ground Intelligence Center, Charlottesville, Va. Presented on the FBI BRF creation and mission and FBI wound ballistic theory, test method and ammunition/weapon selection.

November 7, 2011 - Successfully completed Domestic Investigations and Operations Guidelines (DIOG) training.

November 8, 2011 - Assisted Hays Parks in identifying differences between GameKing and MatchKing projectiles.

November 28-29, 2011 - Consulted with USASOC at Fort Bragg.

November 30, 2011 - Viewed mandatory training video “Betrayed”

December 1, 2011 - Assisted HRT with HS video of shooting thru glass.

December 15, 2011 - Provided overview of wound ballistics and projectile performance for USMC PP&O at Henderson Hall.

January 11, 2012 - Created foil trigger screens for the Oehler M35P chronograph. Test against M35 skyscreens showed it to be accurately recording velocity.

January 13, 2012 - Assisted other Government Agency with respect to body armor.

January 16 - 20, 2012 - Traveled to SHOT Show in Las Vegas. Attended meetings for the FBI and USASOC.

February 1, 2012 - Conducted Gelatine test of .300 BLK loads.

February 3, 2012 – Conducted accuracy and velocity testing of .40 S&W samples.

February 6, 2012 - Conducted gelatine and frangibility testing of .40 S&W cartridges produced by Winchester's Oxford facility.

February 7, 2012 - Conducted post 2k round accuracy test of 7.62 carbines.

February 10, 2012 - Conducted test of ballistic plates.

February 13, 2012 - Hosted demonstration and familiarization fire of unique (classified) rifle brought over by the Laboratory.

February 15, 2012 - Tested current production .40 against procurement .40.

February 16, 2012 - Conducted .40 gelatine tests. Conducted HS Video of Glock Gen 4 modified ejectors. Provided ballistic consultation to the SWAT Operations Unit.

February 17, 2012 - Hosted USMC Scout Sniper Instructor School to discuss long range ballistics, shot accuracy and velocity and obstructed bore test of the Rock River .40 S&W carbine.

February 22, 2012 - Shot ESAPI plates for the USMC WTBN.

February 23, 2012 - Tested subsonic ammunition for HRT.

February 24, 2012 - Provided ballistics brief to the National SWAT Sniper Symposium in Reston, Va. Discussed FBI BRF creation and mission and FBI wound ballistic theory, test method and ammunition/weapon selection.

February 29, 2012 - Consulted with USASOC.

March 1, 2012 - Conducted live fire demonstration for NA.

March 4 - 9, 2012 - Attended long range training at Accuracy 1st, Canadien, Tx., with the HRT Blue Snipers.

March 12 - 13, 2012 - Hosted SGM Pete Gould, USASOC, for gelatine testing and HS video of weapons firing.

March 14 - 15, 2012 - Attended AIM IV, Tyson's Corner, Va. Received Service Award from TSWG, TOS, CTTSO.

March 21, 2012 - Conducted HS video of gelatine impacts.

March 23, 2012 - Conducted test of a ballistic shield for SWAT.

March 27, 2012 - Received formal recognition from USASOC for assistance provided and

relationship created.

March 28, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

March 28 - 29, 2012 - Met with Bryan Litz and Eric Stecker of Berger Bullets to discuss projectile design, test methods and terminal performance specifications.

April 6, 2012 - Participated in repeatability test of silencers for HRT.

April 13 - Participated in repeatability test of silencers for HRT.

April 17, 2012 - Conducted HS video of obstructed bore test of three rifles for USMC.

April 18, 2012 - Met with Hays parks to discuss a particular cartridge and its application for USASOC.

April 19, 2012 - Met with Mike Benbow, USMS SOG, to discuss FBI wound ballistic theory, test method and ammunition/weapon selection for law enforcement applications.

April 23, 2012 - Met with Pietro Fiocchi and others from Fiocchi to discuss FBI wound ballistic theory, test method and ammunition/weapon selection for law enforcement applications.

April 25 - 26, 2012 - Met with USASOC personnel and Jeff and Kristi Hoffman to discuss test methods and terminal performance standards.

May 1 - 2, 2012 - Attended TSWG Next Generation Combat Rifle symposium in Altoona, Pa.

May 7, 2012 - Meet with Training Division Executive Management team. Provided tour of BRF and describe its creation and mission. Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers. Also demonstrated FBI body armor test protocol and effectiveness of FBI issued body armor..

May 8, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for National Academy class.

May 9, 2012 - Consulted with HRT PFI on wound ballistics and accuracy.

May 10, 2012 - Assisted Federal Game Warden with deer eradication at a Government installation.

May 17, 2012 - Captured HS Video of muzzle flashes with various muzzle breaks and silencers for

HRT.

May 18, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for FBI Firearms Instructor class.

May 20 - 24, 2012 - Traveled to Rapid City, SD., to tour Black Hills Ammunition and participate in long range rifle testing/training with members of USASOC.

May 29, 2012 – Training on operation of new BRF microscope.

June 13, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulant with and without intervening barriers, for USMC CWO (Gunner) course.

June - August, 2012 - Participated in .40 S&W procurement testing for Service, Training, Training Reduced Lead and Frangible ammunition.

June 19 - 21, 2012 - Traveled to Fort Bragg to film gelatine shots for USASOC and to be recorded explaining wound ballistics for a video training series for their continuing education section.

June 26, 2012 – Assisted USASOC presenter during Wound Ballistics presentation to JSOC Command SgtsMaj. Conference.

July 3, 2012 - Met with HRT Snipers to discuss Sniper Spotting Scope with integral atmosphere and ballistic data.

July 16, 2012 - Met with TSWG and HRT to view prototype Sniper Status System concept demonstration.

July 20, 2012 – Participated in conference call with ammunition manufacturer to discuss issues experienced with their ammunition.

August 2012 - Participated in testing for FBI Body Armor Procurement.

August 9, 2012 - Conducted accuracy testing of effect of overall length on the accuracy of Federal 62 gr. 5.56 contract loading.

August 9, 2012 – Met with United States Secret Service Special Operations Division Counter Action Team representative to discuss FBI wound ballistic theory, test method and selection of ammunition and weapons for law enforcement use.

August 14, 2012 - Assisted Federal Game Warden with deer eradication at a Government installation.

August 15, 2012 – Conducted gelatin test of German ammunition for DOD advisor.

August 16, 2012 - Conducted liaison with other Government agency at their headquarters.

August 20, 2012 - Completed 2012 Continuity of Operations (COOP) Training.

August 24, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulants with and without intervening barriers, for FBI Firearms Instructor Course.

August 28, 2012 - Conducted terminal ballistic demonstration and discussion of appropriate methods of selecting ammunition and weapons, including live-fire of projectiles into tissue simulants with and without intervening barriers, for National Academy class.

August 31, 2012 – Retired from FBI.

September, 2012 – Primary instructor of FBI Basic Sniper Observer School, Tuscaloosa, Al.

October, 2012 – Formed Boone Ballistics, LLC.

December, 2012 – Presenter at Sniper Conference hosted by Naval Special Warfare Development Group, Virginia Beach, Va.

January, 2013 – Hired as consultant in *Speakman, Jared v. St. Petersburg Police Department*.

April, 2013 – Sworn in as Reserve Deputy Sheriff, Tuscaloosa County, Alabama.

April, 2013 – Participated in conference call with Technical Services Working Group regarding a medium caliber alternative for US military applications.

April, 2013 – Instructed Tuscaloosa Sheriff's Department SWAT Team in wound ballistics, weapon and ammunition selection.

May, 2013 – Participated in two conference calls with Technical Services Working Group regarding a medium caliber alternative for US military applications.

May, 2013 – Provided ballistic consultation to a representative of the Asymmetric Warfare Group.

June, 2013 – Conducted Sniper training for Tuscaloosa County Sheriff's Department SWAT.

June, 2013 – Participated in Technical Services Working Group live fire test of medium caliber cartridges, Fort Benning, Ga.

July, 2013 – Consulted with major firearms manufacturer on medium caliber alternatives.

August, 2013 – Hired as ballistic consultant for major ammunition manufacturer.

September, 2013 - Primary instructor of FBI Basic Sniper Observer School, Tuscaloosa, Al.

October, 2013 – Hired as expert witness in Kolbe v. O’Malley, U.S. District Court for the District of Maryland (Northern Division).

November, 2013 – Conducted basic and advanced training for Tuscaloosa Sheriff’s Department SWAT Snipers.

December, 2013 - Presenter at Sniper Conference hosted by Naval Special Warfare Development Group, Virginia Beach, Va.

January, 2013 – Deposed as an expert witness in Kolbe v. O’Malley.

February, 2014 – Hired to instruct ballistic testing basics, velocity, accuracy and pressure, for new ammunition manufacturing company. Also hired to assist them in ordering of necessary equipment and setup of ballistic test lab.

March, 2014 – Consulted with Tuscaloosa County Sheriff’s Department on firing range layout and construction.

March, 2014 – Hired by major firearms manufacturer to assist with ballistic explanations for US Department of Defense customer.

April, 2014 – Hired to provide expert opinions on Amicus brief in New York State Rifle and Pistol Association, Inc., et al., v. Andrew M. Cuomo, et al., US District Court, Western District of New York, Buffalo Division.

May, 2014 – Provided interior, exterior and terminal ballistic instruction to Canadian Special Operations Forces Command.

May, 2014 – Presenter of wound ballistic theory and selection of firearms and ammunition at the Indiana Tactical Officers Conference.

May, 2014 – Provided ballistic testing consultation to USASOC, Fort Bragg, North Carolina.

June, 2014 – Consulted with Northport, Al., Police Department on firing range layout and construction.

June, 2014 - Presenter at Sniper Conference hosted by Canadian Special Operations Forces Command, Ottawa.

June, 2014 – Successfully completed Ballistic Pressure Sensor User’s Group Training by PCB Piezotronics, Buffalo, Ny.

June, 2014 – Hired to provide expert opinions in Amicus filing in Jackson v. San Francisco.