



Firearms Examination Test No. 14-526 Summary Report

This test was sent to 428 participants. Each sample set consisted of three known expended bullets (Item 1) test-fired from a suspect weapon and four questioned expended bullets (Items 2-5). Participants were requested to examine these items and report their findings. Data were returned from 381 participants (89% response rate) and are compiled into the following tables:

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This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set contained five items: Item 1 consisted of three bullets fired in the "suspect's firearm." Items 2, 3, 4 and 5 each consisted of one bullet recovered from the scene. PMC® Bronze 50 9mm Luger 115 grain full metal jacket (FMJ) Centerfire ammunition was used for all five items. Participants were requested to determine which, if any, of the recovered questioned bullets (Items 2-5) were fired from the same firearm as the known bullets.

The bullets in Item 1 were fired in a Ruger P95DC Auto handgun (Serial number 311-80315). Item 2 was fired in a Taurus PT 24/7 Auto handgun (Serial number TXB50050). Items 3, 4, and 5 were fired in a Ruger P85 MKII Auto handgun (serial number 303-24518)

ITEM 1 (KNOWN): Multiple magazines were loaded with ammunition totaling between 60 - 120 rounds in preparation for shooting with the Ruger P95DC handgun. After the ammunition was expended, the bullets were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of bullets were selected and inscribed with a "1" (three bullets), then sealed into an Item 1 jewel box.

ITEM 2 (ELIMINATION): Multiple magazines were loaded with ammunition totaling between 60 - 140 rounds in preparation for shooting with the Taurus PT 24/7 handgun. After the ammunition was expended, the bullets were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of bullets were selected and inscribed with a "2" (one bullet), then sealed into an Item 2 jewel box.

ITEMS 3, 4 and 5 (ELIMINATION): Multiple magazines were loaded with ammunition totaling between 60 - 130 rounds in preparation for shooting with the Ruger P85 MKII handgun. After the ammunition was expended, the bullets were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of bullets were selected and inscribed with a "3" , "4" or "5" (one bullet each), then sealed into their respective jewel boxes and kept together as an elimination batch.

SAMPLE SET ASSEMBLY: For each sample set, Items 3, 4 and 5 of the same elimination batch, along with an Item 1 and Item 2 were placed in a sample pack box. This process was repeated until all of the sample sets were prepared. Once verification was completed, the sample packs were sealed with evidence tape and initialed "CTS."

VERIFICATION-

During test production, 10% of the bullets from each batch were selected and intercompared to confirm that markings were consistent within each batch. Laboratories that conducted the predistribution examination of the completed sample sets reported the expected identifications and eliminations.

Release Date of Manufacturer's Information: 14-July-2014

Summary Comments

This test was designed to allow participants to assess their proficiency in a comparison of expended bullets. Participants were provided with four questioned expended PMC® Bronze 9mm Luger 115 grain full metal jacket (FMJ) Centerfire ammunition bullets (Items 2-5) which they were requested to compare with three known expended bullets (Item 1) of the same manufacturer fired in the suspect's weapon, a Ruger P95DC Auto handgun (Serial number 311-80315). For each sample set, the Items 3, 4 and 5 bullets were fired in a different firearm from that which discharged the known expended bullets (Item 1). The Item 2 bullet was fired in a different firearm from the one that discharged the known expended bullets (Item 1) and the firearm that discharged the Items 3, 4 and 5 bullets. [Refer to Manufacturer's Information for production details.]

In Table 1 Response Summary, 374 of 381 (98%) responding participants either eliminated or reported "Inconclusive" for Items 2, 3, 4, and 5 as having been fired from the same firearm as the Item 1 test-fired bullets. [Many labs will not as a matter of policy eliminate without access to the firearm or when class characteristics match.] Five participants identified Items 3, 4 and 5 as having been fired from the same firearm as the Item 1 test-fired bullets. One participant identified Item 5 and one participant identified Items 3 and 4 as having been fired from the same firearm as the Item 1 test-fired bullets.

The majority of participants reported that Items 3, 4 and 5 had been fired in a second, unknown firearm and that Item 2 was fired in a third, unknown weapon.

Examination Results

Were any of the recovered questioned bullets (Items 2-5) fired in the same firearm as the known bullets (Item 1)?

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
23BYLN	No	No	No	No	3H92XK	No	No	No	No
24Y6J7	No	No	No	No	3M222U	No	No	No	No
2EC3ZN	No	Inc	Inc	Inc	3PCRGP	No	Inc	Inc	Inc
2ET3WY	No	No	No	No	3RL6RJ	No	Inc	Inc	Inc
2GWXF2	No	Inc	Inc	Inc	3T7TEX	No	Inc	Inc	Inc
2HFZY3	No	No	No	No	3UF8WU	No	No	No	No
2LUHJL	No	No	No	No	3UK9TY	No	No	No	No
2VPBFK	No	No	No	No	3UU3UL	No	No	No	No
2W3VBF	No	Inc	Inc	Inc	3V3PCD	No	Inc	Inc	Inc
2ZRALP	No	No	No	No	3VWX86	No	No	No	No
33ACQV	No	No	No	No	43QGPQ	No	No	No	No
36WZ4G	No	Inc	Inc	Inc	4A9T3R	No	No	No	No
37WMN7	No	No	No	No	4E4LU2	No	Inc	Inc	Inc
38A9LM	No	No	No	No	4FGAD2	No	Inc	Inc	Inc
38Q8WY	No	No	No	No	4JEQQV	No	No	No	No
3A3X7U	No	Yes	Yes	Yes	4LZA6T	No	Inc	Inc	Inc
3AB7QV	No	No	No	No	4RTC2K	No	No	No	No
3CLY8G	No	No	No	No	4UGVYB	No	Inc	Inc	Inc
3CYJN7	No	No	No	No	4YPQPL	No	No	No	No
3EG4RM	No	No	No	No	66EPGL	No	No	No	No
3ELD8R	No	No	No	No	66GWYM	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
6CHHB2	No	No	No	No	7THK4K	No	No	No	No
6DMP79	No	Inc	Inc	Inc	7XNTYN	No	No	No	No
6EEEZH	No	No	No	No	7ZELXJ	No	Inc	Inc	Inc
6F6HTP	No	No	No	No	83FWK7	No	No	No	No
6HBHRH	No	Inc	Inc	Inc	842LN9	No	No	No	No
6L4AHK	No	No	No	No	87Y26M	No	Inc	Inc	Inc
6L9JTJ	No	Inc	Inc	Inc	89DVCU	No	No	No	No
6PCUPZ	No	No	No	No	8B4H46	No	No	No	No
6PV7L8	No	No	No	No	8ET8YN	No	No	No	No
6Q3XH8	No	No	No	No	8GAV33	No	Inc	Inc	Inc
6W26LH	No	No	No	No	8HWKZV	No	Inc	Inc	Inc
6XUBPE	No	No	No	No	8NQ6CX	No	No	No	No
76DTMM	No	No	No	No	8QH24C	No	Inc	Inc	Inc
77QUVL	No	Inc	Inc	Inc	8UJPHL	No	No	No	No
789GU4	No	No	No	No	8WH6NN	No	Inc	Inc	Inc
79GYNT	No	Inc	Inc	Inc	93APDP	No	No	No	No
79PNED	No	Inc	Inc	Inc	9A3RPA	No	No	No	No
7A2DQ3	No	No	No	No	9GFZD4	No	No	No	No
7A66DD	No	No	No	No	9H87R9	No	No	No	No
7GXNTF	No	No	No	No	9LXZ9C	No	No	No	No
7GXXDL	No	No	No	No	9X94KE	No	No	No	No
7NZGZV	No	No	No	No	A2GENM	No	Inc	Inc	Inc
7QAEFX	No	Inc	Inc	Inc	A3KPAK	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
A6GR4Z	No	No	No	No	BBHCK2	No	No	No	No
A6QAXK	No	Inc	Inc	Inc	BH93NX	No	No	No	No
A6XNVZ	No	Inc	Inc	Inc	BQDP44	No	No	No	No
A8ZTZ8	No	No	No	No	BRKDEH	No	No	No	No
ABVRV4	No	No	No	No	BULQRA	No	Inc	Inc	Inc
ACFALH	No	No	No	No	BZ2JGL	No	Inc	Inc	Inc
ACHQYV	No	No	No	No	C8LUNN	No	No	No	Inc
ACRZHF	No	Inc	Inc	Inc	C9Z4T8	No	No	No	No
AFG3Y3	No	Inc	Inc	Inc	CC3J6W	No	No	No	No
AK86DG	No	No	No	No	CD2RN3	No	No	No	No
APV4D4	No	Yes	Yes	Yes	CHEFC6	No	No	No	No
AR2A8H	No	No	No	No	CHGYAG	No	No	No	No
ATM9VL	No	No	No	No	CK7C4K	No	No	No	No
AUZUGG	No	Yes	Yes	Yes	CL9WGD	No	No	No	No
AV6JEJ	No	No	No	No	CRHHQB	No	No	No	No
AXZ4GB	No	No	No	No	CTHN34	No	Inc	Inc	Inc
AZLR2X	No	Inc	Inc	Inc	CU2G88	No	No	No	No
AZXPTV	No	Inc	Inc	Inc	CUKZDE	No	Inc	Inc	Inc
B3M8V8	No	No	No	No	CXLC3D	No	No	No	No
B4BACA	No	No	No	No	CYEKDU	No	No	No	No
BAWCDK	No	No	No	No	D3N6RT	No	No	No	No
BAZUFP	No	Inc	Inc	Inc	D72H6G	No	Inc	Inc	Inc
BB3WP9	No	Inc	Inc	Inc	D8CG3B	No	Inc	Inc	Inc

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
DB64GL	No	No	No	No	FKZZDJ	No	No	No	No
DDREZ4	No	No	No	No	FMHAWR	No	Inc	Inc	Inc
DF8PGA	No	No	No	No	FMHM4K	No	No	No	No
DJ9GZ9	No	No	No	No	FUG426	No	No	No	No
DNHNBK	No	No	No	No	FUR2LM	No	No	No	No
DNYX68	No	No	No	No	FWDFYJ	No	Inc	Inc	Inc
DTWEKM	No	No	No	No	FWDQZ9	No	No	No	No
DWDM7Z	No	No	No	No	FZJ48Z	No	No	No	No
DWKLQ3	No	Inc	Inc	Inc	FZMG2N	No	Inc	Inc	Inc
DYGLVZ	No	Inc	Inc	Inc	G2E2Y8	No	No	No	No
DZWRMB	No	No	No	No	G37XQM	No	No	No	No
E6ZBTE	No	No	No	No	G4HWMG	No	Inc	Inc	Inc
ECXAGC	No	No	No	No	G9DJHQ	No	Inc	Inc	Inc
ED69F6	No	No	No	No	G9PH6W	No	Inc	Inc	Inc
ED9NVQ	No	No	No	No	GDNUC6	No	No	No	No
EEN68W	No	No	No	No	GKN4VR	No	No	No	No
EQGLZ4	No	No	No	No	GQDPHJ	No	No	No	No
ETELP4	No	Inc	Inc	Inc	GQMVKM	No	Inc	Inc	Yes
EV8CDW	No	No	No	No	GTJ4C6	No	No	No	No
F9L37V	No	No	No	No	GZG99A	No	No	No	No
FA9UPL	No	No	No	No	H74WHQ	No	No	No	No
FEANBW	No	No	No	No	H89Y2V	No	Inc	Inc	Inc
FGTZE7	No	No	No	No	HBLAL	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
HBTKR3	No	No	No	No	JR8UZC	No	No	No	No
HCBC49	No	No	No	No	JTTUBY	No	No	No	No
HDWX2H	No	No	No	No	JVARDP	No	No	No	No
HDZXFV	No	No	No	No	JVYFYY	No	No	No	No
HEZVUX	No	No	No	No	JWXBT4	No	No	No	No
HF36VW	No	No	No	No	JZLXQB	No	No	No	No
HFL83W	No	No	No	No	K4QW8F	No	No	No	No
HJ2PC2	No	Inc	Inc	Inc	K72XJT	No	No	No	No
HJBUHK	No	Inc	Inc	Inc	K7AAPH	No	Inc	Inc	Inc
HJVHQ8	No	No	No	No	K7VMDV	No	No	No	No
HLU49W	No	No	No	No	KCYPEP	No	No	No	No
HNWVZY	No	Yes	Yes	Inc	KGFWZ4	No	No	No	No
HRRKHP	No	Inc	Inc	Inc	KHWN6D	No	No	No	No
HTBWCB	No	No	No	No	KKPXE2	No	No	No	No
HTQDAP	No	No	No	No	KPEYHE	No	No	No	No
HUZZPV	No	No	No	No	KPJYFF	No	No	No	No
HV2MNL	No	Inc	Inc	Inc	KR4VU9	No	No	No	No
HV9MYN	No	Inc	Inc	Inc	KU6YBA	No	No	No	No
HWMEFQ	No	Inc	Inc	Inc	KV4AWH	No	No	No	No
HZQQCD	No	No	No	No	KWN28G	No	Inc	Inc	Inc
HZXALG	No	No	No	No	L2VX89	No	No	No	No
J9LR73	No	No	No	No	L3ZMCC	No	No	No	No
JP6JUG	No	Inc	Inc	Inc	L7286X	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
L8UGAD	No	No	No	No	MU2NU2	No	No	No	No
L9CZ8C	No	No	No	No	MVEX79	No	No	No	No
LAE4F2	No	Inc	Inc	Inc	MXEQLU	No	No	No	No
LCMZEC	No	No	No	No	MY48LU	No	No	No	No
LDFJY	No	No	No	No	MZVY8U	No	No	No	No
LF7KC7	No	No	No	No	N4MJJN	No	No	No	No
LGUVED	No	Inc	Inc	Inc	N66T3V	No	No	No	No
LH88E4	No	No	No	No	N6H3J6	No	No	No	No
LHCCXR	No	No	No	No	NCCBMH	No	No	No	No
LNCYR8	No	Inc	Inc	Inc	NEFY9Y	No	Inc	Inc	Inc
LPER22	No	No	No	No	NFXUAY	No	No	No	No
LQ2JJX	No	Inc	Inc	Inc	NMJ3FB	No	Yes	Yes	Yes
LQ9CUR	No	No	No	No	NX4733	No	Inc	Inc	Inc
LVM2GA	No	No	No	No	NX82WM	No	No	No	No
LYH4VA	No	No	No	No	NYT9GH	No	No	No	No
LYYZMA	No	No	No	No	P327DX	No	No	No	No
M3BHZB	No	No	No	No	P48ZKH	No	No	No	No
M73C8D	No	No	No	No	P4EQ9U	No	Inc	Inc	Inc
MBRJCK	No	No	No	No	P4NKC2	No	No	No	No
MG8KHQ	No	Inc	Inc	Inc	P667AP	No	No	No	No
MJU9VB	No	No	No	No	P7WBFG	No	Inc	Inc	Inc
MQEG49	No	Inc	Inc	Inc	P94N4A	No	No	No	No
MQUTVL	No	No	No	No	P9UXRR	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
PAX9C4	No	No	No	No	RCWA4C	No	No	No	No
PBM9ME	No	No	No	No	RDKAZG	No	No	No	No
PGJXZJ	No	No	No	No	RGUPYE	No	No	No	No
PPNM6W	No	Inc	Inc	Inc	RL3EU8	No	No	No	No
PQKNEZ	No	No	No	No	RLWNB	No	No	No	No
PT4RLJ	No	No	No	No	RUF4Y8	No	No	No	No
PWYAEY	No	No	No	No	RUWDTT	No	No	No	No
Q37X9D	No	No	No	No	RVBXJH	No	No	No	No
Q4QUBJ	No	No	No	No	TBABZK	No	No	No	No
Q7DKB4	No	Inc	Inc	Inc	TFMRBG	No	No	No	No
Q8EVHX	No	No	No	No	TLRDL6	No	No	No	No
Q8HYCW	No	No	No	No	TM4CC9	No	No	No	No
QLDAEF	No	Inc	Inc	Inc	TQCPRT	No	Inc	Inc	Inc
QP37MD	No	No	No	No	TVDA8J	No	No	No	No
QPBRUV	No	Inc	Inc	Inc	U9FMXN	No	Inc	Inc	Inc
QQGL3Z	No	No	No	No	UH9AYF	No	No	No	No
QRWVPV8	No	No	No	No	UHVPUV	No	Inc	Inc	Inc
R2GBJ2	No	No	No	No	UJYERM	No	No	No	No
R8M3TY	No	Inc	Inc	Inc	UKCQ63	No	No	No	No
R8XF8P	No	No	No	No	ULMFJ9	No	Inc	Inc	Inc
RBZVHE	No	No	No	No	UMPZTV	No	No	No	No
RC4U9D	No	No	No	No	UNEK6T	No	Yes	Yes	Yes
RCPQZZ	No	Inc	Inc	Inc	UPMQB3	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
UUHF38	No	Inc	Inc	Inc	WYPBNZ	No	No	No	No
UZTHCH	No	No	No	No	X6V976	No	No	No	No
V233Y4	No	No	No	No	X9F7NT	No	Inc	Inc	Inc
V2JHT7	No	Inc	Inc	Inc	XCB7YD	No	Inc	Inc	Inc
V792TF	No	No	No	No	XFK9FU	No	No	No	No
V9CF92	No	No	No	No	XLJG89	No	No	No	No
VAANLQ	No	No	No	No	XQYPTM	No	No	No	No
VCE8ET	No	No	No	No	XR2UQH	No	No	No	No
VE44WE	No	Inc	Inc	Inc	XUQ4YV	No	No	No	No
VMETPX	No	No	No	No	Y3G7FX	No	No	No	No
VTDEEM	No	Inc	Inc	Inc	Y4WFRW	No	No	No	No
VWDUGH	No	No	No	No	Y8TF3G	No	Inc	Inc	Inc
W9RGWF	No	No	No	No	YCB6RQ	No	No	No	No
WA9X7V	No	No	No	No	YDBV6Z	No	No	No	No
WADY3Z	No	No	No	No	YQ2EP3	No	No	No	No
WGUK4R	No	No	No	No	YR286N	No	No	No	No
WJBRAF	No	Inc	Inc	Inc	YV46G2	No	No	No	No
WNDNCF	No	No	No	No	Z33WJ4	No	No	No	No
WRFEPM	No	No	No	No	Z4B832	No	Inc	Inc	Inc
WRPEZG	No	Inc	Inc	Inc	Z4BPZJ	No	No	No	No
WRPTLU	No	No	No	No	Z4GC2C	No	No	No	No
WRXLV4	No	No	No	No	Z6HRKA	No	No	No	No
WUNRAA	No	Inc	Inc	Inc	ZBKBR	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
ZEDKG9	No	No	No	No					
ZG4NAF	No	Inc	Inc	Inc					
ZG8243	No	No	No	No					
ZG84N2	No	No	No	No					
ZHX8G9	No	No	No	No					
ZJ2L8F	No	No	No	No					
ZKX74F	No	No	No	No					
ZM8PAA	No	No	No	No					
ZN29H3	No	No	No	No					
ZNLYHA	No	No	No	No					
ZP28W4	No	Inc	Inc	Inc					
ZPXT3G	No	No	No	No					
ZTD2NU	No	No	No	No					
ZUREGX	No	Inc	Inc	Inc					
ZXQ4DC	No	No	No	No					
ZXUH8Y	No	No	No	No					
ZYKNK6	No	No	No	No					

Response Summary		Participants: 381			
<i>Were any of the recovered questioned bullets (Items 2-5) fired in the same firearm as the known bullets (Item 1)?</i>					
Responses		<u>Item 2</u>	<u>Item 3</u>	<u>Item 4</u>	<u>Item 5</u>
	Yes	0 (0.0%)	6 (1.6%)	6 (1.6%)	6 (1.6%)
	No	381 (100.0%)	281 (73.8%)	281 (73.8%)	280 (73.5%)
	Inc	0 (0.0%)	94 (24.7%)	94 (24.7%)	95 (24.9%)

Conclusions

TABLE 2

WebCode	Conclusions
23BYLN	Test bullets I1 were not discharged from the same firearm as I2. Test bullets I1 were not discharged from the same firearm that discharged I3, I4 and I5. Bullets I3, I4 and I5 were discharged from the same firearm. Bullet I2 was not discharged from the same firearm as that which discharged I3, I4 and I5.
24Y6J7	Items 3, 4 and 5 were identified as having been fired from the same firearm; however, they were eliminated as having been fired from the same firearm as Item 1. Item 2 was eliminated as having been fired from the same firearm as Item 1 and the same firearm as Items 3, 4 and 5. Items 2, 3, 4 and 5 are all 9mm/38 caliber bullets and were fired from firearms having six lands and grooves with a right hand twist. Using the FBI's General Rifling Characteristics (GRC) database, a list of best possible source firearms was generated for Item 2 as well as for Items 3, 4 and 5. These lists are included with this report. These lists are not all-inclusive and should only be considered an investigative lead. All suspect firearms should be submitted for comparison.
2EC3ZN	The bullets in items 3, 4, 5, were identified as having been fired in the same firearm. The bullet in item 2 was excluded as having been fired in the firearm that fired the test fires in item 1. The bullet in item 2 was excluded as having been fired in the firearm that fired the bullets in Items 3, 4, and 5. The bullets in items 3, 4, and 5 could not be identified as having been fired in the same firearm that fired the test fires in Item 1. Microscopic examination revealed that the bullets in item 3, 4, and 5 did not exhibit sufficient agreement of individual characteristics for identification to the test fires in item 1. Similar class characteristics indicate the bullets in item 3, 4, and 5 could have been fired in the same firearm that fired the test fires in Item 1 or in any other firearm having similar general rifling characteristics. The bullets in items 2, 3, 4, and 5 are all .35[sic] caliber bullets with 6 lands and groove with a right twist. There are multiple firearms having similar class characteristics. For list of possible firearms, contact the reporting examiner.
2ET3WY	Items 1-5, seven 9mm Luger full metal jacket bullets, were microscopically examined and identified as having been fired from three firearms. The Item 1 bullets were identified as having been fired from one firearm. The Items 3, 4, and 5 bullets were identified as having been fired from one firearm and eliminated as having been fired from the firearm represented by the Item 1 bullets due to sufficient differences in individual characteristics. The Item 2 bullet exhibits markings that may be suitable for identification with the firearm from which it was fired, but was eliminated as having been fired from the firearms represented by Item 1 and Items 3, 4, and 5 due to a difference in general rifling characteristics. Firearms that produce general rifling characteristics like those present on Items 2-5 are too numerous to list.
2GWXF2	Item 1 through Item 5 are .38 caliber/9mm full metal jacketed bullets that were fired from a barrel rifled with six grooves, right twist. Due to a lack of sufficient corresponding microscopic marks of value, no conclusion could be reached as to whether the Item 3 through Item 5 bullets were fired from the same barrel as the Item 1 bullets. The Item 2 bullet was excluded as having been fired from the same barrel as the Item 1 and Item 3 through Item 5 bullets due to differences in general rifling characteristics. The Item 3 through Item 5 bullets were identified as having been fired from the same barrel. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRCs like those present on the Item 2 bullet that includes pistols marketed by SIGARMS, S & W and Helwan. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRCs like those present on the Item 3 through Item 5 bullets that includes pistols marketed by Ruger, Walther, and Luger.
2HFZY3	It was determined that the bullets in Items 2, 3, 4 and 5 were not fired in the same firearm that

TABLE 2

WebCode	Conclusions
	fired the bullets in Item 1.
2LUHJL	Microscopic comparison of questioned items 3, 4, and 5 (bullets) revealed they were fired in/from the same firearm; however, questioned items 3, 4, and 5 were eliminated from having been fired in/from the same firearm that fired known item 1. Examination of questioned item 2 (bullet) revealed it was eliminated from having been fired in/from the same firearm that fired known item 1 and the firearm that fired questioned items 3, 4, and 5.
2VPBFK	The submitted bullets were examined and all of them were determined to be fired full metal jacketed bullets having six land and groove impressions with a right hand twist. The four questioned bullets, Items 1-2, 1-3, 1-4, and 1-5, were microscopically compared to the three submitted test-fired bullets (Item 1-1) from the 9mm Luger caliber Ruger P95DC pistol. Questioned Item 1-2 was eliminated as having been fired from the suspected Ruger pistol based on a difference in land impression widths, a class characteristic. Questioned Items 1-3 through 1-5, were identified as having been fired in the same unknown pistol, a different firearm than the suspected Ruger pistol, based on sufficient agreement of striae in the rifling impressions. Items 1-3 through 1-5 were eliminated as having been fired in the suspected Ruger pistol based on a lack of sufficient agreement of striae in the rifling impressions, which was unlike the copious agreement observed between the test-fired bullets (Item 1-1) and the level of agreement observed between Items 1-3 through 1-5. Representative digital images were taken. Strength of Associations Made in the Identification of Firearm-Produced Toolmarks: The identification of the bullets in this case to the same unknown firearm are made to the practical, not absolute, exclusion of all other firearms. This is because it is not possible to examine all firearms in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between two firearm-produced toolmarks means that the likelihood another firearm could have made the questioned mark is so remote as to be considered a practical impossibility.
2W3VBF	Items #3, #4 and #5 were identified as being fired from the same firearm. Items #3, #4 and #5 could not be identified or eliminated as being fired from the same firearm as Item #1. Item #2 was not fired from the same firearms as Item #1 or Items #3, #4 and #5[sic].
2ZRALP	The item 2 bullet is eliminated as being fired in the firearm that fired the item 1 test bullets. The item 3, 4 and 5 bullets are identified with practical certainty as being fired in the same unknown firearm. Item 3, 4 and 5 are eliminated as being fired in the firearm that fired the item 1 test bullets. The item 2 bullet is eliminated as being fired in the unknown firearm that fired the item 3, 4 and 5 bullets.
33ACQV	Item #2 vs. Test #1, #2, #3: There is a significant disagreement in some class characteristics, therefore it can be stated that Item #2 was not fired in the same firearm as test Items # 1, #2 and #3. Items #3, #4 and #5 vs Test #1, #2, #3: There is agreement of class characteristics but significant disagreement of individual characteristics, therefore it can be stated that Items #3, #4 and #5 were not fired in the same firearm as test Items #1, #2 and #3.
36WZ4G	Items #3, #4 and #5 were fired from the same firearm. - Items #3, #4 and #5 could not be identified or eliminated as being fired from Item #1. - Item #2 was not fired from Item #1 or from the same firearm as Items #3, #4 and #5
37WMN7	The bullets Item 1 were all fired from the same firearm. The bullet Item 2 was fired from a second firearm. It bears rifling engravings of 6 grooves, right twist, with dimensions common to 9mm Luger caliber firearms by many manufacturers. Any 9mm Luger caliber firearm that becomes suspect should be submitted to this laboratory for examination. The bullets Items 3, 4 and 5 were all fired from a third firearm. They bear rifling engravings of 6 grooves, right twist, with dimensions common to 9mm Luger caliber firearms by many manufacturers. Any 9mm Luger caliber firearm that becomes suspect should be submitted to this laboratory for

TABLE 2

WebCode	Conclusions
	examination.
38A9LM	The T-1 through T-3 test bullets (Item 1) were fired from the same firearm. The Q-1 through Q-4 bullets (Items 2-5) were not fired from the same firearm as the T-1 through T-3 test bullets (Item 1). The Q-2 through Q-4 bullets (Items 3-5) were fired from the same firearm. The list of firearms which may have fired the Q-2 through Q-4 bullets (Items 3- 5) was too numerous to be of investigative value. The Q-1 bullet (Item 2) was not fired from the same firearm as the T-1 through T-3 test bullets (Item 1) or the same firearm as the Q-2 through Q-4 bullets (Items 3-5). The list of firearms which may have fired the Q-1 bullet (Item 2) was too numerous to be of investigative value.
38Q8WY	Items 3-5 were identified as having been fired in the same unknown firearm base[sic] on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3-5 were eliminated as having been fired from Item 1 due to disagreement of individual characteristics. Items 3-5 were eliminated as having been fired from the same unknown firearm as Item 2 due to disagreement of discernible class characteristics. Item 2 was eliminated as having been fired from Item 1 due to disagreement of discernible class characteristics.
3A3X7U	[No Conclusions Reported]
3AB7QV	Results and Conclusions: Bullet Analysis: Methodology - Comparison Microscopy: Items 1A, 1B and 1C, the bullets identified to be test fired from recovered firearm, were fired through the barrel of the same firearm based upon corresponding class and individual microscopic characteristics. Item 2, the bullet, was not fired through the barrel of the same firearm as Items 1A, 1B and 1C, the bullets identified to be test fired from recovered firearm, or Items 3, 4 and 5, the bullets, based upon different class characteristics. Items 3, 4 and 5, the bullets, were not fired through the barrel of the same firearm as Items 1A, 1B, and 1C, the bullets identified to be test fired from recovered firearm, based upon different individual microscopic characteristics. Items 3, 4 and 5, the bullets, were fired through the barrel of the same firearm based upon corresponding class and individual microscopic characteristics.
3CLY8G	The four jacketed bullets in items 2, 3, 4, and 5 are characteristic of 9mm Luger caliber bullets. They were each microscopically compared to test fired bullets from the Ruger, model P95DC, 9mm Luger caliber pistol, item 1. Because of differences observed microscopically, the four jacketed bullets in items 2, 3, 4, and 5 were eliminated as have been fired from the Ruger, model P95DC, 9mm Luger caliber pistol, item 1. Firearm #1: The three 9mm Luger caliber jacketed bullets in items 3, 4, and 5 were microscopically compared to each other and identified as having been fired from the same firearm rifled with six grooves, right hand twist. Firearms that share these rifling characteristics include, but are not limited to those manufactured under the brand names Ruger, American Eagle, FN/Browning, Ceska Zbrojovka, Daewoo, EAA Corp., Heckler & Koch, Luger, Norinco, Radom, Springfield Inc., SWD Inc., Tanfoglio, and Walther. Firearm #2: The 9mm Luger caliber jacketed bullet in item 2 was also fired from a firearm that has six grooves, right hand twist, but was eliminated as having been fired in the same firearm that fired the three bullets in item 3, 4, and 5. Firearms that share these rifling characteristics include, but are not limited to those manufactured under the brand names Astra, Beretta, Bryco, FN Browning, FEG, IMI, Llama, Luger, Mauser, Smith & Wesson, Stallard arms, SWD Inc., Sigarms, and Walther. Any suspect firearms should be submitted for comparison.
3CYJN7	The fired bullet of item #2 was eliminated as having been fired from the same firearm as the test-fired bullets of items #1 (A-C) due to differences in class characteristics. The fired bullets of items #3, #4 and #5 were microscopically eliminated as having been fired from the same firearm as the test-fired bullets of items #1 (A-C). All three of these bullets were identified as

TABLE 2

WebCode	Conclusions
	having been fired in a second, unknown firearm.
3EG4RM	The bullets submitted as Item 001-03, 001-04, and 001-05 were discharged from a single firearm; Item 001-02 was discharged from a different firearm. None of the evidence bullets submitted were discharged from the firearm that discharged Items 001-01A, 001-01B, and 001-01C.
3ELD8R	Item #2 was not fired through the same firearm barrel as Item #1 (Reportedly test fired bullets from Ruger P95DC). Items #3, #4, & #5 were fired through the same firearm barrel. Items #3, #4, & #5 were not fired through the same firearm[sic] barrel as Item #2 or the same firearm[sic] barrel as Item #1 (reportedly test fired bullets from Ruger P95DC).
3H92XK	Item #2: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the recovered Ruger model 950DC[sic] handgun. Differences in class characteristics were observed to conclude that the bullet was not fired within the firearm. Item #3: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the recovered Ruger model 950DC[sic] handgun. Differences in individual characteristics were observed to conclude that the bullet was not fired within the firearm. Item #4: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the recovered Ruger model 950DC[sic] handgun. Differences in individual characteristics were observed to conclude that the bullet was not fired within the firearm. Item #5: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the recovered Ruger model 950DC[sic] handgun. Differences in individual characteristics were observed to conclude that the bullet was not fired within the firearm.
3M222U	Items #3, 4 & 5 were all fired from the same firearm. Item #2 was fired from a different firearm than Items #3, 4 & 5 due to differences in LAG characteristics. Items #2, 3, 4 & 5 were not fired from Item #1 (test shots) due to differences in individual & class characteristics.
3PCRGP	Three of the bullets (1A - 1C) are reported to have been test fired from a Ruger model P95DC pistol. One of the bullets (2) was not fired from the same firearm as any of the other bullets (1A - 1C, 3, 4, 5). Three of the bullets (3, 4, 5) were fired from the same firearm; however, these three bullets (3, 4, 5) were neither eliminated nor identified as having been fired from the same firearm as Item 1 (1A - 1C). There is agreement in all discernible class characteristics but insufficient agreement in the individual characteristics to establish an identification. One of the bullets (2) is consistent with 9mm Luger caliber and was fired from a firearm with six lands and grooves inclined to the right. A list of possible firearms from which one of the bullets (2) may have been fired includes, but is not limited to: 9mm Luger caliber pistols marketed by Astra, Beretta, Bryco Arms, Czechoslovakia, DWM, Fabrique Nationale, FEG, France, Germany, Glock, Hungary, IM Metal, IMI, IMI (Uzi), Lahti, Llama, Luger, Mauser, Maverick Arms Inc. SigArms, Smith & Wesson, Stallard Arms, Star, SWD Inc., Swiss Ind. Gesell, Valmet, Walther, and Wilkinson Arms. Three of the bullets (3, 4, 5) are consistent with 9mm Luger caliber and were fired from a firearm with six lands and grooves inclined to the right. A list of possible firearms from which the three bullets (3, 4, 5) may have been fired includes, but is not limited to: 9mm Luger caliber pistols marketed by 9mm Luger caliber submachine guns marketed by Agram, Australia, England/UK, Germany, IMI (Uzi), Pletter, Sterling Arms, and Walther; 9mm Luger caliber carbines marketed by Federal Engineering, Fox Co, Heckler & Koch, and KelTec; and 9mm Luger caliber pistols marketed by American Eagle, Arcus, Belgium, Beretta, Browning, Ceska Zbrojovka, China (PRC), Colt, Czechoslovakia, Daewoo, EAA Corp., FM, FN/Browning, Hungary, Indust. Argentina, Kahr Arms, KelTec, KSN Industries, Luger, Mauser, Navy Arms, Norinco, Radom, Ruger, Sardijs, Springfield Inc., SWD Inc., Tanfoglio, Tanfoglio (EAA), Vulcan Armament, Walther, and Zastava.
3RL6RJ	The bullet from the victim (Item 2) was not fired from the suspect's 9mm Luger pistol (Item 1).

TABLE 2

WebCode	Conclusions
	The remaining bullets from the scene (items 3 through 5) were fired from the same firearm; however, it was inconclusive if they were fired from the suspect's 9mm Luger pistol (Item 1).
3T7TEX	Item 2A (fired metal jacketed bullet) is eliminated from Items 3A, 4A and 5A (fired metal jacketed bullets) and Item 1A (recovered firearm) due to a difference in class characteristics (difference in land and groove widths). Items 3A, 4A and 5A (fired metal jacketed bullets) are identified as having been fired from the same barrel but are inconclusive to Items 1A through 1C (firearm) due to a lack of microscopic markings in sufficient agreement.
3UF8WU	Disagreements of class and/or individual characteristics confirmed the item 2, 3, 4, and 5 expended bullets were not fired from the same firearm that fired the item 1 expended bullets.
3UK9TY	Based on a difference in class characteristics observed during microscopic comparison, Exhibit 2 was eliminated as having been fired from Exhibit 1 and the same firearm as Exhibits 3, 4 and 5. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics observed during microscopic comparison, Exhibits 3, 4 and 5 were identified as having been fired from the same firearm. There is agreement of class characteristics but significant disagreement of individual characteristics, therefore Exhibits 3, 4 and 5 were not fired from Exhibit 1.
3UU3UL	Item 1 was discharged from the same firearm. Item 2 was discharged from a second firearm. Items 3, 4 and 5 were discharged from a third firearm. Items 2, 3, 4 and 5 were not discharged from the firearm that discharged Item 1.
3V3PCD	Sub #1 is (1) sealed box marked CTS Forensic Testing Program Test No. 14-526B (Firearms Examination). The sealed box contained (5) smaller sealed boxes. Item #1-1 contained (3) test fired bullets from a Ruger P95DC. Item #1-2 contained (1) .38 caliber class fired bullets. Item #1-3 contained (1) .38 caliber class fired bullet. Item #1-4 contained (1) .38 caliber class fired bullet. Item #1-5 contained (1) .38 caliber class fired bullet. Sub #1-1A, B & C (test fires) were all microscopically compared to each other and they have been positively identified as being fired from the Ruger P95DC. Sub #1-2, 1-3, 1-4, & 1-5 were all microscopically compared to Sub #1-1A, B & C (test fires). Sub #1-2 has been eliminated as being fired from the Ruger, based on class and General Rifling Characteristics. Sub #1-3, 1-4 & 1-5 were all microscopically compared to each other and they all have been positively identified as being fired from the same firearm. They all have sufficient areas of agreement to make a positive identification. Sub #1-3, 1-4 & 1-5 were microscopically compared to Sub #1-1A, B & C (test fires) all have the same class characteristics and some areas of individual agreement, but they all lack sufficient areas of individual agreement to make a positive identification with the test fires provided. Sub #1-2 has land impression measurements consistent with numerous makes and models if any additional firearms are developed in this case they should be submitted for further examination and comparison. Sub 1-2 has sufficient rifling striae for comparison to other bullets should a firearm be developed in this investigation.
3VWX86	The bullets Item 1 were identified as having been fired from the same firearm. The bullet Item 2 was not fired from the same firearm as the bullets Items 1, 3, 4, and 5. The bullets Items 3, 4, and 5 were identified as having been fired from the same firearm. However, they were not fired from the same firearm as the bullets Item 1.
43QGPK	The test and evidence bullets were examined and microscopically inter-compared with the following results: Three of the evidence bullets (Items 3-5) were identified as having been fired from a single firearm. These bullets had not been fired from the same pistol as the test bullets (Item 1). The remaining evidence bullet (Item 2) had not been fired from the same firearm as Items 3-5 or the same pistol as the test bullets (Item 1).
4A9T3R	Item 2 was excluded from having been fired from the same firearm as Item 1 due to differing

TABLE 2

WebCode	Conclusions
	<p>class characteristics. Given the observable manufacturing characteristics, Item 2 is probably 9mm Luger caliber. Firearms, of this caliber, with general rifling characteristics in agreement with those observed on Item 2 include, but are not limited to: 9mm Luger: Astra, Bryco, Colt, FN/Browning, Helwan, Hi-Point, IMI, Ingram, Intratec, Jennings, Jimenez Arms, Llama, Lorcin, Luger, Mauser, SigArms, Smith & Wesson, Stallard Arms, Star, SWD, Valmet, Walther Items 3, 4 and 5 were identified as having been fired from the same, as of yet, unknown firearm. Items 3, 4 and 5 were excluded from having been fired from the same firearm as Item 1 based upon differing individual characteristics. Items 3, 4 and 5 were also excluded from having been fired from the same firearm as Item 2 based upon differing class characteristics. Given the observable manufacturing characteristics, Items 3, 4 and 5 are probably 9mm Luger caliber. Firearms, of this caliber, with general rifling characteristics in agreement with those observed on Items 3, 4 and 5 include, but are not limited to: 9mm Luger: Beretta, Calico, CZ, Colt, Daewoo, EAA, FEG, FMJ (Cobray), FN/Browning, Heckler & Koch, Hi-Point, IMI, Kahr Arms, Keltec, Luger, Masterpiece Arms, Mauser, Norinco, Ruger, Springfield Inc., Steyr, SWD, Tanfoglio, Walther</p>
4E4LU2	<p>The Item 2 bullet was compared to the Items 1A-1C bullets. The Item 2 bullet is eliminated as having been fired from the same weapon as the Items 1A-1C bullets based upon differences in class characteristics. The Items 3, 4, and 5 bullets were compared to the Items 1A-1C bullets. During the comparison, agreement of class characteristics was observed. There was some disagreement of individualizing markings. However, it is inconclusive as to whether the Items 3, 4, and 5 bullets were fired from the same weapon as the Items 1A-1C bullets.</p>
4FGAD2	<p>Item 2 was not fired in the same firearm as Item 1 or Items 3-5. This conclusion was verified by firearms examiner [name]. Items 3-5 were fired in the same firearm. This conclusion was verified by firearms examiner [name]. Items 3-5 could not be identified or eliminated as having been fired in the same firearm as Item 1. This conclusion was verified by firearms examiner [name].</p>
4JEQQV	<p>The Item 1 test fired bullets were verified as having been fired from the same firearm. The Item 1 test fired bullets were compared to the Item 2, Item 3, Item 4, and Item 5 fired bullets. The Item 2 bullet was determined to have not been fired from the same firearm as the Item 1 bullets due to a difference in class characteristics. The Item 2 bullet was also compared to the Item 3, Item 4, and Item 5 bullets and was determined to have not been fired in the same firearm as those bullets. Item 2 was fired from a 9mm caliber firearm with a rifled barrel containing six lands and grooves, right twist. Firearms chambered for this caliber with these general rifling characteristics include pistols manufactured by Smith & Wesson, among others. The Item 3, Item 4, and Item 5 bullets were determined to have not been fired from the same firearm as the Item 1 bullets due to similarities in class characteristics but differences in individual characteristics. They were however determined to have been fired from the same 9mm caliber firearm with a rifled barrel containing six lands and grooves, right twist. Firearms chambered for this caliber with these general rifling characteristics include pistols manufactured by Ruger, among others.</p>
4LZA6T	<p>The test fired bullets (item 1) were sub-itemed as 1.01, 1.02, and 1.03 for reporting purposes. The bullet (item 2) was excluded as having been fired from the same firearm as the test fired bullet (item 1.02). Differences were found in characteristics sufficient to eliminate the projectiles as having been fired from the same firearm. The three bullets (items 3, 4, & 5) could not be conclusively identified or excluded as having been fired from the same firearm as the test fired bullet (item 1.02). There was agreement of all discernible class characteristics, but no significant agreement or disagreement of the individual characteristics was noted. The projectiles could have been fired from the same firearm, or any other firearm with similar characteristics. The three bullets (items 3, 4, & 5) were identified as having been fired from the</p>

TABLE 2

WebCode	Conclusions
	same firearm. Agreement of the characteristics is sufficient to determine that the three projectiles were fired from the same firearm.
4RTC2K	The fired bullets from Item 1 were fired from the same firearm based on microscopic comparison and agreement of discernible class characteristics and sufficient matching individual[sic] detail. The fired bullets, Items 3, 4, and 5, were fired from the same firearm based on microscopic comparison and agreement of discernible class characteristics and sufficient matching individual detail. The fired bullets from Item 1 were not fired from the same firearm as the fired bullets, Items 3, 4, and 5, based on microscopic comparison and significant disagreement of individual characteristics. The fired bullet, Item 2, was not fired from the same firearm as the fired bullets from Item 1 or from the same firearm as the fired bullets, Items 3, 4, and 5, based on microscopic comparison and significant disagreement of class characteristics.
4UGVYB	Item #2 is suitable for further microscopic comparisons. Item #2 was not fired from Item #1. Item #2 was not fired from the same firearm as Items #3, #4 and #5. Items #3, #4 and #5 were fired in the same firearm. Items #3, #4 and #5 could not be identified or eliminated as having been fired from Item #1.
4YPQPL	Microscopic comparison examination of evidence bullet specimens Items #'s 2 through 5 with test fired bullets Item #1 from K1 Ruger pistol has revealed: Items #'s 3, 4, and 5 were all fired with the same unknown firearm. Due to differences in individual microscopic markings, Items #'s 3, 4, and 5 were not fired with K1 Ruger pistol. Due to different land and groove width dimensions, Item #2 was not fired with K1 Ruger pistol, or the same unknown firearm as Items #'s 3, 4, and 5.
66EPGL	Microscopic comparisons of evidence bullet specimens with test fired bullet specimens from K1 Ruger pistol reveal the following: Evidence bullet specimens Items 3, 4, and 5 were all fired with the same unknown firearm. Items 3, 4, and 5 were not fired with K1 Ruger pistol (Item 1) due to differences in individual markings present. Evidence bullet specimen Item 2 was not fired with K1 Ruger pistol (Item 1) or the same firearm as Items 3, 4, and 5 due to differences in rifling class characteristics present. Should a suspected firearm be recovered please submit it in reference to the above number.
66GWYM	The item 1 test standard bullets were compared to the items 2 - 5 bullets with the following results: Items 2 - 5 bullets were not fired in the same firearm as the item 1 test standard bullets. Item 2 bullet was fired in one firearm and items 3 -5 bullets were fired in a second firearm. The GRC file lists numerous manufacturer's firearms that could have fired the item 2 and items 3 - 5 bullets. Both files are extensive and therefore of little value for investigative purposes. If suspect firearms are submitted and the bullets are resubmitted, additional comparisons will be conducted.
6CHHB2	Items 1a, 1b, and 1c were identified as having been fired in the same firearm, designated Firearm 1. Items 2, 3, 4 and 5 were eliminated as having been fired in Firearm 1. Items 3, 4, and 5 were identified as having been fired in the same firearm, designated Firearm 2. Item 2 was eliminated as having been fired in Firearm 2. Item 2 was fired in designated Firearm 3.
6DMP79	Items 1 through 5 are each fired bullets exhibiting 6 lands and grooves with a right hand twist. Item 2 was eliminated as having been fired by the same firearm as the test shots in Item 1. Item 2 was also eliminated as having been fired by the same firearm as Items 3, 4 and 5. Items 3, 4 and 5 were identified as having been fired by the same firearm; however, these bullets could not be identified or eliminated as being fired by the same firearm as the test shots in Item 1.
6EEEZH	The item 2 fired bullet specimen was not fired from the same firearm as the items 3 through 5 fired bullet specimens or the item 1 knowns. The general rifling characteristics of the item 2

TABLE 2

WebCode	Conclusions
	fired bullet specimen are consistent with firearms marketed by Astra, Bryco, Helwan, IML, Llama, Maverick, Sigarms, Smith & Wesson, Stallard, Star, Walther and others. The Items 3, 4 and 5 fired bullet specimens were fired from the same firearm but not the same firearm as the item 1 knowns. The items 3, 4, and 5 fired bullet specimens bear general rifling characteristics consistent with firearms marketed by China, Daewoo, EAA, FN/Browning, Heckler & Koch, Luger, Ruger, Springfield, SWD, Tanfoglio, Walther and others.
6F6HTP	After microscopic comparison it was determined that Items #2, #3, #4, and #5 were not fired from the recovered Ruger P95DC pistol, the exclusion was based on differences of class and individual characteristics. After microscopic comparion[sic] it was determined that Items #3, #4, and #5 were fired from the same firearm based on sufficient agreement of both class and individual characteristics of the land impression marks. Firearm #1. After microscopic comparison it was determined that Item #2 was not fired from the same firearm as Items #3, #4, and #5, the exclusion was based on differences of class characteristics. Firearm #2.
6HBHRH	Items 3, 4, and 5 shared similar class characteristics with item 1 such as caliber, rifling twist, and rifling impression measurements. However, no correspondence of individualizing detail could be found between items 3, 4, 5 and item 1. Consequently, items 3, 4, and 5 cannot be identified or eliminated from being fired from the Ruger P95DC pistol.
6L4AHK	1) Exhibits 1 (Three 9mm metal jacketed bullets), 2 (One 9mm metal jacketed bullet), 3 (One 9mm metal jacketed bullet), 4 (One 9mm metal jacketed bullet), and 5 (One 9mm metal jacketed bullet) were visually examined and microscopically compared to each other. a) The Exhibits 2, 3, 4, and 5 bullets were not fired from the same firearm as the Exhibit 1 bullets. b) The Exhibit 2 bullet was not fired from the same firearm as the Exhibits 3, 4, and 5 bullets. The Exhibit 2 bullet could have been fired from the following firearms: Astra, Beretta, SigSauer, Star, Smith & Wesson, and SWD 9mm pistols. The above list is not all inclusive. c) The Exhibits 3, 4, and 5 bullets were fired from the same firearm, and could have been fired from the following firearms: Ruger, Beretta, and FN/Browning 9mm pistols. The above list is not all inclusive.
6L9JTJ	Items 1, 2, 3, 4, and 5 were examined and are as described above. Microscopic examination and comparison of Item 2 and Items 1, 3, 4, and 5 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Item 2 was eliminated as having been fired from the firearm that fired Item 1 (Ruger P95DC) or Items 3, 4, and 5. Microscopic examination and comparison of Items 3, 4, and 5 revealed that there was agreement of combinations of individual and all discernible class characteristics. It is concluded that these bullets were fired from the same firearm. Microscopic examination and comparison of Items 3, 4, and 5 to Item 1, the test fired bullets, revealed that there was agreement of all discernible class characteristics and some disagreement of individual characteristics. However, Items 3, 4, and 5 were neither identified nor eliminated as having been fired from the same firearm that fired Item 1 (Ruger P95DC). This may be the result of the absence, insufficiency, or lack of marking reproducibility.
6PCUPZ	Microscopic examination and comparison reveal that the bullets, Items 2-5, were not fired from the same firearm as the bullets, Item 1. Microscopic examination and comparison of the bullets, Items 3-5, reveal that they were fired from the same firearm, and are consistent with being fired from Ruger, FN/Browning, Tanfoglio, and Walther 9mm pistols. Microscopic examination and comparison reveal that the bullet, Item 2, was not fired from the same firearm as the bullets, Items 3-5. Microscopic examination of the bullet, Item 2, reveals that it is consistent with being fired from Sigarms, Smith and Wesson, Walther, and Star 9mm pistols.
6PV7L8	A microscopic examination and comparison of the above evidence revealed the following: Test fires marked (1) and deformed Bullets marked (2), (3, 4, 5) were discharged from different

TABLE 2

WebCode	Conclusions
	guns. Deformed Bullets marked (3, 4, 5) were discharged from the same gun. Deformed bullet marked (2) and deformed bullets marked (3, 4, 5) were discharged from different guns.
6Q3XH8	Items 3 through 5 were fired in the same 9mm firearm, but not in the same firearm as the known bullets (Item 1). Item 2 was fired in a third 9mm firearm. The specific brands of suspect weapons for Items 2 through 5 are unknown at this time; however, any suspect weapons should be submitted to the lab for analysis.
6W26LH	Fired bullets Items 3-5 were fired from the same firearm, but not from the same firearm as test fired bullets Item 1. Items 3-5 are consistent with 9mm caliber projectiles fired from a firearm conventionally rifled 6 right, typical of numerous manufacturers. Fired bullet Item 2 was fired from a second firearm, but not from the same firearm as test fired bullets Item 1. Item 2 is consistent with a 9mm caliber projectile fired from a firearm conventionally rifled 6 Right, typical of numerous manufacturers.
6XUBPE	Item 2 was not fired from the firearm reportedly used to produce the Item 1 known standards, or from the same firearm as Items 3, 4, and 5. Items 3, 4, and 5 were identified as having been fired from the same unknown firearm. These items were not fired from the firearm reportedly used to produce the Item 1 known standards.
76DTMM	The 38 caliber class bullets (Items 3,4 and 5) were all fired in the same firearm. The remaining 38 caliber class bullet (Item 2)was fired from a different firearm. None of the 38 caliber class bullets were fired in the same firearm as the known bullets (Item 1).
77QUVL	Items 2, 3, 4 and 5 are 9mm/38 caliber class, copper jacketed bullets. The bullet weight, shape and design of Items 2, 3, 4 and 5 are indicative of, but not limited to, 9mm Luger caliber bullets. I compared Items 2, 3, 4, and 5 with each other. Items 3, 4, and 5 have the same class of rifling marks and sufficient corresponding individual microscopic marks to conclude they were fired in the same firearm. Item 2 has significant differences in rifling dimension from Items 3, 4, and 5. Item 2 was fired in a different firearm than Items 3, 4, and 5. I compared the test fires reported to be from the recovered firearm (Item 1) to Item 2. Item 2 has significant differences in rifling dimensions from Item 1. Item 2 was fired in a different firearm than Item 1. I compared the test fires reported to be from the recovered firearm (Item 1) to Items 3, 4, and 5. Items 3, 4, and 5 have similar rifling class to Item 1, but differences in individual microscopic marks were observed. The differences may indicate Items 3, 4, 5 were not fired in Item 1, but the differences are not sufficient for conclusive elimination. The recovered firearm should be submitted to the laboratory for examination.
789GU4	Comparison microscope examinations were conducted and the findings of this examiner are as follows: 1. Exhibit 2 is a .38 caliber class metal jacketed bullet normally loaded in 9mm cartridges. 2. Exhibits 3, 4 and 5 are .38 caliber class metal jacketed bullets normally loaded in 9mm cartridges and were fired in the same firearm. 3. Based on differences in class characteristics, Exhibit 2 could not have been fired in the 9mm Ruger P95DC pistol. 4. The following is an investigative lead only and not intended to exclude all other makes of firearms. Based on class characteristics of rifling of Exhibit 2, the possible firearms are 9mm pistols manufactured for AA Arms, Astra, Beretta, Bryco Arms, Czechoslovakia (CZ), FEG, FN/Browning, German, Heckler & Koch, Helwan, IML, Intratec, Jennings/Bryco, Kel-Tec, Llama, Norinco, Sigarms, Smith & Wesson, Star, SWD, US Military weapons, Walther. 5. Based on a lack of individual characteristics Exhibits 3, 4 and 5 could not have been fired in the submitted 9mm Ruger P95DC pistol or the firearm that fired Exhibit 2. 6. The following is an investigative lead only and not intended to exclude all other makes of firearms. Based on class characteristics of rifling of Exhibitss[sic] 3, 4 and 5, the possible firearms are pistols manufactured for Agram, American Eagle, Belgium, Beretta, Browning, Czechoslovakia, EAA Corp., England, FEG, FMJ, FN/Browning, Germany, Heckler & Koch, IML, Intratec, KEL-Tec,

TABLE 2

WebCode	Conclusions
	Llama, Luger, Norinco, Radom, Ruger, Springfield, Sterling Styr, SWD Inc., Tanfoglio, Taurus, Walther and Zastava.
79GYNT	Items 3, 4 and 5 were identified as having been fired in the same firearm. The identifications were confirmed by Criminalist [Name]. Items 3, 4 and 5 have class characteristics consistent with Item 1. The items have significant differences but some similar individual characteristics. Due to the presence of these similar individual characteristics a conclusive elimination was not made. Based on different class characteristics, Item 2 is eliminated from having been fired from the firearm(s) that fired Items 1, 3, 4 and 5.
79PNED	Items 3, 4, and 5 were fired from the same firearm. These items could not be identified nor eliminated from being fired by the same firearm as the known test fired bullets (Item 1) because there was not sufficient agreement nor sufficient disagreement of microscopic marks. Items 3, 4, and 5 are consistent with being 9mm Luger fired bullets, conventionally rifled with 6 lands/grooves and a right hand twist. Possible makes of firearms that may have fired these bullets include, but are not limited to, the following firearms: Beretta, FN/Browning, Germany, Heckler & Koch, Keltech, Luger, Radom, Ruger, Tanfoglio, and Walther. Item 2 was not fired from the same firearm as Items 3, 4, and 5. Item 2 was also not fired from the same firearm as the known test fired bullets (Item 1). Item 2 is consistent with being a 9mm Luger fired bullet, conventionally rifled with 6 lands/grooves and a right hand twist. Possible makes of firearms that may have fired these bullets include, but are not limited to, the following firearms: Astra, Bryco/Jennings, IML, Intratec, Llama, Lorcin, Sigarms, Smith & Wesson, Star and Walther.
7A2DQ3	Exhibit 2 was microscopically compared to Exhibit 3. Based on a difference in class characteristics, Exhibits 2 and 3 were not fired from the same firearm. Exhibit 3, 4 and 5 were microscopically compared to each other. Based on an agreement of class characteristics, and sufficient agreement of individual characteristics, Exhibits 3, 4 & 5 were fired from the same firearm. Exhibit 2 was microscopically compared to Exhibit 1.T1. Based on a disagreement of class characteristics, Exhibit 2 was not fired from Exhibit 1. Exhibit 3 was microscopically compared to Exhibit 1.T1. Based on an agreement of class characteristics, but a disagreement of individual characteristics, Exhibits 3, 4 & 5 were not fired from Exhibit 1. Firearms that could have fired Exhibit 2 include, but are not limited to, 9mm caliber Smith and Wesson, Sig Sauer, Ruger and Hi-Point pistols. This does not preclude the possibility another make not listed was used. Firearms that could have fired Exhibits 3, 4 and 5 include but are not limited to, 9mm caliber Ruger, Browning and Hi-Point pistols. This does not preclude the possibility another make not listed was used.
7A66DD	Examinations showed Item 2 was not discharged from the Ruger P95DC semiautomatic pistol due to differences in class characteristics. Examinations showed Items 3, 4 and 5 were not discharged from the Ruger P95DC semiautomatic pistol due to differences in individual characteristics. Examinations showed Items 3, 4 and 5 were discharged from the same unknown firearm. Examinations showed Item 2 was not discharged from the same unknown firearm as Items 3, 4 and 5 due to differences in class characteristics.
7GXNTF	3. Match According to the findings, it can be seen that the shells from the box marked as test No. 14-526, Item 1, come from the same source. The shells from the boxes labeled as test No. 14-526 Item 3, 4 and 5 come from the same source. Mismatch: The shell from the box marked as test No. 14-526 Item 2 was fired from a different gunshot to the gun that fired the shells of the boxes labeled as test No. 14-526 Item No. 1, 3, 4 and 5.
7GXXDL	There are insufficient characteristics on known bullets (item 1) and recovered questioned bullets (items 2-5)to determine if it was fired by the same firearm.
7NZGZV	The fired copper jacketed bullets (Items 2-5) share design and class characteristics with the 9mm caliber class. They exhibit rifling characteristics of six land and groove impressions with

TABLE 2

WebCode	Conclusions
	<p>right twist. One of the test fired bullets (Item 1) from the Ruger pistol and the fired bullets (Items 3, 4 and 5) were microscopically examined and compared. There is agreement of their class characteristics. However, there is sufficient disagreement of their individual characteristics to eliminate them as having been fired from the Ruger pistol. The fired bullets (Items 3, 4 and 5) were microscopically examined and compared. Based on the agreement of their class characteristics and sufficient agreement of their individual characteristics, the bullets are identified as having been fired from the same firearm. One of the test fired bullets (Item 1) from the Ruger pistol, the fired bullets (Items 3, 4 and 5) and the fired bullet (Item 2) were microscopically examined and compared. Based on the disagreement of their class characteristics, the bullet (Item 2) is eliminated as having been fired from the Ruger pistol and the firearm that fired the bullets (Items 3, 4 and 5).</p>
7QAEFX	<p>Items 3, 4 and 5 are Identified as having been fired from the same firearm. Items 3, 4 and 5 can neither be identified nor eliminated as having been fired from the same firearm as items 1A, 1B and 1C due to a lack of matching individual characteristics (Inconclusive); However, differences in identifiable individual characteristics suggest they were fired from different firearms. Item 2 is Eliminated as having been fired from the same firearm as Items 1A, 1B, 1C and Items 3, 4 and 5 due to a difference in class characteristics (land and groove impression widths).</p>
7THK4K	<p>Item 1.1 consists of three fired bullets stated to have been fired by a Ruger brand Model P95DC 9mm Luger pistol. Items 1.2, 1.3, 1.4 and 1.5 are consistent with four 38 caliber (9mm) bullets having six land and groove impressions with a right twist. They were microscopically compared to the bullets from Item 1.1 and to each other. Item 1.1 can be eliminated as having been fired by the same firearm that fired Items 1.2, 1.3, 1.4 and 1.5. Item 1.2 can be eliminated as having been fired by the same firearm that fired Items 1.3, 1.4, and 1.5. Common firearms with the same general rifling characteristics as Item 1.2 include Astra, Beretta, Bryco, FEG, Helwan, Hi- Point, IML, Luger, SigArms, Smith & Wesson, Star, SWD and Walther. This is not meant to be an all-inclusive list; therefore, all firearms encountered during the course of this investigation should be submitted for comparative examination. Items 1.3, 1.4 and 1.5 were identified as having been fired by the same firearm. Common firearms with the same general rifling characteristics as Items 1.3, 1.4 and 1.5 include Beretta, Browning, EAA, Heckler & Koch, Keltec, Radom, Ruger, Springfield and Walther. This is not meant to be an all-inclusive list; therefore, all firearms encountered during the course of this investigation should be submitted for comparative examination.</p>
7XNTYN	<p>Item 2 was not fired from the same firearm as the Item 1 tests. It was not fired from the same unknown firearm as Items 3, 4 & 5. Items 3, 4 & 5 were fired from the same unknown firearm. They were not fired from the same firearm as the Item 1 tests. They were not fired from the same unknown firearm as Item 2.</p>
7ZELXJ	<p>The test fired bullets in Sub 1 (Item 1) were microscopically compared to the fired bullets in Subs 3, 4 & 5 and found to have some similar class characteristics. However no identification was made. Therefore the bullets in subs 3, 4, & 5 could not be identified or excluded as having come from Sub 1. The bullets in subs 3, 4, & 5 were microscopically compared to each other and found to have suff. Individ. Char to conclude an ID. Therefore, subs 3, 4, & 5 were fired in the same firearm. The bullet in sub 2 was microscopically compared to the test fired bullets in sub 1 and evidence bullets in subs 3, 4, & 5 and found to have different class characteristics. Therefore, sub 2 was fired in a different firearm than sub 1, 3, 4, & 5.</p>
83FWK7	<p>The Ex 2 bullet was not fired from the same firearm as the Ex 1 bullets or from the same firearm as the Ex 3, 4, & 5 bullets. It displays six lands and grooves with a right twist. Manufacturers of 9mm Luger caliber firearms with similar specifications are too numerous to list. Only suspected firearms should be submitted for comparison purposes, along with the re-submission of Ex 2.</p>

TABLE 2

WebCode	Conclusions
	The Ex 3, 4, & 5 bullets were fired from the same firearm. They were not fired from the same firearm as the Ex 1 bullets or the same firearm as the Ex 2 bullet. They display six lands and grooves with a right twist. Manufacturers of 9mm Luger caliber firearms with similar specifications include Luger Radom, Ruger, & Tanfoglio, among others. Only suspected firearms should be submitted for comparison purposes, along with the re-submission of these exhibits.
842LN9	Item # 2,3,4,and 5 bullets were microscopically examined in conjunction with Item 1(test bullets). Based on these comparative examinations it was determined that: A. Item 2 bullet bears different class characteristics than Item 1,3,4, and 5 bullets and therefore was not fired through the same barrel as Item 1,3,4, or 5 bullets. B. Item 3,4, and 5 bullets bear the same class characteristics as Item 1 bullets. However there are no individual characteristics to link Item 3,4,and 5 bullets as having been fired through the same barrel as Item 1 bullets. C. Item 3,4,and 5 bullets were fired through the same barrel.
87Y26M	Evidence Description, Results of Analysis and Interpretation: 01: 7x4x3 white box. 01-01-AA: Three fired bullets reportedly test fired in a 9mm Luger caliber Ruger model P95DC pistol (Item 1) -The three fired bullets were identified as having been fired in the same firearm. 01-02-AA: One fired bullet (Item 2) - The fired bullet was eliminated as having been fired from the same firearm as the three other fired bullets (1-03-AA - 1-05-AA) and from the same firearm as reportedly test fired bullets (1-01-AA) due to a difference in class characteristics. 01-03-AA: One fired bullet (Item 3) - The fired bullet was identified as having been fired from the same firearm as two of the other fired bullets (1-04-AA and 1-05-AA) due to consistent and repeatable individual marks. The fired bullet was not identified or eliminated as having been fired from the same firearm as the reportedly test fired bullets (1-01-AA) due to agreement in class characteristics but a lack of consistent and repeatable individual marks. 01-04-AA: One fired bullet (Item 4) - The fired bullet was identified as having been fired from the same firearm as two of the other fired bullets (1-03-AA and 1-05-AA) due to consistent and repeatable individual marks. The fired bullet was not identified or eliminated as having been fired from the same firearm as the reportedly test fired bullets (1-01-AA) due to agreement in class characteristics but a lack of consistent and repeatable individual marks. 01-05-AA: One fired bullet (Item 5) - The fired bullet was identified as having been fired from the same firearm as two of the other fired bullets (1-03-AA and 1-04-AA) due to consistent and repeatable individual marks. The fired bullet was not identified or eliminated as having been fired from the same firearm as the reportedly test fired bullets (1-01-AA) due to agreement in class characteristics but a lack of consistent and repeatable individual marks.
89DVCU	The four evidence missiles, Items #2-#5, were microscopically compared to each other and it was determined that Items #3, #4 and #5 were all fired from the same firearm. Item #2 was fired from a different firearm. The four evidence missiles, Items #2-#5, were microscopically compared to the test fired missiles (Item #1) and all four were excluded as having come from the Ruger P95DC pistol.
8B4H46	A microscopic examination and comparison of the above evidence revealed the following: Bullets (3, 4, 5) were discharged from the same firearm based on sufficient agreement of class and individual characteristics in land and groove impressions; Bullet (2) and Bullets (3, 4, 5) were discharged from different firearms based on sufficient disagreement of class characteristics; Bullets (3, 4, 5) and Test Fires (1.1, 1.2, 1.3) [Item 1] were discharged from different firearms based on sufficient disagreement of individual characteristics; and Bullet (2) and Test Fires (1.1, 1.2, 1.3) [Item 1] were discharged from different firearms based on sufficient disagreement of class characteristics.
8ET8YN	Three of the copper-jacketed bullets (items 3, 4, 5) were not fired from the same firearm as the submitted test fired copper-jacketed bullets (item 1), they were however fired from a single

TABLE 2

WebCode	Conclusions
	<p>unknown firearm. One of the copper-jacketed bullets (item 2) was not fired from the same firearm as the submitted test fired copper-jacketed bullets (item 1) or the same unknown firearm as the three matched copper-jacketed bullets (items 3, 4, 5). This projectile is most consistent with a 9mm Luger caliber projectile fired from a barrel having six lands and grooves with a right hand twist. The manufacturer of the firearm that fired the copper-jacketed bullet is unknown, but could include commonly encountered models of 9mm Luger caliber Hi-Point, Llama, Sigarms, Smith & Wesson, SWD, or Walther pistols.</p>
8GAV33	<p>1. Microscopic inter-comparison of Exhibit 1 (Bullets +3) disclosed that they were fired from the same firearm. 2. Microscopic comparison of Exhibit 2 (Bullet) to Exhibit 1 (Bullet-Test) disclosed that they were not fired from the same firearm. 3. Microscopic comparison of Exhibit 2 (Bullet) to Exhibits 3, 4, and 5 (Bullets +3) disclosed that they were not fired from the same firearm as Exhibit 2. 4. Microscopic comparison of Exhibit 3 (Bullet), Exhibit 4 (Bullet), and Exhibit 5 (Bullet) disclosed that they were all fired from the same firearm. 5. Microscopic comparison of Exhibits 3, 4, and 5 (Bullets +3) to Exhibit 1 (Bullet-Test) disclosed agreement of class characteristics, but they could not be identified or eliminated as having been fired from the same firearm as Exhibit 1.</p>
8HWKZV	<p>Item 2 (fired bullet) is eliminated as having been fired from the 9mm caliber, Ruger P95DC handgun, and from the same firearm as Items 3, 4 and 5 based on a difference in class characteristics. Items 3, 4, and 5 (fired bullets) exhibited similar class characteristics as Item 1 (test shots) however, because of the lack of matching individual microscopic markings, Items 3, 4, and 5 could not be identified or eliminated as having been fired from the 9mm caliber, Ruger P95DC handgun, (Inconclusive). Items 3, 4, and 5 (fired bullets) are identified as having been fired from the same firearm. Items 2, 3, 4, and 5 (fired bullets) are consistent with being .38 caliber class fired metal jacketed bullets displaying conventional rifling specifications of six lands and grooves with a right twist. Therefore, no suspected firearm matching those specifications should be overlooked.</p>
8NQ6CX	<p>The three (3) fired bullets received in item 1 were identified as having been fired from the same firearm based on the sufficient agreement of class and individual characteristics. Item 2 was eliminated as having been fired from the same firearm that fired the three (3) fired bullets received with item 1 based on the significant disagreement of class characteristics. Items 3, 4, and 5 were eliminated as having been fired from the same firearm that fired the three (3) fired bullets received with item 1 based on the significant disagreement of individual characteristics. Items 3, 4, and 5 were identified as having been fired from the same firearm based on the sufficient agreement of class and individual characteristics.</p>
8QH24C	<p>Items 3, 4, and 5 were fired from one gun. That gun could have been the gun that fired Item 1, or from another gun that produces similar barrel rifling class characteristics. Item 2 was not fired from the gun(s) that fired Item 1 or Items 3 through 5 based on different barrel rifling class characteristics.</p>
8UJPHL	<p>There were (3) different firearms used in this incident. After microscopic comparison, it was determined that Items# 3, 4, and 5 were fired from the same firearm based on sufficient agreement of class and individual characteristics of the land impression marks. After microscopic comparison, it was determined that Items# 3, 4, and 5 were not fired from the same firearm as Item #1 based on differences of individual characteristics - no agreement of land impression marks. After microscopic comparison, it was determined that Item #2 was not fired from the same firearm as Item #1 or as Items# 3, 4, and 5 based on differences of class characteristics - different land and groove width measurements.</p>
8WH6NN	<p>Item 2 was NOT fired from the pistol represented by Item 1. Items 3, 4, and 5 could neither be identified nor eliminated as having been fired by the pistol represented by Item 1. Items 3, 4,</p>

TABLE 2

WebCode	Conclusions
	and 5 were identified, within the limits of Practical Certainty* as having been fired from the same firearm. Items 3, 4, and 5 were fired from a different firearm than Item 2.
93APDP	The known bullets Item 1 and the questioned bullet Item 2 have different rifling characteristics, so it is undoubtedly proved, that the bullet Item 2 were[sic] not fired in the same firearm as the bullets Item 1. The known bullets Item 1 and the questioned bullets Item 3, 4 and 5 have matching rifling characteristics but different individual markings in the land and grooves, so it is undoubtedly proved, that the bullets Item 3, 4 and 5 were not fired in the same firearm as the bullets Item 1. The questioned bullets Item 3, 4 and 5 have with each other matching individual markings in the land and grooves, so it is undoubtedly proved, that these bullets were fired in the same firearm.
9A3RPA	Items 2, 3, 4, and 5 were not fired from the same gun (barrel) which fired Item 1 test fires. Items 3, 4, and 5 were fired from a single gun (barrel). Item 2 was fired in a different gun (barrel) than the gun (barrel) which fired Items 3, 4, and 5. Conclusions assume that barrels were not interchanged between firearms.
9GFZD4	As a result of physical and microscopic examination of this evidence it is my opinion that: a. The projectile mentioned in Item 1-2 was fired from an unknown weapon capable of chambering and firing .38 caliber class (9mm) ammunition and having a rifling system consisting of Six (6) lands and grooves with a right twist. This projectile was not fired from the suspect weapon (the source of Items 1-1) nor was it fired from the weapon which produced Items 1-3, 1-4, and 1-5. b. The projectiles mentioned in Items 1-3, 1-4 and 1-5 were all fired from the same unknown weapon capable of chambering and firing .38 caliber class (9mm) ammunition and having a rifling system consisting of Six (6) lands and grooves with a right twist. This weapon is not the same weapon which produced Items 1-1.
9H87R9	Examinations showed Items 2 through 5 were not discharged from the same firearm as Item 1. Examinations showed Items 3 through 5 were discharged from the same unknown firearm. Examinations showed Item 2 was discharged from a second unknown firearm.
9LXZ9C	I microscopically examined item 1, the three test-fired bullets, and found the marks to be reproducible. I noted potential subclass carryover. I microscopically compared item 1 to item 2 and found differences in the widths of the land impressions, a class characteristic. I concluded item 2 had not been fired in the recovered firearm. I microscopically compared item 1 to items 3, 4, and 5 noted all class characteristics agreed. I also found significant disagreement in the striations in the land impressions. I concluded items 3, 4, and 5 were not fired in the recovered firearm. I microscopically compared items 3, 4, and 5 to each other. While I found significant agreement in the striations in the land impressions, I could not conclude whether or not they were fired in the same firearm because I did not have the firearm to do a subclass examination.
9X94KE	Based on differing class characteristics, the suspect's firearm was eliminated as the source of the item 2 bullet. While the firearm related class characteristics were the same, the suspect's firearm was eliminated as the source of the item 3, 4, and 5 bullets based on significant differences in the individualizing characteristics. Based on matching class and individualizing characteristics, the item 3, 4, and 5 bullets were fired from the same firearm.
A2GENM	Results of Examination and Comparison: Comparison of Item 1 with Item 2 reveals an Elimination. This means that Item 2 was not fired in the same firearm as that which fired Item 1. Comparison of Item 1 with Items 3-5 reveals inconclusive results. Items 3-5 could not be identified based on individual characteristics or eliminated based on class characteristics as having been fired in the same firearm as that which fired Item 1. Comparison of Item 3, Item 4 and Item 5 reveal the presence of matching features. This indicates that Items 3-5 are consistent with having been fired in the same firearm. Comparison of Items 3-5 with Item 2 reveals an elimination. This means that Items 3-5 were fired in a different firearm than that

TABLE 2

WebCode	Conclusions
	which fired Item 2.
A3KPAK	The Item 1 bullets were used to microscopically compare to Items 2-5. The Item 2 bullet was not fired from the same firearm as Item 1 nor the same firearm as Items 3-5. The Item 2 bullet is consistent in weight, diameter and appearance with those loaded in 38/357/9mm caliber cartridges and displays rifling characteristics of six land and grooves, right twist. Manufacturers of firearms with similar rifling characteristics include but are not limited to: Beretta, Bryco, Ruger, SIGArms and Walther. The Items 3, 4 and 5 bullets were identified as having been fired from the same unknown firearm. They were not fired from the same firearm as Item 1 nor the same firearm as Item 2. The bullets are consistent in weight, diameter, and appearance with those loaded in 38/357/9mm caliber cartridges and display rifling characteristics of six lands and grooves, right twist. Manufacturers of firearms with similar rifling characteristics include but are not limited to: Browning, Rossi, Ruger, Taurus, Springfield Inc., and Walther.
A6GR4Z	The bullets in Items #2, 3, 4, and 5 were microscopically examined in conjunction with the bullets in Item #1. Based on these comparative examinations, it was determined that: A. The bullet in Item #2 bears different rifling characteristics than the bullets in Items #1, #3, #4, and #5, and therefore, had not been fired through the same barrel as the bullets in Items #1, #3, #4, or #5. The rifling characteristics present on Item #2 are common to a variety of 9mm Luger caliber firearms. Some of the more commonly encountered brands include: Astra, Beretta, Bryco Arms, CZ, FN Heckler & Koch, Llama, Norinco, SigArms, Smith & Wesson, Stallard Arms, Star, Walther, and possible others. Any suspect firearms should be submitted for comparison with this item. B. The bullets in Items #3, #4, and #5 bear the same class characteristics as the bullets in Item #1. However, no similar individual characteristics were found to link these bullets to having been fired through the barrel of the same firearm as Item #1. C. The bullets in Items #3, #4, and #5 had all been fired through the barrel of the same unknown firearm. The rifling characteristics present on Items #3, #4, and #5 are common to a variety of 9mm Luger caliber firearms. Some of the more commonly encountered brands include: Beretta, FMJ, FN/Browning, Heckler & Koch, Keltec, Luger, Norinco, Ruger, Springfield Inc., SWD Inc., Tanfoglio, Walther, and possible others. Any suspect firearms should be submitted for comparison with these items.
A6QAXK	Item 2 was not fired from the same firearm as Item 1 or the same firearm that fired Items 3, 4, and 5. Item 3, 4, and 5 were all fired from the same unknown firearm. The Items share class characteristics with tests fired from Item 1; however differences in individual characteristics indicate another firearm was used.
A6XNVZ	The bullets in Items 2, 3, 4 and 5 were microscopically examined in conjunction with the bullets in Item 1. Based on these comparative examinations, it was determined that: A. The bullet in Item 2 bears different class characteristics than the bullets in Items 1, 3, 4 and 5, and therefore, had not been fired through the barrel of the same firearm as the bullets in Items 1, 3, 4, and 5. The 6-Right rifling characteristics present on Item 2 are common to a variety of 9mm caliber firearms. Some of the more commonly encountered brands include: Astra, Beretta, Bryco Arms, Fabrique Nationale, FEG, FN/Browning, IML, Intratec, Jimenez Arms, Llama, Lorcin, Sigarms, Smith & Wesson, Stallard Arms, Star, SWD Inc, Walther, and possible others. Any suspect firearms should be submitted for comparison. B. The bullets in Items 3, 4, and 5 bear the same class characteristics as the bullets in Item 1. However, insufficient individual characteristics were found to link the bullets in Items 3, 4, and 5 as having been fired through the barrel of the same firearm as the bullets in Item 1. C. The bullets in Items 3, 4, and 5 had all been fired through the barrel of the same firearm. The 6-Right rifling characteristics present on Items 3, 4, and 5 are common to a variety of 9mm caliber firearms. Some of the more commonly encountered brands include: Beretta, Browning, CZ, EAA Corp, FEG, FMJ, Fn/Browning, H&K, IML, Kahr Arms, Keltec, Luger, Mauser, Nornico, Radom, Ruger,

TABLE 2

WebCode	Conclusions
	Springfield Inc., Tanfoglio, Walther, Zastava, and possible others. Any suspect firearms should be submitted for comparison.
A8ZTZ8	The below listed spent bullet was examined and determined to have been fired from a weapon having a barrel with 6 lands and grooves with a right twist. This spent bullet is suitable for identification. Further this spent bullet was microscopically compared with test bullets fired from the Ruger model P95DC, 9mm luger pistol, PR# [Removed], Lab Evidence # 001-A1. It is my opinion that this spent bullet was not fired from this firearm. Lab Evidence # Property # Item # Item Description 001-A2 [Removed] 2 Spent 38 (9mm) caliber bullet The below listed spent bullets were microscopically examined and compared with each other. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that the below listed spent bullets were fired by the same firearm. This firearm has a barrel with 6 lands and grooves with a right twist. Further, these 3 spent bullets were microscopically compared with test bullets fired from the Ruger model P95DC, PR# [Removed], Lab Evidence # 001- A1 and also with the aforementioned spent bullet, Lab Evidence #001-A2. It is my opinion that these items were not fired from the Ruger 9mm Luger pistol, Lab Evidence # 001-A1, nor the same firearm that fired the spent evidence bullet, Lab Evidence # 001-A2. Lab Evidence # Property # Item # Item Description 001-A3 [Removed] 3 Spent 38 (9mm) caliber bullet 001-A4 [Removed] 4 Spent 38 (9mm) caliber bullet 001-A5 [Removed] 5 Spent 38 (9mm) caliber bullet
ABVRV4	The Ex 1 bullets were fired from the same known firearm. They were not fired from the same unknown firearm as the Ex 2 bullet or the Ex. 3, 4 + 5 bullets. The Ex 2 bullet was not fired from the same known firearm as the Ex 1 bullets or from the same unknown firearm as the Ex 3,4+5 bullets. The Ex 3,4 +5 bullets were fired from the same unknown firearm. They were not fired from the same known firearm as the Ex 1 bullets or the same unknown firearm as the Ex 2 bullet. The Ex 1,2,3,4+5 bullets are consistent in physical characteristics with 9mm Luger caliber bullets.
ACFALH	The copper jacketed bullets, Items 2, 3, 4,and 5 were not fired from the firearm that fired the three (3) copper jacketed bullets, Item 1. The copper jacketed bullets, Items 3, 4 and 5 were all fired from the same firearm. The copper jacketed bullet, Item 2 was not fired from the firearm that fired the copper jacketed bullets, Items 3, 4, and 5.
ACHQYV	Submitted test bullets were compared w/ #2 -#5. #2 is eliminated from being fired from the test pistol, #1, due to different class characteristics. #3 - 5 - These bullets have agreement w/ #1 in all discernible class characteristics. They are eliminated from being fired from #1 due to sufficient disagreement of individual characteristics.
ACRZHF	Comparative examinations of Item 1 against Item 2 showed the presence of different class characteristics. This means that the pistol used to test fire Item 1 was not used to fire Item 2. It could not be determined if the firearm used to fire Item 1 was used to fire Items 3 through 5. The comparative examinations showed disagreement of individual characteristics, but insufficient for an elimination. The comparative examinations were inconclusive. Comparative examinations of Item 2 against Items 3 through 5 showed the presence of different class characteristics. This means that the firearm used to fire Item 2 was not used to fire Items 3 through 5. Comparative examinations of Items 3 through 5 showed the presence of matching features. This means that Items 3 through 5 were fired in the same firearm.
AFG3Y3	Examination of the bullets in Item #2, 3, 4, & 5 revealed them to be consistent with PMC brand 9mm caliber bullets. Comparative microscopic examination of the bullets in Item #3, 4, & 5 revealed that they had been fired through the barrel of the same unknown firearm. The bullets in Item #1 were microscopically examined in conjunction with the bullets in Item #2, 3, 4, & 5. Based on these comparative examinations, it was determined that: A. due to differences

TABLE 2

WebCode	Conclusions
	<p>in class characteristics, the bullet in Item #2 had not been fired through the barrel of the gun that fired the bullets in Item #1; B. The bullets in Item #3, 4, & 5 share the same class characteristics as the bullets in Item #1; however, no similar individual characteristics were found to link these bullets as having been fired in the same firearm. The rifling characteristics present on Item #2 are common to a variety of 9mm Luger caliber firearms. Some of the more commonly encountered brands include: Astra, Beretta, Bryco, Calico, Fabrique Nationale, FEG, Browning, Heckler & Koch, IMI, Kahr, Keltec, Llama, Luger, Mauser, Norinco, Ruger, Sig Sauer, Smith & Wesson, Walther, and others. Any suspect firearms should be submitted for comparison. The rifling characteristics present on Item #3, 4, & 5 are common to a variety of 9mm Luger caliber firearms. Some of the more commonly encountered brands include: Beretta, Browning, Ceska Zbrojovka, Colt, Heckler & Koch, IMI, Kahr, Keltec, Luger, Mauser, Norinco, Ruger, Springfield, Tanfoglio, Walther, and others. Any suspect firearms should be submitted for comparison.</p>
AK86DG	<p>The firearm that fired Item 1 did not fire Items 2, 3, 4 or 5. Item 2 was not fired in the same unknown firearm that fired Items 3, 4 or 5. Items 3, 4 and 5 were identified as having been fired in the same unknown firearm. Items 2, 3, 4 and 5 are consistent in diameter, weight and appearance w/ bullets loaded in 38/357/9mm caliber ammunition and display rifling characteristics of six lands and grooves with a right twist. Manufacturers of firearms with these rifling characteristics are too numerous to list.</p>
APV4D4	<p>Item 2 bullet was fired from the different firearm used to fire Item 1 bullet. Item 3, Item 4 and Item 5 bullets were fired from the same firearm as the Item 1 bullet.</p>
AR2A8H	<p>Item 1, 3, 4, 5 - The Item 3, 4, & 5 bullets are consistent with those loaded in 9mm Luger caliber cartridges based on weight, diameter & appearance. These bullets were not fired in the same firearm as the Item 1 nor Item 2 bullets. The Item 3, 4, & 5 bullets were fired in the same unknown firearm. The bullet displays rifling characteristics of six lands & grooves with a right twist. There are numerous manufacturers of firearms with similar rifling characteristics. Item 2 - The bullet is consistent with those loaded in 9mm Luger caliber cartridges based on diameter, weight & appearance. The bullet was not not[sic] fired in the same firearm as the Item 1 nor Item 3, 4, & 5 bullets. The bullet displays rifling characteristics of six lands and grooves with a right twist. There are numerous manufacturers of firearms with similar rifling characteristics.</p>
ATM9VL	<p>Items 1 (A,B,C) were compared microscopically to items 2, 3, 4 and 5. Item 2 was found to be negative with items 1 (A,B,C) due to a noticeable difference in land and groove measurements. Items 3, 4 and 5 were found to be Negative with Items 1 (A,B,C) due to a noticeable difference in striations. Therefore, Items 2, 3, 4 and 5 were fired from a different firearm than Items 1 (A,B,C). A microscopic comparison was conducted between Items 3, 4 and 5. The examinations determined these items were fired from the same firearm. A microscopic comparison was conducted between Item 3 and Item 2. The examinations determined Item 2 was fired from a different firearm than Items 3, 4 & 5 due to a noticeable difference in land and groove measurements.</p>
AUZUGG	<p>The projectile in Submission 2 was not fired in the gun that produced the test fires in Submission 1. The projectiles in Submissions 3, 4, and 5 were fired in the gun that produced the test fires in Submission 1.</p>
AV6JEJ	<p>The three copper jacketed bullets (Exhibits 03-05) were microscopically compared and determined to have been fired in the same unknown firearm. The three copper jacketed bullets (Exhibits 03-05) weighing 114.2 grains, 115.0 grains, and 114.8 grains respectively, are most consistent with 9mm and bear class characteristics of six lands and grooves with a right twist. A list of possible firearm manufacturers from the 2010 FBI GRC Database with class characteristics similar to these bullets includes, but is not limited to, the following</p>

TABLE 2

WebCode	Conclusions
	<p>manufacturers: 9mm semi-automatic pistols: American Eagle, Arcus, Belgium, Browning, China (PRC), Daewoo, FM, FN/Browning, Heckler & Koch, Hi-Point Firearms, Indust. Argentina, KSN Industries, Luger, Navy Arms, Norinco, Radom, Ruger, Sardi, Springfield Inc., SWD Inc., Tanfoglio, Tanfoglio (EAA), Walther, and Zastava. Any firearms bearing similar class characteristics should also be considered. The three copper jacketed bullets (Exhibits 03-05) were microscopically compared to the test fired bullets (Exhibit 01) from the 9mm Luger caliber Ruger Model P96DC semi-automatic pistol. The three copper jacketed bullets (Exhibits 03-05) bear the same class characteristics; however, they could not be identified to the test fired bullets (Exhibit 01) from the 9mm Luger Ruger Model P95DC semi-automatic pistol, as submitted. These three copper jacketed bullets (Exhibits 03-05) are most consistent with having been fired in a different firearm than the test fired bullets (Exhibit 01) from the Ruger Model P95DC. The copper jacketed bullet (Exhibit 02) was microscopically compared to the test fired bullets (Exhibit 01) from the 9mm Luger caliber Ruger Model P96DC semi-automatic pistol and to the three copper jacketed bullets (Exhibits 03-05). The copper jacketed bullet (Exhibit 02) bears different class characteristics and could not have been fired in the 9mm Luger caliber Ruger Model P95DC semi-automatic pistol or in the same unknown firearm as the three copper jacketed bullets (Exhibits 03-05). The copper jacketed bullet (Exhibit 02) weighing 114.8 grains is most consistent with 9mm and bears class characteristics of six lands and grooves with a right twist. A list of possible firearm manufacturers from the 2010 FBI GRC Database with class characteristics similar to this bullet includes, but is not limited to, the following manufacturers: 9mm semi-automatic pistols: Astra, Beretta, Bryco Arms, FEG, Germany, Glock, Hi-Point Firearms, IM Metal, Llama, Mauser, Maverick Arms Inc., SigArms, Smith & Wesson, Stallard Arms, Star, SWD Inc., Swiss Ind. Gesell, Walther, and Wilkinson Arms. Any firearms bearing similar class characteristics should also be considered.</p>
AXZ4GB	<p>Evidence items 1.2, 1.3, 1.4 and 1.5 were microscopically compared to test fired bullets from evidence item 1.1 with the following results. The expended bullets contained in items 1.2, 1.3, 1.4 and 1.5 were positively NOT fired from the same firearm as the submitted test fires in item 1.1.</p>
AZLR2X	<p>The fired bullets from Items 2, 3, 4 and 5 exhibit physical and design characteristics that are consistent with the 38/9mm caliber class. They share rifling characteristics of six land and groove impressions with a right twist. They exhibit individual characteristics that may be of value for a microscopic comparison analysis. The test fired bullets from Item 1 (1a, 1b, and 1c) and the bullets from Items 3, 4 and 5 were further microscopically examined and compared. There is observed agreement of their class characteristics. However, there is insufficient agreement or disagreement of their individual characteristics to either identify or eliminate them as having been fired from the same firearm as the bullets from Item 1. Items 3, 4 and 5 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items 3, 4 and 5 are identified as having been fired from the same firearm. Items 1 (1a, 1b, and 1c), 3, 4, and 5 were further microscopically examined and compared with Item 2. Based on the observed disagreement of class characteristics, Item 2 is eliminated as having been fired from the same firearm as the bullets from Items 1, 3, 4 and 5. The observed differences in the class characteristics of Item 2 and those of the other submitted bullets indicate the involvement of at least two different firearms. There are numerous makes and models of firearms with rifling characteristics similar to those of Items 2, 3, 4 and 5. Any firearm that becomes suspect in this investigation should be submitted for laboratory examination.</p>
AZXPTV	<p>The submission 001-01 test fires were compared to the submission 001-03, 001-04 and 001-05 projectiles with inconclusive results due to a lack of corresponding individual characteristics. The submission 001-03, 001-04 and 001-05 projectiles were all identified as having been fired from the same unknown firearm. Firearms that could have fired these</p>

TABLE 2

WebCode	Conclusions
	projectiles include, but are not limited to firearms manufactured by Browning, Ruger and Tanfoglio. Other possibilities may also exist. The submission 001-02 projectile was eliminated as having been fired from the same firearm that fired the projectiles in submission 001-01, 001-03 through 001-05 due to differences in class characteristics. Firearms that could have fired the submission 001-02 projectile include, but are not limited to firearms manufactured by Beretta, Bryco Arms and Smith & Wesson. Other possibilities may also exist.
B3M8V8	Item 2 was eliminated as being fired through the same barrel that produced Item 1 known comparison standards. Item 3, 4 and 5 were eliminated as being fired through the same barrel that produced Item 1 known comparison standards. Items 3, 4 and 5 were all fired through one and the same barrel.
B4BACA	Microscopic examination and comparison of the submitted fired bullets (items 1-5) revealed the following: There was sufficient evidence to conclude that the three fired bullets (item 1) were fired through the barrel of the same firearm. There was sufficient evidence to conclude that fired bullets (items 3, 4, and 5) were fired through the barrel of the same firearm but were not fired through the barrel of the firearm that fired the item 1 bullets. There was sufficient evidence to conclude that the fired bullet (item 2) was not fired through the barrel of the same firearm that fired items 1, 3, 4, or 5.
BAWCDK	1. All the recovered questioned bullets (Items 2 - 5) were eliminated to be fired in the same firearm as the known bullets (Item 1). 2. The three recovered questioned bullets (Items 3 - 5) were identified to be fired in the same firearm.
BAZUFP	Examination of the bullets, items #2, #3, #4 and #5, revealed that they are 9mm Luger caliber, full-metal jacketed design and fired from a barrel rifled with six (6) lands / six (6) grooves, right-hand twist. Microscopic comparisons of the bullet, item #2, with the test bullets reported as having been fired from a Ruger pistol, item #1, revealed dissimilar class characteristics (land and groove widths). This finding confirms that the bullet, item #2, had not been fired from the Ruger pistol, item #1. Additional microscopic comparisons of the bullet, item #2, to the three (3) bullets, submitted as items #3, #4 and #5, revealed dissimilar class characteristics (land and groove widths). This finding confirms that the bullet, item #2, had not been fired from the same firearm that had fired the three (3) bullets, items #3, #4 and #5. The rifling specifications of the bullet, item #2, correspond to those found in the following brands of firearms: Astra, FEG, Heckler & Koch, Llama, Sigarms, Smith & Wesson, Star and Walther. Other possibilities do exist. Microscopic comparisons of the three (3) bullets, items #3, #4 and #5, to each other revealed matching barrel engraved striations, confirming that they had been fired by the same firearm. Additional microscopic comparisons of the three (3) bullets, items #3, #4 and #5, to the test bullets reported as having been fired from the Ruger pistol, item #1, revealed corresponding class characteristics (caliber and direction of twist/number/widths of lands and grooves); however, there were insufficient corresponding individual characteristics to identify or eliminate the bullets, items #3, #4 and #5, as having been fired from the Ruger pistol, item #1.
BB3WP9	Items 3, 4 and 5 were all fired from the same firearm based on matching class and individual characteristics, including matching striae within the groove impressions and land impressions. Items 3, 4 and 5 were unable to be identified or eliminated to Item 1 based on matching class, but insufficient amount of matching individual characteristics in a pattern. Item 2 was not fired from the same firearm as Item 1 based on differences in class characteristics, including differences in land and groove impression width. Item 2 was not fired from the same firearm as Items 3, 4 and 5 based on differences in class characteristics, including differences in land and groove impression width.
BBHCK2	Exhibit #2 displays rifling specifications of six lands and grooves right twist. It was not fired

TABLE 2

WebCode	Conclusions
	<p>from the known firearm that fired Exhibits #1A through #1C, nor was it fired from the same firearm that fired Exhibits #3, #4 and #5. Common manufacturers of 9mm Luger caliber semi-automatic pistols with similar rifling specifications include, but may not be limited to: Smith & Wesson, Star, Luger & Maverick Arms Inc. Exhibits #3, #4 and #5 display rifling specifications of six lands and grooves, right twist. They were fired from the same firearm, but they were not fired from the known firearm that fired Exhibits #1A through #1C. Common manufacturers of 9mm Luger caliber semi-automatic pistols with similar rifling specifications include, but may not be limited to: Ruger, Springfield Inc., FN/Browning, Walther and Luger.</p>
BH93NX	<p>Items #1, #1.1 and #1.2 are three (3) caliber 9mm Luger copper jacketed bullets which were identified as having been fired from the same firearm. Items #3, #4 and #5 are three (3) caliber 9mm Luger copper jacketed bullets which were identified as having been fired from the same barrel rifled with six (6) grooves, right twist, however, not from the same firearm as Items #1, #1.1 and #1.2. Among the firearms which may produce similar rifling impressions like those on Items #3, #4 and #5 include, but are not limited to are caliber 9mm Luger pistols marketed by Ruger, Heckler & Koch, Beretta and Walther. Item #2 is a caliber 9mm Luger copper jacketed bullet which was fired from a barrel rifled six (6) grooves, right twist. Item #2 was not fired from the same firearm as Items #1, #1.1, #1.2, #3, #4 or #5. Among the firearms which may produce similar rifling impressions like those on Item #2 include, but are not limited to, caliber 9mm Luger pistols marketed by Astra, Llama, Star, Walther and Bryco Arms.</p>
BQDP44	<p>Items 2, 3, 4, and 5 were not discharged from the same firearm as Item 1. Item 2 was not discharged from the same firearm as Items 3, 4, and 5. Items 3, 4, and 5 were discharged from the same unknown firearm.</p>
BRKDEH	<p>The Item 1 bullets were used to microscopically compare to the Item 2 through Item 5 bullets. The Item 2 bullet was not fired from the same firearm that fired the Item 1 bullets nor was it fired from the same unknown firearm as the Item 3 through Item 5 bullets. The bullet is consistent in weight, diameter and appearance with bullets loaded in 9mm Luger caliber cartridges and displays rifling characteristics of six lands and grooves with a right twist. Manufacturers of firearms with similar rifling characteristics include but are not limited to: Astra, Beretta, Bryco Arms, F&G, FN/Browning, Glock, Hi-Point Firearms, IMI (UZI), Intratec, Llama, Sigarms, Smith & Wesson, Stallard Arms, Star, SWD Inc. and Walther. The Item 3 through Item 5 bullets were identified as having been fired from the same unknown firearm. They were not fired from the same firearm that fired the Item 1 bullets nor were they fired from the same firearm as the Item 2 bullet. The bullets (Item 3 - Item 5) are consistent in weight, diameter and appearance with bullets loaded in 9mm Luger caliber cartridges and display rifling characteristics of six lands and grooves with a right twist. Manufacturers of firearms with similar rifling characteristics include, but are not limited to: Beretta, Ceska Zbrojovka, Colt, Daewoo, FN/Browning, Heckler & Koch, Hi-Point Firearms, IMI (UZI), Kahr Arms, Kel-Tec, Norinco, Ruger, Springfield Inc., SWD Inc., Tanfoglio and Walther.</p>
BULQRA	<p>Exhibits #3, #4, and #5 were fired in the same firearm. Exhibits #3, #4, and #5 could not be identified or eliminated as having been fired in Exhibit #1. Exhibit #2 was not fired in Exhibit #1. Exhibit #2 was not fired in the same firearm as Exhibits #3, #4, and #5.</p>
BZ2JGL	<p>Due to different land and groove widths Item 2 was not fired from the same firearm as Item 1. Items 3, 4, and 5 were fired from the same firearm. Items 3, 4, and 5 could not be identified or eliminated as having been fired from the same firearm as Item 1. Items 3, 4, and 5 were not fired from the same firearm as Item 2 due to differences in the land and groove widths.</p>
C8LUNN	<p>Item # 1.2 (2) is a fired bullet within the .38 family caliber of bullets, which includes but is not limited to .38 Special, .357 Magnum, 9mm Luger and .380 Auto, with it being most consistent</p>

TABLE 2

WebCode	Conclusions
	with the 9mm Luger. Item #1.2 (2) was fired from a barrel rifled with six lands and grooves, right twist. Item #1.2 (2) was eliminated from being fired from the same barrel as Item #'s 1.1.1, 1.1.2 & 1.1.3 (1). Item #'s 1.3 (3) & 1.4 (4) are both fired bullets within the .38 family caliber of bullets which includes but is not limited to .38 Special, .357 Magnum, 9mm Luger and .380 Auto, with them being most consistent with the 9mm Luger. Item #'s 1.3 (3) & 1.4 (4) were fired from the same barrel rifled with six lands and grooves, right twist. Item #'s 1.3 (3) & 1.4 (4) were both eliminated as being fired from the same barrel as Item #'s 1.1.1, 1.1.2 & 1.1.3 (1).
C9Z4T8	The questioned bullets, labeled as items 2, 3, 4 and 5 were part of the same 9 x 19 mm caliber NATO cartridges but they were not fired with the recovered firearm. The questioned bullets labeled as items 3, 4 and 5 were fired with the same firearm which is different to the recovered one.
CC3J6W	Examination showed that the tests taken from the submitted pistol (Item 1) did not fire any of the submitted scene fired bullets (Items 2 to 5).
CD2RN3	Exhibits #2, #3, #4, and #5 were not fired from the recovered firearm. Exhibits #3, #4 and #5 were fired from the same firearm. Exhibit #2 was not fired from this firearm.
CHEFC6	See Attached Report [Report not included]
CHGYAG	The questioned bullets, items 2, 3, 4 and 5, were not fired in the same firearm as the known bullets, item 1. The questioned bullets, items 3, 4 and 5, were fired in the same firearm. The questioned[sic] bullet, item 2, were[sic] fired in a different firearm as the questioned bullets, items 3, 4 and 5.
CK7C4K	Items 1 (A through C) were compared microscopically to Items 2, 3, 4 and 5. Item 2 was found to be negative with Items 1 (A through C) due to a noticeable difference in land and groove measurements. Items 3, 4 and 5 were found to be negative with Items 1 (A through C) due to a noticeable difference in striations. Therefore; Items 2, 3, 4 and 5 were fired from a different firearm than Items 1 (A through C). A microscopic comparison was conducted between Items 3, 4 and 5. The examinations determined these items were fired from the same firearm. A microscopic comparison was conducted between Items 3 and 2. The examinations determined Item 2 was fired from a different firearm than Items 3, 4, and 5 due to a noticeable difference in land and groove measurements.
CL9WGD	Based on agreement of discernible class characteristics and sufficient matching individual detail, the fired bullets from Item 1 were identified as having been fired from the same firearm. Based on agreement of discernible class characteristics and sufficient matching individual detail, the fired bullets, Items 3-5, were identified as having been fired from the same firearm. Based on significant disagreement of class characteristics, the fired bullet, Item 2, could not have been fired from the same firearm as the fired bullets, Items 3-5, or the fired bullets from Item 1. Based on significant disagreement of individual characteristics, the fired bullets, Items 3-5, could not have been fired from the same firearm as the fired bullets from Item 1. The fired bullet, Item 2, is consistent in physical design and construction with a 9mm caliber full metal jacketed bullet and exhibits six land and groove impressions with a right twist. Based on these rifling class characteristics, possible firearms that could have fired this bullet would include a variety of 9mm caliber firearms produced by numerous manufacturers. The fired bullets, Items 3-5, are consistent in physical design and construction with 9mm caliber full metal jacketed bullets and exhibit six land and groove impressions with a right twist. Based on these rifling class characteristics, possible firearms that could have fired this bullet would include a variety of 9mm caliber firearms produced by numerous manufacturers.
CRHHQB	The Item #2 bullet was not fired through the same firearm as the item #1 (A-C) test bullets or

TABLE 2

WebCode	Conclusions
	<p>the item #3-5 bullets. The Item #3-5 bullets were fired through a third firearm. The item #2 bullet was fired through a 38 caliber class firearm rifled w/six lands & grooves in a right hand twist configuration. These general rifling characteristics are typical of, though not limited to, 9mm Luger Caliber Smith & Wesson, Walther Sigarms & Star Pistols. The Item #3-5 bullets were fired through a 38 caliber class firearm rifled w/ six lands & grooves in a right hand twist configuration. These general rifling characteristics are typical of - though not limited to - 9mm Luger caliber Walther, FN/Browning, Luger & Ruger pistols.</p>
CTHN34	<p>Items 002, 003, 004 and 005 are fired 9mm/38 caliber class bullets exhibiting six lands and grooves with a right twist. Item 002 was eliminated as having been fired by Item 001 based on differences in class characteristics. Item 002 was eliminated as having been fired by the same firearm that fired Items 003, 004 and 005 based on differences in class characteristics. Items 003, 004 and 005 were identified as having been fired by the same firearm. Items 003, 004 and 005 could not be identified or eliminated as having been fired by Item 001 because microscopic examination of individual characteristics did not reveal enough information.</p>
CU2G88	<p>Due to distinct differences in land impression width, questioned bullet #2 was not fired in either the Ruger Model P95DC pistol used to fire the test-fired bullets or the unknown firearm used to fire questioned bullets 3, 4 or 5. Questioned bullets #3, 4 and 5 were determined to have been fired in the same unknown firearm, but were not fired in the Ruger model P95DC pistol used to fire the test-fired bullets, Item 1.</p>
CUKZDE	<p>Items 1 (T1 through T3) are consistent with 9mm caliber bullets having six land and groove impressions with right twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that they were all fired through the same gun. Common firearms with the same general rifling characteristics as items 1 (T1 through T3) include American Eagle, Arcus, Belgium, Browning, China, Daewoo, Federal Engineering, FM, FN/Browning, Fox Co., Heckler & Koch, Hi-Point, Indust. Argentina, Keltec, KSN Ind., Navy Arms, Norinco, Radom, Ruger, Sardius, Springfield Inc., SWD Inc., Tanfoglio, Walther and Zastava. This is not an all inclusive list; therefore, all 9mm caliber weapons encountered during the course of this investigation should be submitted along with items 1 (T1 through T3) for comparative examination. Items 3 through 5 are consistent with 9mm caliber bullets having six land and groove impressions with right twist. It was determined through microscopic examination that there are sufficient individual characteristics present to conclude that they were all fired through the same gun. Common firearms with the same general rifling characteristics as items 3 through 5 include American Eagle, Arcus, Belgium, Browning, China, FM, FN/Browning, Fox Co., Heckler & Koch, Hi-Point, Indust. Argentina, Keltec, KSN Ind., Navy Arms, Norinco, Radom, Ruger, Sardius, Springfield Inc., SWD Inc., Tanfoglio, Walther and Zastava. This is not an all inclusive list; therefore, all 9mm caliber weapons encountered during the course of this investigation should be submitted along with items 3 through 5 for comparative examination. Item 2 is consistent with a 9mm caliber bullet having six land and groove impressions with right twist. Common firearms with the same general rifling characteristics as item 2 include Astra, Beretta, Bryco Arms, Feg, Germany, Glock, Hi-Point, Im Metal, Llama, Maverick Arms Inc., SigArms, Smith & Wesson, Stallard Arms, Star, SWD Inc., Swiss Ind. Gesell, Walther and Wilkinson Arms. **See additional pages for the entire report****[Additional pages not included]</p>
CXLC3D	<p>Item 2 was not fired from the same firearm as Item 1 or Items 3-5. The bullet is consistent in weight, diameter, and appearance with bullets loaded in 9mm Luger caliber ammunition and displays rifling characteristics of six lands & grooves, right twist. Manufacturers of firearms with similar rifling characteristics include, but are not limited to, Astra, Beretta, Bryco Arms, FN/Browning, Hi-Point, Intratec, Llama, Sigarms, Smith & Wesson, Star, and Walther. Items 3-5 were identified as having been fired from the same unknown firearm. They were not fired</p>

TABLE 2

WebCode	Conclusions
	<p>from the same firearm as Item 1. The bullets are consistent in weight, diameter, and appearance with bullets loaded in 9mm Luger caliber ammunition and display rifling characteristics of six lands and grooves, right twist. Manufacturers of firearms with similar rifling characteristics include, but are not limited to, Beretta, Colt, FN/Browning, Heckler & Koch, Hi-Point, Keltec, Ruger, Tanfoglio (EAA), and Walther.</p>
CYEKDU	<p>The seven bullets in Items 1 to 5 were all 9mm calibre with class rifling characteristics of six lands and grooves, right twist. I conducted a comparative microscopic examination between the three bullets (Item 1) to each of the single bullets in Items 2, 3, 4 and 5. I also inter-compared the four bullets (Items 2, 3, 4 and 5). My examination revealed the following: The bullet (Item 2) could be eliminated as being fired through the same barrels that had discharged the bullets (Items 1, 3, 4 and 5) as the class rifling characteristics differed - the land and groove engravings on Item 2 were narrower and wider, respectively, than those on the bullets from Items 1, 3, 4 and 5. The three bullets (Items 3, 4 and 5) had similar class rifling characteristics to those on the bullets from Item 1. Inter-comparing the bullets from Items 3, 4 and 5 revealed there was enough individualising information to determine they had all been discharged from the same barrel. They were not discharged from the barrels that had discharged the bullets in Items 1 or 2.</p>
D3N6RT	<p>See report dated 5-9-14 which reads: "None of the bullets in items 2, 3, 4, and 5 were fired in the same firearm that fired the bullets in item 1. The bullets in items 3, 4, and 5 were all fired in the same firearm and the item 2 bullet was fired from another firearm.</p>
D72H6G	<p>Item 2 was eliminated as having been fired from the same firearm as Item 1, Item 3, Item 4, or Item 5. - Eliminate. Item 3, Item 4, and Item 5 were identified as having been fired from the same unknown firearm. - Identified. Item 3, Item 4, and Item 5 cannot be identified or eliminated as having been fired from the same firearm as Item 1 due to insufficient reproducible individual marks. - Inconclusive.</p>
D8CG3B	<p>The bullet in item 002 was excluded as having been fired in the firearm that fired the three bullets in item 001 and the three bullets in items 003, 004, and 005. The three bullets in items 003, 004, and 005 could not be identified or excluded as having been fired in the same firearm that fired the three bullets in item 001. Microscopic examination revealed insufficient corresponding individual characteristics for identification purposes. Similar class characteristics indicate that the three bullets in items 003, 004, and 005 could have been fired in the same firearm that fired the three bullets in items 001 or any other firearm with similar class characteristics. The three bullets in items 003, 004, and 005 were identified as having been fired in the same firearm.</p>
DB64GL	<p>A MICROSCOPIC EXAMINATION WAS PERFORMED ON THE BULLETS SUBMITTED. AS A RESULT OF THIS EXAMINATION THE FOLLOWING WAS CONCLUDED:- FROM THE FIRING MARKS PRESENT, CONSISTING OF GENERAL RIFLING FORM AND FINE DETAIL WITHIN, WE ARE OF THE OPINION THAT BULLETS 3,4, AND 5 HAD ALL BEEN FIRED FROM THE SAME WEAPON, BUT NOT THE SAME WEAPON USED TO FIRE THE TEST FIRED BULLETS (LABELLED 1) OR BULLET 2. FROM THE FIRING DETAIL PRESENT ON BULLET 2, WE ARE OF THE OPINION THAT IT WAS FIRED FROM A DIFFERENT WEAPON THAN THE ONE WHICH DISCHARGED THE TEST FIRED BULLETS AND THE ONE WHICH DISCHARGED BULLETS 3,4 AND 5. IN CONCLUSION, TWO WEAPONS HAD BEEN UTILISED DURING THIS INCIDENT; NEITHER OF WHICH WAS THE ONE RECOVERED FROM THE APPREHENDED SUSPECT.</p>
DDREZ4	<p>Summary: None of the submitted bullets, item 2 the bullet recovered from victim, item 3, the first bullet recovered from drywall at the scene, item 4, the second bullet recovered from drywall at the scene, nor item 5, the bullet recovered from wall partition at the scene, were fired in the recovered firearm used to make the three test fired bullets, item 1. Items 3, 4, and</p>

TABLE 2

WebCode	Conclusions
	<p>5, were fired in the same firearm; however, they were not fired in the recovered Ruger P95DC used to make the test fires, item 1. Examination: Item 2, the bullet recovered from victim, has significantly different class characteristics than that exhibited by the test fired bullets, item 1. Though both item 2 and the test fired bullets (item 1) all have 6 LaG with right twist, the land and groove impressions on item 2 have distinctly different widths than that exhibited by the test fired bullets, item 1. Item 3, the first bullet recovered from drywall at the scene, item 4, the second bullet recovered from drywall at the scene, and item 5, the bullet recovered from wall partition at the scene, exhibit the same class characteristics as the test fired bullets item 1, however, significant differences in individual characteristics on the land impressions between the three questioned bullets (items 3, 4, and 5) and the test fired bullets (item 1) were observed. Items 3, 4, and 5 were inter-compared. The comparison showed there was sufficient agreement of class and individual characteristics on the land impressions to conclude that the three bullets were all fired by the same firearm.</p>
DF8PGA	<p>The bullet of Exhibit 2 was not fired in the firearm that fired the bullets of Exhibit 1. There is significant disagreement of discernible class characteristics. The bullets of Exhibits 3-5 were all fired in the same firearm, but not the firearm that fired the bullets of Exhibit 1. There is significant disagreement of discernible individual characteristics.</p>
DJ9GZ9	<p>The four (4) fired full metal jacketed bullets (Items 2, 3, 4 and 5) were not fired in the same firearm that fired the test-fired bullets (Item 1). The fired bullets (Items 2, 3, 4 and 5) weighed approximately 115 grains each, reflected six land and grooves of rifling with a right-hand twist (6R) and were consistent with having originated from 9mm Luger cartridges. Three (3) of the fired bullets (Items 3, 4 and 5) were identified as having been fired from the same firearm, while the fired bullet (Item 2) was determined to have been fired from a different firearm. In other words, at least two (2) separate firearms were discharged at the shooting scene.</p>
DNHNBK	<p>Results: Items #1 through #5. The known and question expended bullets were originally components of 9mm caliber cartridges that had been fired from a barrel with six lands and grooves of conventional style rifling with a right hand twist. Microscopic examination and comparison of the three (3) known expended bullets (Item #1) and the four (4) question expended bullets (Items #2 - #5) revealed the following: Items #2, #3, #4, & #5 had not been fired from the known weapon that fired Item #1. Item #2 had been fired fired[sic] from a second (unknown) firearm. Items #3, #4, & #5 had all been fired from the same weapon, a third (unknown) firearm.</p>
DNYX68	<p>Item 2 was not fired from the same firearms as the bullets contained in Item 1 or Items 3, 4 and 5. Items 3, 4 and 5 were fired from the same firearm. Items 3, 4 and 5 were not fired from the same firearm as the bullets contained in Item 1.</p>
DTWEKM	<p>The submitted specimens marked as Items 2 through 5 were examined and identified as four (4) fired copper jacketed bullets exhibiting six (6) land and groove impressions with a right twist. Items 2 through 5 were microscopically compared to one another and to the bullets test fired from Item 1. As a result of microscopic comparison, Item 2 was eliminated as having been fired from the same firearm as Items 1, 3, 4, and 5 due to differences in class characteristics. Firearms that produce similar rifling characteristics as those exhibited on Item 2 include, but are not limited to, 9mm Luger caliber firearms marketed by Astra, Bryco Arms, Glock, IMI, Llama, Sigarms, Smith & Wesson, Star, and Walther. Items 3 through 5 were identified as having been fired from the same firearm; however, were eliminated as having been fired from Item 1 due to differences in individual characteristics. Firearms that produce similar rifling characteristics as those exhibited on Items 3 through 5 include, but are not limited to, American Eagle, Browning, Heckler & Koch, Hi-Point Firearms, KelTec, Ruger, Tanfoglio, and Walther.</p>
DWD7M7Z	<p>See Attached Report. [Report not included]</p>

TABLE 2

WebCode	Conclusions
DWKLQ3	The fired bullets in Exhibit #1 were fired from the same firearm. The fired bullets in Exhibit #1 are of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. The fired bullets in Exhibits #3, #4, and #5 were fired from the same firearm. The fired bullets in Exhibits #3, #4, and #5 are of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. The fired bullets in Exhibits #3, #4, and #5 could not be identified or eliminated as having been fired from the same firearm as the fired bullets in Exhibit #1. The fired bullet in Exhibit #2 was not fired from the same firearm as the fired bullets in Exhibits #1, #3, #4, or #5. The fired bullet in Exhibit #2 is of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist.
DYGLVZ	Item #2 was not fired from the same firearm as the fired bullets in Item #1, or Items #3, #4, & #5. Items #3, #4, & #5 were fired from the same firearm. Items #3, #4, & #5 could not be identified or eliminated as having been fired from the same firearm as the fired bullets in Item #1.
DZWRMB	1. Exhibits 2, 3, 4, and 5 (four 9mm bullets) were visually examined and microscopically compared to Exhibit 1 (three test-fired bullets from Ruger pistol). Microscopic examination disclosed that Exhibits 2, 3, 4, and 5 were not fired from the same firearm as Exhibit 1. 2. Microscopic examination disclosed that Exhibits 3, 4, and 5 were fired from the same firearm. 3. Microscopic examination disclosed that Exhibit 2 was not fired from the same firearm as Exhibits 3, 4, and 5. 4. Examination of Exhibit 2 disclosed that it is consistent with a 9mm caliber bullet, displaying six lands and grooves with a right twist. Exhibit 2 could have been fired from numerous manufacturers/brands of 9mm caliber firearms, including Astra, Beretta, FN, FEG, Llama, Sigarms, Smith & Wesson, and Star. This list is not all inclusive, and any suspect firearm seized during the course of this investigation should be submitted along with Exhibit 2 for comparison. 5. Examination of Exhibits 3, 4, and 5 disclosed that they are consistent with 9mm caliber bullets, displaying six lands and grooves with a right twist. Exhibits 3, 4, and 5 could have been fired from numerous manufacturers/brands of 9mm caliber firearms, including Beretta, FN/Browning, Keltec, Norinco, Ruger, and Tanfoglio. This list is not all inclusive, and any suspect firearm seized during the course of this investigation should be submitted along with Exhibits 3, 4, and 5 for comparison.
E6ZBTE	Because of a difference in class characteristics, the bullet (item 1.2) could not have been fired from the same firearm as the bullets (item 1.1, 1.3, 1.4, and 1.5). Because of a difference in individual characteristics, the bullets (item 1.3, 1.4, and 1.5) could not have been fired from the same firearm as the bullets (item 1.1). The bullets (items 1.3, 1.4 and 1.5) were identified as having been fired from the same firearm.
ECXAGC	Based on the agreement of discernible class characteristics and sufficient matching individual detail, the three fired bullets from Item 1 were identified as having been fired from the same firearm. Based on the agreement of discernible class characteristics and sufficient matching individual detail, the three fired bullets, Items 3, 4 and 5, were identified as having been fired from the same firearm. Based on significant disagreement of individual characteristics, the three fired bullets from Item 1 could not have been fired from the same firearm as the three fired bullets, Items 3, 4 and 5. Based on significant disagreement of class characteristics, the fired bullet, Item 2, could not have been fired from the same firearm as the three fired bullets from Item 1 or the same firearm as the three fired bullets, Items 3, 4 and 5. The fired bullet, Item 2, is consistent in physical design and construction with a 9mm caliber full metal jacketed bullet and exhibits six land and groove impressions with a right twist. Based on these rifling class characteristics, possible firearms that could have fired this bullet would include numerous 9mm caliber firearms by various manufacturers. The three fired bullets, Items 3, 4 and 5, are consistent in physical design and construction with 9mm caliber full metal jacketed bullets and exhibit six land and groove impressions with a right twist. Based on these rifling class

TABLE 2

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	characteristics, possible firearms that could have fired these bullets would include numerous 9mm caliber firearms by various manufacturers.
ED69F6	None of the recovered bullets (items 2, 3, 4, and 5) were fired from the suspect's Ruger P95DC pistol. Three of the recovered bullets (items 3, 4, and 5) were fired from a different pistol. The last bullet (item 2) was fired from a different pistol than items 3, 4, and 5.
ED9NVQ	Using a comparison microscope I conducted an examination of questioned Items 2, 3, 4 & 5 and compared them to known test Item 1. Item 2 is eliminated as having been fired in the same firearm that produced Item 1 in that there is a significant difference in class characteristics (different land & groove widths). Items 3, 4 & 5 are also eliminated as there is significant differences in discernable individual characteristics when compared to Item 1. Items 3, 4 & 5 were however identified as having been discharged in the same as yet to be identified firearm. In conclusion, there were two separate[sic] firearms of the same calibre used to produce Items 2, 3, 4 & 5. In my opinion none of them were from the recovered firearm (Item 1).
EEN68W	The bullets Exhibit 1 were identified as having been fired from a single firearm. The bullet Exhibit 2 was not fired from the same firearm as the bullets Exhibit 1 or from the same firearm as the bullets Exhibits 3, 4, and 5. It bears rifling engravings of 6 grooves, right twist with dimensions known to be used by numerous manufacturers of 9mm Luger caliber semiautomatic pistols. Any firearm that becomes suspect should be considered for submission to this laboratory. The bullets Exhibits 3, 4 and 5 were identified as having been fired from a single firearm. They were not fired from the same firearm as the bullets Exhibit 1. They bear rifling engravings of 6 grooves, right twist with dimensions known to be used by numerous manufacturers of 9mm Luger caliber semiautomatic pistols. Any firearm that becomes suspect should be considered for submission to this laboratory.
EQGLZ4	1. Examinations showed that the discharged bullets listed in Item 2, Item 3, Item 4, and Item 5 were not discharged from the same firearm that discharged the test fired bullets listed in Item 1. 2. Examinations showed that the discharged bullets listed in Item 3, Item 4 and Item 5 were discharged from the same unknown firearm. 3. Examinations showed that the discharged bullet listed in Item 2 was not discharged from the same firearm that discharged the bullets listed in Item 3, Item 4 and Item 5.
ETELP4	Items 3, 4 and 5 were identified as having been fired from the same firearm. Microscopic comparison of the individual characteristics observed on Item 3, 4 and 5 did not reveal enough information to identify or eliminate them as having been fired from the firearm that fired Item 1. Item 2 was eliminated as having been fired from the same firearm as Items 3, 4 and 5, and the firearm that fired Item 1, based on differences in class characteristics (L/G measurements). Current laboratory policy allows eliminations based on individual characteristics; however, due to the similarity of the class characteristics, minimal matching striae and not having the firearm available for analysis of the barrel, an inconclusive finding was rendered.
EV8CDW	Bullets (3, 4, 5) were fired from the SAME gun based on sufficient agreement of class and individual characteristics in land and groove impressions. Bullets (3, 4, 5) and test fires (1.1, 1.2, 1.3) were fired from DIFFERENT guns based on sufficient disagreement of individual characteristics. Bullet (2) was fired from a DIFFERENT gun than bullets (3, 4, 5) and test fires (1.1, 1.2, 1.3) based on sufficient disagreement of class characteristics.
F9L37V	Microscopic Comparison made between test shots from the submitted Weapon (Item #1) and recovered evidence items #2, #3, #4, & #5 with negative results. The recovered items were not fired from the submitted Weapon.
FA9UPL	The Item 1, 2, 3, 4, and 5 bullets, each consistent in design with a caliber 9mm Luger

TABLE 2

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	full-metal jacketed bullet, were microscopically examined. The Item 1 bullets were identified as having been fired from the same firearm. Items 3, 4, and 5 were identified as having been fired from the same firearm. These bullets were eliminated as having been fired from the same firearm as Item 1 due to sufficient differences in individual characteristics. Item 2 exhibits microscopic markings that may be suitable for identification with the firearm from which it was fired. Item 2 was eliminated as having been fired from the same firearms as Item 1 and Items 3, 4, and 5 due to the differences in general rifling characteristics.
FEANBW	In my opinion bullet (2) was fired in a different gun to the recovered Ruger (item (1)) and a different gun to bullets (3), (4), (5). In my opinion bullet (2) was most likely fired in a self loading pistol, possibly a Browning, Feg, S&W or Walther although I cannot entirely rule out the possibility that another make or type of gun was used. In my opinion bullets (3), (4), (5) were all fired in the same gun, most likely a self loading pistol such as a Browning or Tanfoglio, although the use of another mark or type of gun is also possible.
FGTZE7	The bullets submitted Items 1-5 were examined and found to be 9mm caliber jacketed bullets that were fired from a firearm exhibiting six lands and grooves with a right twist. The bullets were microscopically compared. The bullets submitted Items 1A, 1B & 1C were all fired from the same firearm. The bullet submitted Item 2 was not fired from the same firearm that fired Items 1A-C or the firearm that fired Items 3-5. A list of possible firearms that could have fired Item 2 is too long to be included in this report. The bullets submitted Items 3, 4 & 5 were all fired from the same firearm, but not the firearm that fired Items 1A-C. A list of possible firearms that could have fired Items 3-5 is too long to be included in this report.
FKZZDJ	The item 2 bullet was not fired in the Item 1 firearm, or in the same firearm as items 3, 4 and 5. The items 3, 4 and 5 bullets were all fired from the same firearm; however, they were not fired from the item 1 firearm.
FMHAWR	QB-1 (item 2) was not fired from Item K-1 (item 1). QB-2, QB-3 and QB-4 (items 3, 4 and 5) bear marks consistent with having been fired from the same firearm, firearm unknown. QB-2, QB-3 and QB-4 (items 3, 4 and 5) were not fired from the firearm that fired QB-1 (item 2). QB-2, QB-3 and QB-4 (items 3, 4 and 5) cannot be identified or eliminated as having been fired from K-1 (item 1).
FMHM4K	The Item 2, Item 3, Item 4 and Item 5 bullets were not fired from the same firearm as the Item 1 tests. The Item 2 bullet was determined to have been fired from a firearm with a rifled barrel containing six lands and grooves, right twist. Firearms chambered for this caliber with these general rifling characteristics include pistols manufactured by Smith & Wesson, SWD and Walther, among others. The Item 3, Item 4 and Item 5 bullets were determined to have been fired from the same firearm with a rifled barrel containing six lands and grooves, right twist. Firearms chambered for this caliber with these general rifling characteristics include pistols manufactured by Luger, Ruger and Tanfoglio, among others.
FUG426	Items 2, 3, 4 and 5 can be eliminated as having been fired from the firearm that fired Item 1. Items 3, 4 and 5 were microscopically identified as having been fired in the same unknown firearm. Item 2 was fired in a different unknown firearm than Items 3, 4 and 5.
FUR2LM	The Item 3,4 and 5 bullets were identified, within the limits of practical certainty* as having been fired from the same firearm barrel. Items 3, 4 and 5 were not fired from the same firearm barrel as the Item 1 test fired bullets. Item 2 was not fired from the same firearm barrel as Item 1 or Items 3, 4 and 5.
FWDFYJ	Due to the differences in class characteristics, the fired bullet (Item 2) could not have been fired through the barrel of the firearm (Item 1) The fired bullets (Items 3,4,5) exhibit similar class characteristics as those produced by the firearm (Item 1). However, due to the lack of

TABLE 2

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	corresponding individual characteristics, it is not possible to identify these fired bullets (Items 3,4,5) as having been fired through the barrel of the firearm (Item 1). The fired bullets (Items 3,4,5) were identified as having been fired through the barrel of the same firearm.
FWDQZ9	The four submitted evidence bullets (items 2 through 5) were eliminated as having been fired from the recovered firearm. Three (items 3, 4, and 5) of the submitted bullets from the crime scene were identified as having been fired from the same firearm.
FZJ48Z	The class characteristics of 'unknown' bullet item 2, differ from the 'known' bullets item 1 and 'unknown' item 3, item 4 and item 5. Hence it is certain 'unknown' bullet item 2 was not fired from the same barrel as the 'known' item 1 and 'unknown' item 3, item 4 and item 5. For the 'unknown' bullets item 3, item 4 and item 5 and the three 'known' bullets item 1, the following hypotheses were regarded: Hypothesis 1: The unknown bullets were fired from the same barrel as the three knows; Hypothesis 2: The unknown bullets were fired from another barrel as the three knows, having the same caliber and the same class characteristics. The findings of the investigation regarding the bullets item 3, item 4 and item 5 are more probable when Hypothesis 2 is true, then when Hypothesis 1 is true. For the 'unknown' bullets item 3, item 4 and item 5 the following hypotheses were regarded: Hypothesis 3: The unknown bullets were fired from the same barrel; Hypothesis 4: The unknown bullets were fired from two or three different barrels, having the same caliber and the same class characteristics. The findings of the investigation regarding the 'unknown' bullets item 3, item 4 and item 5 are much more probable when Hypothesis 3 is true, then when Hypothesis 4 is true.
FZMG2N	Exhibit 1 (A through C) consists of three (3) fired, .38 caliber class, copper jacketed bullets which were fired from a barrel rifled with six (6) grooves, right twist. Exhibit 1 (A through C) was reportedly fired from a Ruger, 9mm Luger caliber semi-automatic pistol, model P95DC. Exhibits 2 through 5 consist of four (4) .38 caliber class, copper jacketed bullets which were fired from a barrel rifled with six (6) grooves, right twist. It was noted that Exhibit 1 (A through C) and Exhibits 2 through 5, all have design characteristics like those loaded into 9mm Luger caliber ammunition. Microscopic comparison examinations were conducted between Exhibits 2 through 5 and the Exhibit 1 (A through C) test bullets with the following results noted below: Exhibits 1 (A through C) have agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify them as having been fired from the same firearm. Exhibits 3 through 5 have agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify them as having been fired from the same firearm. Although Exhibits 1 (A through C), and 3 through 5 have the same class characteristics, Exhibits 3 through 5 lack sufficient agreement of individual microscopic marks to identify or eliminate them as having been fired from the same firearm as the Exhibit 1 (A through C) test fires. Exhibit 2 was not fired from the same firearm as the Exhibit 1 (A through C) test fires or Exhibits 3 through 5, due to a difference in both class and individual characteristics.
G2E2Y8	The Item 2 bullet was not fired in the firearm that fired the Item 1 bullets or the unknown firearm that fired the Items 3 thru 5 bullets. The Items 3 thru 5 bullets were all fired in the same unknown firearm. They were not fired in the firearm that fired the Item 1 bullets or the unknown firearm that fired the Item 2 bullet.
G37XQM	Item 2 was eliminated as having been fired from the same firearm that fired the Item 1 test fires and the same unknown firearm as Items 3-5, due to disagreement of discernible class characteristics. Items 3-5 were identified as having been fired from the same unknown firearm based on the combination of individual characteristics and all discernible class characteristics. Items 3-5 were eliminated as having been fired from the same firearm that fired the Item 1 test fires, due to disagreement of discernible individual characteristics.

TABLE 2

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G4HWMG	1.) Due to a difference in class characteristics, the Item 2 projectile is eliminated from having been fired in the firearm that produced the test fired projectiles in Item 1. 2.) Item #'s 3, 4, & 5 were fired from the same firearm. 3.) Due to a lack of corresponding prominent, reproducible individual characteristics, Item #'s 3, 4, & 5 could not be identified as having been fired from the same firearm that produced the test fired projectiles in Item 1. 4.) Due to corresponding class characteristics, Item #'s 3, 4, & 5 could not be eliminated as having been fired from the firearm that produced the test fired projectiles in Item 1.
G9DJHQ	Exhibits 1 through 5 are 9mm copper, full metal jacketed type bullets that were fired from a firearm(s) rifled with six grooves, right twist, and bear marks of value for comparison. Microscopic comparisons were concluded among Exhibits 1 through 5. These comparisons identified the Exhibit 1 bullets as having been fired from the same firearm; and, separately, identified Exhibits 3 through 5 as having been fired from the same firearm based on the agreement of all discernable class characteristics and the sufficient correspondence of individual characteristics. Although similar in all discernable class characteristics, no conclusion could be made as to whether or not the Exhibit 1 bullets were fired from the same firearm that fired Exhibits 3 through 5 due to the lack of sufficient corresponding individual characteristics. Based on differences in class characteristics, it was concluded that Exhibit 2 was not fired from the firearm(s) that fired Exhibit 1 and/or Exhibits 3 through 5.
G9PH6W	1. The fired bullet, Exhibit 2, was not fired from the same firearm used to fire the bullets, Exhibit 1. 2. The fired bullets, Exhibits 3, 4 and 5, were neither identified nor eliminated as having been fired from the same firearm used to fire the bullets, Exhibit 1. 3. The fired bullets, Exhibits 3, 4 and 5, were fired from the same firearm.
GDNUC6	The Item 2 through Item 5 bullets were not fired from the same firearm as the Item 1 known bullets. The Item 3 through Item 5 bullets were fired from the same firearm. The Item 2 bullet was not fired from the same firearm as the Item 3 through Item 5 bullets.
GKN4VR	The bullets Exhibit 1 were compared microscopically with each other. They were fired from a single firearm. The bullet Exhibit 2 was not fired from the same firearm as the bullets Exhibit 1. It bears rifling engravings of six grooves, right twist with dimensions common to many manufacturers of 9mm Luger caliber firearms. Any suspect firearm should be submitted to this laboratory. The bullets Exhibits 3, 4, and 5 were compared microscopically with each other. They were fired from a single firearm. They were not fired from the same firearm as the bullets Exhibits 1 or 2. They bear rifling engravings of six grooves, right twist, with dimensions common to many manufacturers of 9mm Luger caliber firearms. Any suspect firearm should be submitted to this laboratory.
GQDPHJ	Conclusions: A microscopic comparison was conducted with the following results: Bullets B-2, B-3 and B-4 (items #3 thru #5) were fired from the same firearm - not pistol, P-1 (item #1) due to different individual characteristics. Bullet B-1 (Item #2) was not fired from pistol, P-1 (item #1), or the B-2 group (items #3 thru #5) due to different LAG dimensions.
GQMVKM	I macroscopically compared the scene bullet projectiles marked Items 2, 3, 4 and 5 and the test bullet projectiles marked Item 1, comparing both class and any individual characteristics. The overall rifling features on the bullets marked 3 and 4 were similar to the overall rifling features of Item "1". Therefore the bullet projectiles Items 3 & 4 could have been fired from that firearm, but could not be conclusively identified to, or eliminated from it. As a result of those examinations I formed the opinion that the bullet projectile marked Item "5" was fired by the Ruger P95C[sic] Handgun and the bullet projectile Item "2" could not have been fired by the Ruger P95C[sic] Handgun.
GTJ4C6	The Item 2 bullet was eliminated as having been discharged from the same firearm that discharged the Item 1 "test" bullets based on differences in class characteristics observed during

TABLE 2

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	<p>a microscopic comparison. The Item 3 to 5 bullets were eliminated as having been discharged from the same firearm that discharged the Item 1 "test" bullets based on differences in individual characteristics observed during a microscopic comparison.</p>
GZG99A	<p>Microscopic comparison examination of evidence bullets Item 2 through Item 5 with Item 1 test fired bullets from K1 Ruger pistol revealed the following: Item 2 was not fired with the same firearm as Item 1 test fires from K1 Ruger pistol due to the differences in individual microscopic markings present and land/groove width dimensions (Firearm #2). Although Item 3 through Item 5 were fired with the same unknown firearm, they were not fired with the same firearm as Item 1 test fires from K1 Ruger pistol due to the differences in the individual microscopic markings present (Firearm #3). Item 2 was not fired with the same unknown firearm as Item 3 through Item 5 due to the differences in individual microscopic markings present and the land/groove width dimensions. Should a suspect firearm be recovered, please submit and reference the above listed CC#.</p>
H74WHQ	<p>The Exhibit #1 fired bullets are 9mm Luger caliber copper jacketed round nose which were fired from the same barrel rifled with six (6) grooves, right twist. These bullets were submitted as test fires, reportedly fired from a Ruger 9mm Luger caliber handgun. Exhibit #2 was examined and determined to be a 9mm Luger caliber copper jacketed round nose bullet which was fired from a barrel rifled with six (6) grooves, right twist. Due to a difference in class characteristics, the Exhibit #2 bullet was eliminated as having been fired from the same barrel as the Exhibit #1 test fire bullets. Firearms which produce rifling characteristics similar to those on Exhibit #2 include, but are not limited to, 9mm Luger caliber pistols marketed by Astra, Bryco, Helwan, Intratec, Llama, Ruger, Sig Sauer, Smith & Wesson, Star, and Walther. Exhibits #3, #4 and #5 were examined and determined to be 9mm Luger caliber copper jacketed round nose bullets which were fired from a barrel(s) rifled with six (6) grooves, right twist. Microscopic comparisons between the Exhibit #1 test fire bullets and Exhibits #3, #4 and #5 bullets revealed the following: Based on differences of individual characteristics, it was concluded that Exhibits #3, #4 and #5 were eliminated as having been fired from the same barrel as the Exhibit #1 test fire bullets. Exhibits #3, #4 and #5 were microscopically compared to each other. Based on sufficient agreement of individual characteristics, it was concluded that Exhibits #3, #4, and #5 were fired from the same barrel. Firearms which produce rifling characteristics similar to those on Exhibits #3, #4, and #5 include, but are not limited to, 9mm Luger caliber pistols marketed by Browning, Hi-Point, Keltec, Ruger, Springfield, SWD, Taurus, and Tanfoglio.</p>
H89Y2V	<p>Items #2 through #5 are 9mm/38 caliber bullets exhibiting rifling characteristics of six lands and grooves with a right hand twist. Item #2 was not fired from the same firearm as Items #3 through #5 or fired from Item #1. Items #3 through #5 were fired in the same firearm. Items #3 through #5 could not be identified or eliminated as being fired from Item #1.</p>
HBLAL	<p>Microscopic examination and comparison of the bullets, Items 1C-1E, reveal that they were fired from the same firearm, and are consistent with being fired from a Ruger, Beretta, FN/Browning, or Walther 9mm pistol. Microscopic examination and comparison reveal that the bullets, Items 1C-1E, were not fired from the same firearm as the bullets, Item 1A. Microscopic examination and comparison reveal that the bullets, Items 1C-1E, were not fired from the same firearm as the bullet, Item 1B. Microscopic examination and comparison reveal that the bullet, Items[sic] 1B, was not fired from the same firearm as the bullets, Item 1A. Microscopic examination of the bullet, Item 1B, reveals that it is consistent with being fired from a Smith & Wesson, SigSauer, Astra, or Walther 9mm pistol.</p>
HBTKR3	<p>Three firearms were used to fire Item #1 - Item #5. Item #3, #4, and #5 were fired from the same firearm, but this is not the same firearm that produced the Item #1 test fires. These items are consistent with 9mm Luger caliber bullets with general rifling characteristics of 6-Right. A list of possible firearms that may have fired these items is too numerous to list. Item #2 was not</p>

TABLE 2

WebCode	Conclusions
	fired in the same firearm that produced the Item #1 test fires, nor was it fired in the same firearm that fired Item #3, #4 and #5. This item is consistent with a 9mm Luger caliber bullet with general rifling characteristics of 6-Right. A list of possible firearms that may have fired this item is too numerous to list.
HCBC49	Items 3, 4 and 5 were eliminated as having been fired from the same firearm that fired Item 1A due to differences in individual characteristics. Items 3, 4 and 5 were identified as having been fired from the same unknown firearm based on the agreement of individual and class characteristics. Item 2 was eliminated as having been fired from the same unknown firearm that fired Items 3, 4 and 5 due to differences in class characteristics. Item 2 was eliminated as having been fired from the same firearm that fired Item 1 due to differences in class characteristics. The size, weight and configuration of Items 2, 3, 4 and 5 are most consistent with bullets typically found loaded in 9mm Luger cartridges. The general rifling characteristics indicate the following firearm could have possibly fired Item 2: FN/Browning, Llama, Sigarms, Smith & Wesson, Star and Walther brand 9mm Luger semi-automatic pistols. The general rifling characteristics indicate the following firearm could have possibly fired Items 3, 4 and 5: Beretta, FN/Browning, Heckler & Koch, Keltec, Ruger, Springfield Inc., Tanfoglio and Walther brand 9mm Luger semi-automatic pistols. These are not meant to be all-inclusive lists but rather investigative aides. Any suspect firearm of the appropriate caliber-class should be submitted for comparison. Complete lists of the search results will be maintained in the case file.
HDWX2H	Item #1.2 (2) was fired from a firearm barrel rifled with six lands and grooves, right twist. Item #1.2 was not fired from the same firearm barrel as Item #1.1 (1) test fired bullets. Item #1.2 was not fired from the same firearm barrel as Items # 1.3, 1.4 and 1.5 (3-5). Items #1.3, 1.4 and 1.5 were identified as having been fired from the same unknown firearm barrel which was rifled with six lands and grooves, right twist. Items #1.3, 1.4 and #1.5 were not fired from the same firearm barrel as Item #1.1 test fired bullets.
HDZXFV	ITEMS OF EVIDENCE: Item: 1 Three bullets said to have been fired by a Ruger Model P95DC, 9mm Luger caliber pistol, serial number not specified (known). Item: 2 Bullet recovered from victim (questioned). Item: 3 First bullet recovered from drywall at the scene (questioned). Item: 4 Second bullet recovered from drywall at the scene (questioned). Item: 5 Bullet recovered from wall partition at the scene (questioned). RESULTS: Examinations of the three bullets submitted as Item 1 and Items 2, 3, 4, and 5 revealed that they were most consistent with full metal jacketed bullets loaded into some 9mm Luger caliber cartridges. The three bullets in Item 1 and the Item 2 through 5 bullets were microscopically compared with each other. From these comparisons it was concluded that: (1)The three fired bullets in Item 1 were fired by one firearm (gun barrel), but not by the firearm that fired Item 2 or by the firearm that fired Items 3, 4, and 5. (2)The Item 2 bullet was fired by a second firearm (gun barrel), but not by the firearm that fired the Item 1 bullets or the firearm that fired Items 3, 4, and 5. (3)The Item 3, 4, and 5 bullets were all fired by a third firearm (gun barrel), but not by the firearm that fired the Item 1 bullets or by the firearm that fired Item 2. Based on its general rifling characteristics, possible makes or origins of 9mm Luger caliber firearms that may have fired Item 2 include, but may not be limited to, the following: AA ARMS, ARMALITE, ASTRA, BERETTA, BRYCO, CALICO, CZECHOSLOVAKIA, DWM, ENGLAND/UK, FABRIQUE NATIONALE, FEG, FINLAND, FN/BROWNING, FRANCE, GERMANY, GLOCK, HECKLER & KOCH, HELWAN, HI-POINT, HUNGARY, IM METAL, IMI (UZI), INGRAM (MAC), INTRATEC, ITALY, JOHN INGLIS, KELTEC, LAHTI, LLAMA, LUGER, MAUSER, MAVERICK, NORINCO, PHILLIPS & ROGERS, SCHMEISSER, SIGARMS, SMITH & WESSON, STALLARD, STAR, STEYR-MANNLICHER, SIG, SWD, US MILITARY, VALMET, WALTHER, WEAVER ARMS, and WILKINSON ARMS. Based on their general rifling characteristics, possible makes or origins of 9mm Luger caliber firearms that may have fired Items 3, 4, and 5 include, but may not be limited to, the following: AGRAM,

TABLE 2

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	<p>AMERICAN EAGLE, ARCUS, ARMALITE, AUSTRALIA, BELGIUM, BERETTA, BERGMANN, BROWNING, CALICO, CESKA ZBROJOVKA, CHINA (PRC), COLT, CZECHOSLOVAKIA, DAEWOO, DWM, EAA CORP., ENGLAND/UK, FEDERAL ENGINEERING, FEG, FM, FMJ (COBRAY), FN/BROWNING, FOX, GERMANY, HECKLER & KOCH, HI-POINT, HUNGARY, IMI (UZI), INDUSTRIA ARGENTINA, INTERDYNAMIC, INTRATEC, J&R ENGINEERING, KAHR, KELTEC, KSN INDUSTRIES, LUGER, MAUSER, MK ARMS, NATIONAL CARTRIDGE, NAVY ARMS, NORINCO, PLETTER, RADOM, RUGER, SARDIUS, SCHMEISSER, SPRINGFIELD INC., STEN, STERLING, STEYR, STEYR-MANNLICHER, SWD, TANFOGLIO (EAA), VOLUNTEER/FOLSOM, VULCAN, WALTHER, WILKINSON ARMS, and ZASTAVA. The Item 1 through 5 bullets did not meet the current criteria for entry into the Integrated Ballistics Identification System (IBIS). This report contains the conclusions, opinions and interpretations of the analyst whose signature appears below. SIGNATURE</p>
HEZVUX	See Report Attached [Report not included]
HF36VW	<p>Identification: Based on the comparison of class and individual characteristics of the fired bullet B-3 (Item 3) to the fired bullets B-4 (Item 4) and B-5 (Item 5), the fired bullets B-3 (Item 3), B-4 (Item 4), and B-5 (Item 5) were identified as having been fired from the same firearm.</p> <p>Elimination: Based on differences of class characteristics, the fired bullets B-3 (Item 3), B-4 (Item 4) and B-5 (Item 5) were eliminated as having been fired from the same firearm as the fired bullet B-2 (Item 2). Elimination: Based on differences of class characteristics, the fired bullet B-2 (Item 2) was eliminated as having been fired from the same firearm as the fired bullets in Item 1. Elimination: Based on differences of individual characteristics, the fired bullets B-3 (Item 3), B-4 (Item 4) and B-5 (Item 5) were eliminated as having been fired from the same firearm as the fired bullets in Item 1.</p>
HFL83W	Items 3, 4 and 5 were discharged from the same pistol, different of Item 1 pistol. Item 2 was discharged from a third pistol.
HJ2PC2	Item #2 was not fired from the same firearm that fired Items #1, #3, #4, or #5. Items #3, #4, and #5 could not be identified or eliminated as having been fired from the same firearm as Item #1. Items #3, #4, and #5 were fired from the same firearm. Items #1 through #5 are 9 mm/38 class caliber exhibiting six land and groove impressions with a right hand twist.
HJBUHK	Upon microscopic examination, the following results were obtained: Item #2 was eliminated as having been fired from the same firearm(s) as item #'s 1, 3, 4 and 5 due to different class rifling specifications (dimensions). Item #'s 3, 4 and 5 exhibit the same class characteristics as compared to item #1 (test shots) but exhibit different looking individual characteristics, which would suggest they were fired from a different firearm. Item #'s 3, 4 and 5 were identified as having been fired from the same firearm. Item #'s 2, 3, 4 and 5 are consistent with being 9mm Luger caliber metal jacketed fired bullets exhibiting class rifling specifications of 6 lands and grooves with a right twist. These specifications are characteristic of numerous firearms manufactured by different companies, therefore, no suspect firearm(s) should be overlooked.
HJVHQ8	The Q-1 (Item 2), Q-2 (Item 3), Q-3 (Item 4), and Q-4 (Item 5) bullets were not fired from the same firearm (Ruger P95DC) that fired the T-1, T-2 and T-3 (Item 1) test bullets. The Q-1 (Item 2) bullet was not fired from the same firearm as the Q-2 (Item 3), Q-3 (Item 4), and Q-4 (Item 5) bullets. The list of firearms which may have fired the Q-1 (Item 2) bullet was too numerous to be of investigative value. The Q-2 (Item 3), Q-3 (Item 4) and Q-4 (Item 5) bullets were fired from the same firearm. The list of firearms which may have fired the Q-2 (Item 3), Q-3 (Item 4) and Q-4 (Item 5) bullets was too numerous to be of investigative value.
HLU49W	Examinations showed Item 2 through Item 5 were not discharged from the same firearm as Item 1. Examinations showed Item 3 through Item 5 were discharged from the same unknown firearm. Examinations showed Item 2 was discharged from a second unknown firearm.

TABLE 2

WebCode	Conclusions
HNWZY	Yes means that the bullet was fired from the Ruger P95DC pistol held in evidence, whereas No means that the bullet was fired from a pistol other than the Ruger P95DC held in evidence. Both statements (decisions) are not subject to further commentaries. Inconclusive means that based upon preserved class and individual identification characteristics it is impossible to undoubtedly determine what gun was the examined bullet, held in evidence, fired from. Possible answers include probably yes, probably not or not sure.
HRRKHP	The fired projectiles in item's 3,4, and 5 were fired from the same unknown firearm. The fired projectiles in item's 3,4, and 5 were also compared to the test fired projectiles from the item 1 firearm, with inconclusive results. This is due to a lack of corresponding individual characteristics. A list of the multiple types of firearms that could have fired the above listed projectiles can be found in the case file. The fired projectile in item 2 was not fired from the item 1 firearm, or the unknown firearm that fired the submission 3,4, and 5 projectiles, based on differences in class characteristics. A list of the multiple types of firearms that could have fired the above listed projectile can be found in the case file. ***This report contains the opinions and interpretations of the individual whose signature appears on the report. All identifications are based on microscopic comparisons and on the correspondence of individual characteristics.
HTBWCB	Items 1 through 5 were received, examined and determined to be the following: Item 1 - Three (3) fired bullets reported as coming from the recovered firearm Item 2 - One (1) fired bullet reported as recovered from the victim. Item 3 - One (1) fired bullet reported as recovered from the crime scene. Item 4 - One (1) fired bullet reported as recovered from the crime scene. Item 5 - One (1) fired bullet reported as recovered from the crime scene. Item 1 through Item 5 were microscopically examined and all determined to be fired, nominal .38 caliber / 9mm fully copper jacketed bullets with 6-right land and groove rifling impressions Item 2 through Item 5 were microscopically compared to Item 1 individually. In my opinion Item 2 through Item 5 were excluded as having been fired by the same firearm as those bullets submitted in Item 1 based on a lack of agreement of the markings in the land engraved areas.
HTQDAP	A microscopic examination and comparison of the above evidence revealed the following[sic]: Test Fires (1) and Bullets (2), (3,4,5) were fired from Different guns. Bullets (3,4,5) were fired from the SAME gun. Bullet (2) and Bullets (3,4,5) were fired from DIFFERENT guns.
HUZZPV	Item 3 through Item 5 were not fired in the submitted Ruger pistol (Item 1), model P95DC, based on differences in individual characteristics. Item 2 was not fired in the submitted Ruger pistol (Item 1), model P95DC, based on differences in class characteristics. Item 3 through item 5 were fired in a second 9mm firearm. The specific brand of suspect weapon is unknown. Item 2 was fired in a third 9mm firearm. The specific brand of suspect weapon is unknown.
HV2MNL	Item 1 through Item 5 are jacketed round nose bullets from the .38 caliber family (which includes 9mm Luger) that were fired from a barrel rifled with six (6) grooves, right twist. Item 3 through Item 5 were identified as having been fired from the same barrel. Due to a lack of sufficient corresponding microscopic marks of value, no conclusion could be reached as to whether the Item 3 through Item 5 bullets were fired from the same barrel as the Item 1 bullets. Due to a difference in class characteristics (different land and groove measurements), the Item 2 bullet was excluded as having been fired from the same barrel(s) as the Item 1, and Item 3 through Item 5 bullets. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRCs like those present on the Item 2 bullet that includes pistols marketed by Astra, Bryco, Hi-Point, Intratec, Llama, Sigarms, Smith & Wesson, Stallard, Star, Valmet and Walther. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRC's like those present on the Item 3 through Item 5 bullets that would be too numerous to list.

TABLE 2

WebCode	Conclusions
HV9MYN	<p>Item 1 consists of three (3) 38 class caliber jacketed bullets, which were reported test fired from the suspect's firearm. Items 1A through 1C were examined and microscopically compared. There is an agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify them as having been fired from the same firearm. Items 2 thorough[sic] 5 consists of four (4) 38 class caliber copper jacketed bullets fired from a barrel rifled with six lands and grooves and a right twist. These items were examined and microscopically compared to the Item 1 test fired bullets. Based on a difference in class characteristics, the Item 2 bullet was eliminated as having been fired from the same firearm as the Item 1 test fires. Items 3 through 5 have an agreement of all discernible class characteristics but lack sufficient agreement of individual characteristics to identify or eliminate them as having been fired in the same firearms as the Item 1 test fires.</p>
HWMEFQ	<p>The Item 2 bullet was not fired by the same pistol that fired the Item 1 tests, based on different class characteristics. Manufacturers/brands of firearms that could have fired the Item 2 bullet include, but are not limited to: Bryco, Hi-Point, SigArms, and Walther. The Item 3, 4 and 5 bullets were microscopically compared and identified as having been fired from one firearm. Although these projectiles cannot be conclusively eliminated as having been fired by the same firearm as the Item 1 tests, differences in individual characteristics indicate another firearm may have been used. Manufacturers/brands of firearms that could have fired the Item 3, 4 and 5 bullets include, but are not limited to: Beretta, Heckler & Koch, Keltec and Ruger.</p>
HZQQCD	<p>Exhibits 2-5 were not fired from the firearm that fired Exhibit 1. Exhibit 2 is consistent in weight, diameter and appearance with those loaded in 9mm Luger caliber cartridges and displays rifling characteristics of six lands and grooves with a right twist. Manufacturers of firearms with similar rifling characteristics are too numerous to list. Exhibits 3-5 were identified as having been fired from the same unknown firearm; however, not the same unknown firearm that fired the Exhibit 2 bullet. Exhibits 3-5 are consistent in weight, diameter and appearance with those loaded in 9mm Luger caliber cartridges and display rifling characteristics of six lands and grooves with a right hand twist. Manufacturers of firearms with similar rifling characteristics are too numerous to list.</p>
HZXALG	<p>Examination of Items 2-5 reveals them to be 38 caliber class bullets consistent in design and weight with those commonly loaded in 9mm Luger caliber ammunition. These four bullets have been fired from a firearm(s) rifled with six lands and grooves, right twist. Test exemplar bullets, Item 1, fired from the Ruger P95DC model pistol have been microscopically compared to Items 2 through 5. Items 3, 4 and 5 are eliminated from having been fired from the same firearm as Item 1 based on differences in individual characteristics. However, Items 3, 4 and 5 were identified as having been fired from one (unknown) firearm. Item 2 is eliminated from having been fired from the same firearm as Item 1 and the unknown firearm represented by Items 3,4 and 5 based on differences in the class characteristics. The Item 2 bullet represents a second (unknown) firearm. Firearms chambered in 9mm Luger caliber that have similar rifling as that represented by these two unknown firearms are too numerous to list. Therefore, any suspect firearms recovered during the course of this investigation should be submitted for comparison purposes.</p>
J9LR73	<p>The forensic laboratory of the [country criminal office], section of physics (firearm laboratory) performed the investigations of the items (sent by CTS) and came to the following results: The forensic material consists of in total 7 bullets (9 mm) with following description: Item 1: Three bullets fired using the suspect's handgun (known) Items 2 – 5: Four bullets recovered at the crime scene (questioned) The fired bullets (item 2, 3, 4, 5) show no correlating traces to the test- fired bullets. In conclusion, the carried out investigations showed, that none of the bullets from the crime scene were fired from the seized firearm. The bullets from the crime scene (item 3, 4 und[sic] 5) show correlating traces to each other. In other words, these three bullets were</p>

TABLE 2

WebCode	Conclusions
	fired from the same but unknown firearm. The bullet (item 2) doesn't show any matching traces to any of the other bullets, this means that another firearm was involved.
JP6JUG	<p>Bullet Analysis: Items 2, 3, 4 and 5 are 38 caliber class bullets based upon the diameter. Opinion/Interpretation: Items 2, 3, 4 and 5 are consistent with bullets loaded in 9mm caliber cartridges based upon the weight and style. Item 2 exhibits characteristics found in (but not limited to) the following firearms: Astra, Bryco Arms, FN/Browning, Intratec, Jennings/Bryco, Llama, Lluger, Mauser, Sigarms, Smith and Wesson, Star, SWD, Inc. and Walther 9mm caliber firearms. Items 3, 4 and 5 exhibit characteristics found in (but not limited to) the following firearms: Beretta, Browning, Ceska Zbrojovka, Colt, Czechoslovakia, Daewoo, FN/Browning, Heckler and Koch, Kahr Arms, Keltec, Luger, Mauser, Norinco, Ruger, Springfield, Inc., SWD, Inc., Tanfoglio and Walther 9mm caliber firearms. Methodology - Comparison Microscopy. Item 2, the bullet, was not fired through the barrel of the same firearm as Item 1, the bullets from the recovered firearm, or through the barrel of the same firearm as Items 3, 4 and 5, the bullets, based upon different class characteristics. Items 3, 4 and 5, the bullets, were fired through the barrel of the same firearm based upon corresponding class and individual microscopic characteristics. Comparisons between Items 3, 4 and 5, the bullets, to Item 1, the bullets from the recovered firearm, were inconclusive due to insufficient corresponding individual microscopic characteristics.</p>
JR8UZC	<p>The questioned bullets, Items 2,3,4 and 5 were compared to he[sic] known Item 1 using a comparison microscope. There was sufficient disagreement of class characteristic markings to determine that the bullet, Item 2, had NOT been discharged in the same firearm as the known bullets, Item 1. There was agreement of class characteristic markings but sufficient disagreement of individual characteristic markings to determine that the bullets, Items 3,4 and 5, had NOT been discharged in the same firearm as the known bullets, Item 1. The bullets, Items 3,4 and 5 had however been discharged in the same firearm.</p>
JTTUBY	<p>Microscopic Comparison - Three different firearms were used to fire the Item 1 test-fired bullets & the items 2, 3, 4 & 5 bullets. The Item 1 test-fired bullets were fired in one firearm, a Ruger P95DC. The Item 2 bullet was fired in a second firearm. The Items 3, 4, & 5 bullets were fired in a third firearm. Type & Caliber - The Item 2 bullet is consistent w/ being 9mm caliber & was fired in a firearm with 6 right rifling. A list of manufacturers of firearms that may have fired this item, includes, but is not limited to: Astra, Beretta, Glock, Smith & Wesson, and Walther. The Items 3, 4, & 5 bullets are consistent with being 9mm caliber & were fired in a firearm with 6 right rifling. A list of manufacturers of firearms that may have fired these items includes, but is not limited to: Colt, Heckler & Koch, Luger, Mauser, Norinco & Springfield Inc.</p>
JVARDP	<p>Deformed bullets (3, 4, 5) were fired from the SAME gun. Deformed bullet (2) was fired from a SECOND gun. Deformed bullets (3, 4, 5) were fired from a DIFFERENT gun than test fires (1.1 - 1.3. Deformed bullet (2) was fired from a DIFFERENT gun than test fires (1.1 - 1.3.</p>
JVYFYY	<p>Three (3) firearms were used to fire the above listed bullets. The Item #1 test fired bullets were fired through the Ruger P95DC. The Item #2 evidence bullet was fired through a second firearm. This item is most consistent with a 9mm caliber bullet having 6 lands/grooves with a right hand twist. The list of possible makes of firearms which may have fired this item is too numerous to list. The Item #3, #4 and #5 evidence bullets were fired through a third firearm. These items are most consistent with 9mm caliber bullets having 6 lands/grooves with a right hand twist. The list of possible makes of firearms which may have fired these items is too numerous to list.</p>
JWXBT4	<p>Items 1 - 5 are consistent with 9mm Luger full metal jacketed projectiles. This was determined by weight, diameter and design. Due to a difference in rifling class characteristics, Item 2 was eliminated as having been discharged from the same firearm that generated Item 1 standards.</p>

TABLE 2

WebCode	Conclusions
	Due to a difference in rifling class characteristics, Item 2 was eliminated as having been discharged from the same firearm that generated the markings found on Items 3, 4 and 5. Items 3, 4 and 5 were identified as having been discharged from the same unknown firearm. Items 3, 4 and 5 were eliminated as having been discharged from the same firearm that generated Item 1 standards. Separate and differing, identifiable, corresponding individual marking sets were observed.
JZLXQB	After microscopic comparison of the evidence submitted with this case, the following determinations were made: Item #s 2, 3, 4, and 5, were not fired from Item #1, based on the fact that Item #2 has different class characteristics than Item #1 (Item #2 has smaller land and groove measurements), and that Item #s 3, 4, and 5 share class characteristics with Item #1, but have different individual characteristics. Item #s 3, 4, and 5 were fired from the same firearm based on agreement of class characteristics, and sufficient agreement of striated action marks on the land engraved areas.
K4QW8F	B2, B3 and B4 (Items #3, 4 and 5) were fired from the same firearm, not P1 (Item #1), different individual characteristics. B1 (Item #2) was not fired from Pistol P1 or from the same firearm as the B2 group, different class characteristics (Land and Groove dimensions).
K72XJT	Bullets (3, 4, 5) were all fired from the SAME firearm based on sufficient agreement of class and individual characteristics of the land and groove impressions. Bullets (3, 4, 5) were NOT FIRED from the RECOVERED firearm based on sufficient disagreement of individual characteristics of the land and groove impressions. Bullet (2) was NOT FIRED from the RECOVERED firearm based on sufficient disagreement of class characteristics of the land and groove impressions. Bullet (2) and bullets (3, 4, 5) were fired from DIFFERENT firearms based on sufficient disagreement of class characteristics of the land and groove impressions.
K7AAPH	Item 1 through Item 5 are jacketed round nose bullets from the .38 caliber family (which includes 9mm Luger) that were fired from a barrel rifled with six (6) grooves, right twist. Item 3 through Item 5 were identified as having been fired from the same barrel. Due to a lack of sufficient corresponding microscopic marks of value, no conclusion could be reached as to whether the Item 3 through Item 5 bullets were fired from the same barrel as the Item 1 bullets. Due to a difference in class characteristics (different land and groove measurements), the Item 2 bullet was excluded as having been fired from the same barrel(s) as the Item 1, and Item 3 through Item 5 bullets. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRCs like those present on the Item 2 bullet that includes pistols marketed by Astra, Bryco, Hi-Point, Intratec, Llama, Sigarms, Smith & Wesson, Stallard, Star, Valmet and Walther. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRC's like those present on the Item 3 through Item 5 bullets that would be too numerous to list.
K7VMDV	The Exhibit 1A - 1C & 2 - 5 bullets were compared microscopically with each other. The Exhibit 2 - 5 bullets were not fired from the same firearm as the Exhibit 1A - 1C bullets. The Exhibit 2 bullet was not fired from the same unknown firearm as the Exhibit 3 - 5 bullets. This bullet displays rifling characteristics of six lands and grooves with a right twist. Manufacturers of 9mm Luger caliber firearms with similar rifling characteristics include Astra, Germany, IML, Llama, Luger, Mauser, Maverick Arms, SigArms, Smith & Wesson, Stallard Arms, Star, Swiss Ind Gesell, Valmet and Wilkinson Arms, among others. The Exhibit 3 - 5 bullets were all fired from a second unknown firearm. These bullets display rifling characteristics of six lands and grooves with a right twist. However, manufacturers of 9mm Luger caliber firearms with similar rifling characteristics as the Exhibit 3 - 5 bullets are too numerous to list.
KCYPEP	Also see attached report. The Exhibit #2 fired bullet was microscopically compared with the Ex #1 test fired bullets and with the Ex #3, #4, & #5 fired bullets. Ex #2 was not fired from the

TABLE 2

WebCode	Conclusions
	<p>Ex #1 firearm or from the same firearm that fired Exs #3, #4, & #5. Ex #2 displays similar rifling characteristics to firearms manufactured by Astra, Bryco Arms, Smith & Wesson, Walther SWD Inc & IMI (UZI), among others. The Ex #3, #4 & #5 fired bullets were microscopically compared with each other and with the Ex #1 test fired bullets. Exhibits #3, #4, & #5 were fired from the same firearm; however, these exhibits were not fired from the Ex #1 firearm. Exhibits #3, #4 and #5 display similar rifling characteristics to firearms manufactured by Ruger, Tanfoglio, Norinco, Sterling Arms, SWD Inc and Walther, among others. The Ex #2, #3, #4 & #5 fired bullets are consistent in overall size, weight, diameter and bullet configuration with bullets commonly loaded in 9mm Luger caliber cartridges. [Report not included]</p>
KGFWZ4	<p>Item 2 was eliminated as having been fired from Item 1 based on a difference in class characteristic. Item 2 was eliminated as having been fired from the same firearm as Items 3, 4, and 5 based on differences in class characteristics. Items 3, 4, and 5 were microscopically examined and identified as having been fired from the same unknown firearm based upon agreement of individual characteristics and all discernible class characteristics. Items 3, 4, and 5 were eliminated as having been fired from Item 1 based on disagreement of individual characteristics.</p>
KHWN6D	<p>Per the case agent, the bullets in Item 1 were test-fired in a Ruger, model P95DC, 9mm Luger caliber handgun. Only the test-fires and not the handgun were submitted for examination. The test-fired bullets from Item 1 were microscopically compared to the fired bullets in Items 2 through 5. Item 2 – Unknown Firearm #1 The fired bullet, Item 2, was eliminated as having been fired in the Ruger pistol. Items 3, 4, and 5– Unknown Firearm #2 The fired bullets, Items 3, 4, and 5 were identified as having been fired in a single firearm, but not the Ruger pistol. Item 2 was microscopically compared to Item 3. Item 2 was eliminated as having been fired in the firearm that fired Item 3 (and Item 4 and Item 5). There are two unknown firearms represented in Items 2 through 5.</p>
KKPX2	<p>Using the Comparison Microscope, Inspection result are show below: Item 2, 3, 4, 5 are different from Item 1: not matched striation mark. Item 3, 4, 5 are same each other: There are matched striation mark.</p>
KPEYHE	<p>Items 2, 3, 4, and 5 were microscopically compared to test-fired bullets from the Ruger P95DC pistol and were eliminated as having been fired in the Ruger P95DC pistol. Items 3, 4, and 5 were microscopically compared to each other and were identified as having been fired in the same unknown firearm. Item 2 was microscopically compared to Item 3 and was eliminated as having been fired in the same unknown firearm. To summarize, there are two unknown firearms represented in this case.</p>
KPJYFF	<p>Examination of the evidence bullets, items #3, #4, and #5, revealed that they are consistent with being 9mm Luger caliber, full metal jacket design and fired from a barrel rifled with six lands and six grooves, right-hand twist. Microscopic comparisons of these evidence bullets to the test bullets in item #1, revealed dissimilar individual characteristics confirming that they were not fired from the Ruger pistol. Microscopic comparisons of the evidence bullets, items #3, #4, and #5, to each other revealed matching barrel engraved striations. This finding confirms that the evidence bullets had been fired in the same firearm. The rifling specifications on the evidence bullets correspond to those found in the following brands of 9mm Luger caliber firearms: Ruger, Walther, Norinco, Keltec, Beretta, Tanfoglio, Colt and numerous other brands of 9mm Luger caliber firearms Examination of the evidence bullet, item #2, revealed that it is consistent with being 9mm Luger caliber and fired from a barrel rifled with six lands and six grooves, right-hand twist. Microscopic comparisons of this evidence bullet to the evidence bullets, items #3, #4, #5 and the test fired bullets, item #1, revealed different class characteristics (land and groove widths) confirming it was not fired in the Ruger pistol, item #1,</p>

TABLE 2

WebCode	Conclusions
	or the same firearm as the evidence bullets, items #3, #4 and #5. The rifling specifications on the evidence bullet, item #2, correspond to those found in the following brands of 9mm Luger caliber firearms: Jennings/Bryco, Llama, Jimenez, Walther, Smith & Wesson and numerous other brands of 9mm Luger caliber firearms.
KR4VU9	1. The three (3) bullets described in item 1 (known), are 9 mm caliber, metal case, with rifling to the right (R-6) and were fired by the same firearm. 2. The projectile described in item 2, is 9 mm caliber, metal case, with rifling to the right (R-6) and was fired by a firearm. 3. The projectile described in item 3, item 4 and item 5, are 9 mm caliber, metal case, with rifling to the right (R-6) and were fired by the same firearm.
KU6YBA	Items 1 (A, B, C) were compared microscopically to Items 2, 3, 4 and 5. Item 2 was found to be Negative with Items 1 (A, B, C) due to a noticeable difference in land and groove measurements. Items 3, 4, and 5 were found to be negative with Items 1 (A, B, C) due to a noticeable difference in striations. Therefore; Items 2, 3, 4 and 5 were fired from a different firearm than Items 1 (A, B, C). A microscopic comparison was conducted between Items 3, 4 and 5. The examinations determined these items were fired from the same firearm. A microscopic comparison was conducted between Item 3 and Item 2. The examinations determined Item 2 was fired from a different firearm than Items 3, 4 and 5 due to a noticeable difference in land and groove measurements.
KV4AWH	Microscopic examination and comparison reveal that the bullet, Item 1B, was not fired from the same firearm as the bullets, Item 1A. Microscopic examination of the bullet, Item 1B, reveals that it is consistent with being fired from a Smith & Wesson, Star, or Sigarms 9mm pistol. Microscopic examination and comparison reveal that the bullets, Items 1C, 1D, and 1E, were not fired from the same firearm as the bullets, Item 1A. Microscopic examination and comparison reveal that the bullets, Items 1C, 1D, and 1E, were not fired from the same firearm as the bullet, Item 1B. Microscopic examination and comparison of the bullets, Items 1C, 1D, and 1E reveal that they were fired from the same firearm, and are consistent with being fired from a Ruger, Beretta, or FN/Browning 9mm pistol.
KWN28G	The three fired metal jacketed bullets (Items #3 thru #5) were identified as having been fired from the same firearm barrel. The fired metal jacketed bullet (Item #2) was eliminated with test shots (Items #1A thru #1C) and the three fired metal jacketed bullets (Items #3 thru #5) due to differences in class rifling characteristics (rifling dimensions). The three fired metal jacketed bullets (Items #3 thru #5) exhibit similar class rifling characteristics with those observed on the test shots (Items #1A thru #1C); however, they could not be identified or eliminated as having been fired from the same firearm barrel due to damage and the lack of sufficient matching individual characteristics. Item #2 is consistent with being a fired 9mm/.38/.357 caliber metal jacketed bullet exhibiting six land and groove engraved areas with a right twist. These rifling specifications are characteristic of firearms manufactured by numerous companies; therefore, no suspected firearm should be overlooked. Items #3 thru #5 are consistent with being fired 9mm/.38/.357 caliber metal jacketed bullets exhibiting six land and groove engraved areas with a right twist. These rifling specifications are characteristic of firearms manufactured by numerous companies; therefore, no suspected firearm should be overlooked.
L2VX89	Examinations under a comparison microscope LEICA FSC showed that the four bullets "item 2", "item 3", "item 4" and item "5" were not fired from the Ruger P95DC seized from the suspect.
L3ZMCC	Items 2, 3, 4, and 5 are 38 caliber class bullets based upon the diameter. Opinion/Interpretation: Items 2, 3, 4, and 5 are consistent with bullets loaded in 9mm Luger caliber cartridges based upon the weight and style. Methodology - Comparison Microscopy: Item 2, the bullet, was not fired through the barrel of Item 1, the Ruger pistol, based upon different class characteristics. Items 3, 4, and 5, the bullets, were not fired through the barrel of

TABLE 2

WebCode	Conclusions
	Item 1, the Ruger pistol, based upon different individual microscopic characteristics. Items 3, 4, and 5, the bullets, were fired through the barrel of the same firearm based upon corresponding class and individual microscopic characteristics. Item 2, the bullet, was not fired through the barrel of the same firearm as Items 3, 4, and 5, the bullets, based upon different class characteristics.
L7286X	Items 2, 3, 4 and 5 were not fired in the same firearm as the known bullets (item 1). Items 3, 4 and 5 were fired in the same firearm but a different one from that used to fire item 1. Item 2 was fired in a different firearm from those used to fire item 1 and items 3, 4 and 5.
L8UGAD	Bullet Analysis: Items 2, 3, 4, and 5 are 38 caliber class bullets based upon the diameter. Opinion/Interpretation: Items 2, 3, 4, and 5 are consistent with bullets loaded in 9 mm Luger caliber cartridges based upon the weight/style. Methodology - Comparison Microscopy: Item 2, the bullet, was not fired through the barrel of Item 1, the Ruger pistol, or through the barrel of the same firearm as Items 3, 4, and 5, based upon different class characteristics. Items 3, 4, and 5, the bullets, were not fired through the barrel of Item 1, the Ruger pistol, based upon different microscopic characteristics. Items 3, 4, and 5, the bullets, were fired through the barrel of the same firearm based upon corresponding class and individual microscopic characteristics.
L9CZ8C	The four (4) bullets in items 2, 3, 4, and 5 were determined not to match the three (3) reference bullets in item 1; therefore, the four (4) bullets in items 2, 3, 4, and 5 were not fired from the recovered firearm.
LAE4F2	Item #2: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the Ruger, model P95DC pistol. Differences in class characteristics were observed to conclude that the bullet was eliminated as having been fired from the pistol. Item #3: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the Ruger, model P95DC pistol. Insufficient corresponding individual signatures were observed to conclude that the bullet could not be identified or eliminated as having been fired from the pistol. Item #4: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the Ruger, model P95DC pistol. Insufficient corresponding individual signatures were observed to conclude that the bullet could not be identified or eliminated as having been fired from the pistol. Item #5: The bullet was compared to the test-fired bullet exemplars, Item #1, obtained from the Ruger, model P95DC pistol. Insufficient corresponding individual signatures were observed to conclude that the bullet could not be identified or eliminated as having been fired from the pistol.
LCMZEC	None of the bullets designated as Items 2, 3, 4 and 5 were fired from the firearm, from where three bullets referred to as Item 1 originate from. Bullets designated as Items 3, 4, 5 were fired from one firearm.
LDFFJY	The three bullets recovered from the firearm were designated as Item 1A, Item 1B, and Item 1C. The three bullets were microscopically compared to one another. There was sufficient agreement of unique characteristics in the land impressions to conclude they were fired in the same gun. The presence of subclass could not be conclusively excluded due to the lack of submission of the firearm for examination; however, moving the lands out of phase did not result in significant agreement suggesting subclass may not be present. Item 1A was microscopically compared to Item 2. Items 1A and 2 did not share the same class characteristics of land and groove widths. Item 1A and Item 2 were not fired in the same gun. Item 1A was compared to Items 3, 4, and 5 (each land from Item 1A was compared to each land of the three items) and no identification was established but the class characteristics of land and groove widths appeared to be consistent. I was unable to find agreement of unique characteristics in the land impressions to conclude they were fired in the same gun. Item 3,

TABLE 2

WebCode	Conclusions
	Item 4, and Item 5 were microscopically compared to one another and there was sufficient agreement of unique characteristics in the land impressions to conclude they were fired in the same gun. I was able to establish identification among Items 3-5 and separately among Items 1A-1C which suggests that there were two separate guns that fired these two groups. In addition, Item 2's different land and groove widths suggest a third gun was involved in this case.
LF7KC7	Item 1 consisted of three 9mm Luger bullets that were reportedly test-fired through a Ruger P95DC pistol. They had full metal copper jacketing and conventional right twist rifling characteristics of six lands and grooves. They were arbitrarily labeled as 1A, 1B, and 1C for examination purposes. The three bullets were microscopically intercompared and found to have excellent reproducibility of individual detail. Items 3, 4, and 5 were three 9mm Luger bullets with full metal copper jacketing and were fired through a barrel with conventional right twist rifling of six lands and grooves. They were microscopically compared to each other; class and individual detail sufficient for identification was observed. Items 3, 4, and 5 were fired by a single firearm. Items 3, 4, and 5 were then microscopically compared to one of the Ruger P95DC test-fires, Item 1B. The items shared similar class characteristics but were determined to not have been fired by the Ruger P95DC pistol due to significant differences in individual detail. Therefore, the firearm that fired Items 3, 4, and 5 was not the Ruger P95DC pistol. Item 2 was a 9mm Luger bullet with a full metal copper jacketing and was fired through a barrel with conventional right twist rifling of six lands and grooves. Item 2 was microscopically compared to Item 4 and one of the Ruger P95DC test-fires (Item 1B). It was determined that Item 2 was not fired by the Ruger P95DC pistol or the same firearm as Items 3, 4, and 5 due to differences in class characteristics (land widths).
LGUVED	Items 2, 3, 4 and 5 are consistent with being .38/9mm caliber fired metal jacketed lead bullets displaying rifling specifications of six lands and grooves with a right twist. Items 3, 4 and 5 (fired bullets) were identified as having been fired from the same firearm barrel. However, they were not identified or eliminated (inconclusive) as having been fired from the same firearm barrel as Items 1-A, 1-B and 1-C (test shots) due to the lack of agreement between individual characteristics. Item 2 (fired bullet) was eliminated as having been fired from the same firearm barrel that fired Items 1-A, 1-B and 1-C (test shots) due to differences in class characteristics. Item 2 (fired bullet) was eliminated as having been fired from the same firearm barrel that fired Items 3, 4 and 5 due to differences in class characteristics.
LH88E4	The bullets from the victim and from the scene (Items 2 through 5) were eliminated as having been fired from the recovered Ruger P95DC pistol. Items 3, 4, and 5 were fired from the same, at this time unknown, firearm. Item 2 was also eliminated as having been fired from the firearm that fired Items 3, 4, and 5.
LHCCXR	Microscopic examination and comparison reveal that the bullets, Items 1A and 1B, were not fired from the same firearm. Microscopic examination of the bullet, Item 1B, reveals that it is consistent with being fired from Beretta, Sig Arms, Walther and Smith & Wesson 9mm pistols. Microscopic examination and comparison of the bullets, Items 1C-1E, reveal that they were fired from the same firearm, and are consistent with being fired from Ruger, FN/Browning, Walther and Keltec 9mm pistols. Microscopic examination and comparison reveal that the bullets, Items 1C-1E and 1A, were not fired from the same firearm. Microscopic examination and comparison reveal that the bullets, Items 1C-1E and 1B, were not fired from the same firearm.
LNCYR8	The 38/ 9mm caliber bullet (item 2) weighed approximately 115 grains and was eliminated from having been fired in the same firearm as the test fired bullets (item 1) and the other bullets (items 3, 4, and 5) due to rifling class differences. It was fired from a firearm having six lands and grooves inclined to the right. Commonly encountered firearms with similar class

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	<p>characteristics include but are not limited to firearms chambered for the 9 mm Luger cartridge and marketed by SigArms, Smith & Wesson, and Walther Firearms. The 38/ 9 mm caliber bullets (items 3, 4, and 5) weighed approximately 115 grains and were neither identified to nor eliminated from having been fired in the same gun as the test fired bullets (item 1) due to the lack of sufficient reproduced patterns of striations from the test fired bullets, but show an agreement of class characteristics. The bullets (items 3, 4, and 5) were fired from a single unknown firearm having six lands and grooves inclined to the right. Commonly encountered firearms with similar characteristics include but are not limited to those chambered for the 9 mm Luger cartridge and marketed by Ruger, Hi-Point, and Tanfoglio Firearms. They were also eliminated from having been fired from the same firearm as item 2 due to rifling class differences.</p>
LPER22	<p>Examination of the questioned bullets (Items 2 - 5) in conjunction with the known test bullets (Item 1) determined that none of the questioned bullets were fired from the firearm that produced Item 1. Item 2 was excluded due to class characteristics while Items 3, 4 and 5 were excluded by individual characteristics. Items 3, 4 and 5 were, however, all fired from the same firearms. There appears to be sufficient individual markings for identification purposes should additional firearms be encountered during the investigation.</p>
LQ2JJX	<p>Item #002 (Bullet) was not fired in Item #001 (Pistol) or in the firearm that fired Items #003, #004, and #005 (Bullets) based on differences in class characteristics. Items #003, #004, and #005 (Bullets) were all identified as having been fired in the same firearm. Microscopic examination of Items #003, #004, and #005 (Bullets) to test fires from Item #001 revealed similar class characteristics but did not reveal sufficient information to render an opinion of positive identification or elimination at this time. Further comparison is pending submission of the suspect firearm.</p>
LQ9CUR	<p>In my opinion, there is sufficient agreement of class & individual characteristic markings to conclusively determine that items 3, 4 & 5 were fired from the same gun. In my opinion, there is significant disagreement of class & individual characteristic markings to conclusively determine that item 2 was fired from a different gun. Item 2 = Gun 1, items 3-5 = Gun 2. In my opinion, there is significant disagreement of class & individual characteristic markings to conclusively determine that Item 2 was not fired from the recovered gun (item 1). There is agreement of class characteristic markings but significant disagreement of individual characteristic markings, therefore items 3-5 were not fired from the recovered gun (item 1).</p>
LVM2GA	<p>[No Conclusions Reported.]</p>
LYH4VA	<p>Through gravimetric study, microscopic examination and microscopic comparison it was determined: 1. The bullets described in item 1, are 9mm caliber, metal case type, with right rifling (R-6), were fired by the same firearm. 2. The bullet described in item 2, is 9mm caliber, metal case type, with right rifling (R-6), were fired by a firearm, but not by the recovered firearm. 3. The bullet described in item 3, item 4 and item 5, are 9mm caliber, metal case type, with right rifling (R-6), were fired by same firearm, but not by the recovered firearm.</p>
LYYZMA	<p>By means of gravimetric study, microscopic examination and microscopic comparison it was determined that: 1. The bullets described in Item 1, are 9 mm caliber, full metal jacket projectile type, with six (6) Land & Groove, right twist and were fired by the same firearm (recovered from Ruger P95DC handgun). 2. The bullet described in Item 2, is 9 mm caliber, full metal jacket projectile type, with six (6) Land & Groove right twist and was fired by a firearm. 3. The bullets described in Items 3, 4 and 5, are 9 mm caliber, full metal jacket projectile type, with six (6) Land & Groove, right twist and were fired by the same firearm.</p>
M3BHZB	<p>The reference projectiles from the Ruger pistol, specimen #1, were compared to the copper jacketed projectiles, specimens #2 through #5. Microscopic examination revealed the</p>

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	<p>following: Specimen #2 was not fired from the Ruger pistol, specimen #1, due to a difference in the rifling characteristics. Specimen #2 was consistent with .38 caliber class ammunition (which includes 9mm) and was fired from the barrel of a firearm that possessed six lands and grooves with a right twist. Specimens #3, #4, and #5 were not fired from the Ruger pistol, specimen #1, due to a difference in the individual characteristics; however, they were fired from the same weapon. Specimens #3, #4, and #5 were consistent with .38 caliber class ammunition (which includes 9mm) and were fired from the barrel of a firearm that possessed six lands and grooves with a right twist.</p>
M73C8D	<p>The four (4) fired bullets, items #2, #3, #4, and #5, were compared with each other and test bullets previously fired from a Ruger pistol, item #1. These comparisons revealed the following:</p> <ul style="list-style-type: none"> • The one (1) fired bullet, item #2, has different class characteristics (land / groove widths) than the test bullets previously fired from the Ruger pistol, item #1, and the three (3) fired bullets, items #3, #4, and #5. This finding confirms the one (1) fired bullet, item #2, is excluded as having been fired from the Ruger pistol, item #1, and is also excluded as having been fired from the same firearm as the three (3) fired bullets, items #3, #4, and #5. • The three (3) fired bullets, items #3, #4, and #5, have different individual characteristics than the test bullets previously fired from the Ruger pistol, item #1. This finding confirms the three (3) fired bullets are excluded as having been fired from the Ruger pistol. • The three (3) fired bullets, items #3, #4, and #5, have matching individual barrel engraved striations, confirming the three (3) fired bullets were fired from the same firearm. • Examination of the fired bullet, item #2, revealed it is consistent with a 9mm Luger caliber full metal jacketed bullet fired from a rifled barrel having six (6) lands and six (6) grooves, right-hand twist. These rifling specifications correspond to those found in the following brands of firearms: Beretta, Bryco/Jennings, Intratec, Jimenez Arms, Lorcin, Smith & Wesson, Star, and Walther. Other possibilities do exist. • Examination of the fired bullets, items #3, #4, and #5, revealed they are consistent with 9mm Luger caliber full metal jacketed bullets fired from a rifled barrel having six (6) lands and six (6) grooves, right-hand twist. These rifling specifications correspond to those found in the following brands of firearms: Beretta, Heckler & Koch, Hi-Point, Intratec, Kahr Arms, Keltec, Ruger, and Walther. Other possibilities do exist.
MBRJCK	<p>As a result of examination of Items 1 - 5 the following opinions were formed: 1. Items 2 - 5 were not discharged in the same firearm that discharged Item 1. 2. Item 3, 4 and 5 had all been discharged by the same firearm.</p>
MG8KHQ	<p>Test fired bullets in Item 1 were microscopically examined in conjunction with the bullets in Item 2, Item 3, Item 4, and Item 5. Based on these comparative examinations it was determined that: A. The bullet in Item 2 bears different class characteristics than the test fired bullets in Item 1. Therefore, Item 2 had not been fired through the barrel of the same firearm as the bullets in Item 1. The 6-right rifling characteristics[sic] present on Item 2 is common to a variety of 9mm firearms. Some of the more common brands include: Beretta, FEG, H&K, Keltec, Llama,S&W, and Walther. Suspect firearms should be submitted for comparison. B. The bullets in Item 3, Item 4, and Item 5 bear the same class characteristics as the test fired bullets in Item 1. However, no similar individual characteristics were found to link the bullets in Item 3, Item 4, and Item 5 as having been fired[sic] through the barrel of the same firearm as the test fired bullets in Item 1. C. The bullets in Item 3, Item 4, and Item 5 had all been fired through the barrel of the same unknown 9mm firearm. The 6-right rifling characteristics present on Items 3, 4, and 5 are common to a variety of 9mm firearms. Some of the more common brands include: H&K, Keltec, Luger, Ruger, Tanfoglio, and Walther. Suspect firearms should be submitted for comparison.</p>
MJU9VB	<p>The four fired bullets, items 2 through 5, were examined and were consistent in weight and design with the 38 caliber class, which includes 9mm Luger and 38 Special calibers. The fired</p>

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	<p>bullets, items 2 through 5, had six land and groove right twist rifling. Microscopic comparisons were made between the test fires reportedly from a 9mm Luger caliber Ruger model P95DC pistol, item 1, and the four fired bullets, item 2 through item 5. The fired bullet in item 2 was eliminated as having been fired from the Ruger pistol due to differences in general rifling class characteristics. Firearms manufactured with similar rifling characteristics include, but are not limited to, Astra, Beretta, Bryco Arms/Jennings, Czechoslovakia (CZ), Fabrique Nationale (FN), FEG, Heckler & Koch (H&K), Helwan, IMI (UZI), Ingram (MAC), IntraTec, Keltec, Llama, Norinco, Sigarms, Smith & Wesson, Star, SWD, Inc., and Walther 9mm Luger caliber pistols. The fired bullets in items 3 through 5 were all identified as having been fired from the same firearm and had similar general class characteristics as the test fires from the Ruger pistol. These three bullets, however, were eliminated as having been fired from the Ruger pistol due to differences in individualizing characteristics. Firearms manufactured with similar rifling characteristics include, but are not limited to, Beretta, Czechoslovakia (CZ), Colt, EEA Corp., Fabrique Nationale (FN), FEG, FMJ (Cobray), Heckler & Koch (H&K), IMI (UZI), IntraTec, Kahr Arms, Keltec, Norinco, Ruger, Springfield Inc., Steyr, SWD, Inc., and Walther 9mm Luger caliber pistols. Two firearms were represented by the four fired bullets in items 2 through 5.</p>
MQEG49	<p>The Item 2 bullet was not fired from the same firearm as the firearm(s) that fired the Items 1, 3, 4, and 5 bullets. The Item 2 bullet is a 38 caliber class bullet that was fired from a firearm with six lands and grooves with a right hand twist. Common cartridges within the 38 caliber class include, but are not limited to, 9mm Luger, 38 Super Auto, and 357 Sig. Possible manufacturers of the firearm that fired the Item 2 bullet include, but are not limited to, Astra, Beretta, Bryco, Fabrique Nationale (FN), Helwan, IMI, Intratec, Llama, Maverick, Sig Sauer, Smith & Wesson, Stallard Arms, Star, and Walther. The Items 3, 4, and 5 bullets were fired from the same unknown firearm. The Items 3, 4, and 5 bullets are unable to be identified or eliminated as having been fired from the same firearm as the Item 1 bullets due to a lack of reproducible marks. The Items 3, 4, and 5 bullets are 38 caliber class bullets that were fired from a firearm with six lands and grooves with a right hand twist. Common cartridges within the 38 caliber class include, but are not limited to, 9mm Luger, 38 Super Auto, and 357 Sig. Possible manufacturers of the firearm that fired these bullets include, but are not limited to, Browning, Ceska Zbrojovka (CZ), Heckler & Koch, Kel-Tec, Radom, Ruger, Tanfoglio, and Walther.</p>
MQUTVL	<p>Exhibits #2 through #5 were not fired from Exhibit #1 (-). Exhibits #3, 4 and 5 were fired from the same firearm (+). Exhibit #2 was not fired from the same firearm as Exhibits #3, 4 and 5 (-)</p>
MU2NU2	<p>Two firearms were used to fire the "questioned" bullets. Items 001-03, 001-04, and 001-05 were discharged from one firearm and Item 001-02 was discharged from a second firearm. None of the "questioned" bullets were discharged from the firearm used to discharge the "known" bullets (Items 001-01 T1, 001-01 T2, 001-01 T3).</p>
MVEX79	<p>The bullet Item 2 was not fired from the same firearm as the bullet Item 1a (test). The bullet Item 2 was also not fired from the same firearm as the bullet Item 4. Item 2 was determined to be of 9mm caliber displaying rifling characteristics of six lands and grooves, right twist. Manufacturers of firearms with similar rifling characteristics include, but are not limited to Astra, Beretta, Bryco Arms, Fabrique Nationale, FEG, IMI (Uzi), Intratec, Llama, Smith and Wesson, Star, and Walther. The bullets Items 3, 4, and 5 were all fired from the same firearm. The bullet Item 4 was not fired from the same firearm as the bullet Item 1a (test). Items 3, 4, and 5 were all determined to be of 9mm caliber displaying rifling characteristics of six lands and grooves, right twist. Manufacturers of firearms with similar rifling characteristics include, but are not limited to Armalite, Beretta, Browning, Colt, Daewoo, EAA Corp, FEG, Heckler and Koch, IMI (Uzi), Intratec, Keltec, Ruger, Tanfoglio, and Walther.</p>

TABLE 2

WebCode	Conclusions
MXEQLU	The characteristic marks on the recovered bullets Item 2, Item 3, Item 4 and Item 5 did not match with all three bullets fired using the recovered firearm Item 1. Hence I am of the opinion that all of the recovered bullets (Item 2, Item 3, Item 4 and Item 5) were not fired by the Ruger P95DC handgun.
MY48LU	1. Items 3, 4, and 5 were not discharged from the same firearm as Item 1. Items 3, 4, and 5 were discharged from the same unknown firearm. Items 3, 4, and 5 were not discharged from the same unknown firearm as Item 2. 2. Item 2 was not discharged from the same firearm as Item 1. Item 2 was discharged from a second unknown firearm. Item 2 was not discharged from the same unknown firearm as Items 3, 4, and 5.
MZVY8U	The bullets from items 2, 3, 4, and 5 were not fired by the recovered firearm (item 1).
N4MJJN	Comparison of test fired bullets (Item 1) generated from the Ruger model P95DC pistol, to bullets, contained in Items 2, 3, 4 & 5. Item 2: In my opinion, a microscopical comparison of firing marks has shown there is significant disagreement of class characteristic markings and individual characteristic markings, therefore the bullet (item ref 2) was not fired from the same recovered firearm which generated the test fired bullets contained in (item ref 1). Items 3, 4 & 5: In my opinion, a microscopical comparison of firing marks has shown there is agreement of class characteristic markings, but significant disagreement of individual characteristic markings, therefore the bullets (items ref 3, 4, & 5) were not fired from the same recovered firearm which generated the test fired bullets contained in (item ref 1). Comparison of items 2, 3, 4 & 5 to each other. Item 2: In my opinion, a microscopical comparison of firing marks has shown there is significant of disagreement of class characteristic markings and individual characteristic markings, therefore the bullet (item ref 2) was not fired from the same firearm which fired (item refs 3, 4 & 5). Items 3, 4 & 5: In my opinion, a microscopical comparison of firing marks has shown there is sufficient agreement of class and individual characteristic markings to conclusively determine that the bullets (item refs 3, 4 & 5) were fired from the same firearm.
N66T3V	Results: The fired bullet listed in Item #2 is eliminated by class characteristics as having been fired in the same firearm as the test fires listed in Item #1. The 3 fired bullets listed in Items #3, #4, #5 were all fired in/from the same firearm. However, these three bullets are eliminated as having been fired in the same firearm as the test-fires listed in Item #1.
N6H3J6	Compared the test bullets marked #1 against the bullet specimen marked #2 with negative results. The bullet specimen marked #2 was not discharged from the same firearm as the test bullets marked #1. Compared the test bullets marked #1 against the three bullet specimens marked #3, #4, and #5 with negative results. The three bullet specimens marked #3, #4, and #5 were not discharged from the same firearm as the test bullets marked #1. Compared the three bullet specimens marked #3, #4, and #5 against each other with positive results. The three bullet specimens marked #3, #4, and #5 were discharged from the same firearm. Compared the three bullet specimens marked #3, #4, and #5 against the bullet specimen marked #2 with negative results. The three bullet specimens marked #3, #4, and #5 were not discharged from the same firearm as the bullet specimen marked #2.
NCCBMH	Item 2 was not fired in the same firearm as Items 3-5. Items 3-5 and Item 2 were not fired in the same firearm as Item 1. Items 3-5 were fired in the same firearm.
NEFY9Y	Items Submitted: T-1 through T-3 (Item 1): Three (3) caliber 9mm Luger, fired copper jacketed bullets (known). Q-1 (Item 2): One (1) caliber 9mm Luger, fired copper jacketed bullet (questioned). Q-2 (Item 3): One (1) caliber 9mm Luger, fired copper jacketed bullet (questioned). Q-3 (Item 4): One (1) caliber 9mm Luger, fired copper jacketed bullet (questioned). Q-4 (Item 5): One (1) caliber 9mm Luger, fired copper jacketed bullet (questioned). Results of Examination: The Q-2 through Q-4 bullets were fired from the same firearm. There is agreement of all discernible class characteristics and disagreement of

TABLE 2

WebCode	Conclusions
	individual characteristics between the Q-2 through Q-4 fired bullets and the T- 1 through T-3 fired bullets. However, the disagreement is insufficient to eliminate Q-2 through Q-4 as having been fired from the firearm that fired T-1 through T-3. The Q-1 fired bullet was not fired from the firearm that fired the T-1 through T-3 bullets or the firearm that fired the Q-2 through Q-4 bullets. The list of firearms which may have fired the Q-1 bullet is too numerous to be of investigative value. The list of firearms which may have fired the Q-2 through Q-4 bullets is too numerous to be of investigative value.
NFXUAY	Four expended bullets recovered from the crime scene are fired using two different firearms. Unkown Firearm 1 Item 2 Unkown Firearm 2 Item 3,4 and 5 And these two unkown firearms are not releted with the recovered firearms. In other words the recovered firearm is not used incrime scene. [sic]
NMJ3FB	The projectile in Item 2 was compared to the test fired projectiles from Item 1. It was determined that Item 2 could not have been fired in the same firearm as the projectiles in Item 1 because of differing widths of the land and groove impressions. Items 3, 4 and 5 were all compared to the projectiles from Item 1. Based on macroscopic and microscopic characteristics it was determined that Items 3, 4 and 5 were all fired in the same firearm as the projectiles from Item 1.
NX4733	Item 1 consists of three test-fired 9mm jacketed bullets reportedly from a 9mm Luger (9x19mm) Ruger pistol, Model P95DC. Items 3, 4, and 5 are 9mm/.38 caliber jacketed bullets that were fired from a barrel rifled with six grooves, right twist, like the barrel from which the Item 1 bullets were fired. The Item 3, 4, and 5 bullets were identified as having been fired from the same barrel. Due to a lack of sufficient corresponding microscopic marks of value, no conclusion could be reached as to whether the Item 3, 4, and 5 bullets were fired from the same barrel as the Item 1 bullet. A check of the FBI Laboratory's General Rifling Characteristics (GRC) database produced a list of firearms with GRCs like those present on the Item 3, 4, and 5 bullets that includes pistols marketed by Browning, Ruger, and Walther. Item 2 is a 9mm/.38 caliber jacketed bullet that was fired from a barrel rifled with six grooves, right twist. The Item 2 bullet was excluded as having been fired from the barrel(s) from which the Item 1, 3, 4, and 5 bullets were fired. A check of the GRC database produced a list of firearms with GRCs like those present on the Item 2 bullet that includes pistols marketed by Sig Arms, S.W.D., and Star.
NX82WM	Ex #1a, #1b, and #1c were fired from the same firearm. These exhibits are consistent in weight and physical characteristics with bullets commonly loaded in 9mm Luger caliber cartridges. Manufacturers of firearms with similar rifling specifications to Exhibit #1a include, but are not limited to: Ruger, Keltec, Walther, Fabrique Nationale/Browning, and Luger. Ex #2 was not fired from the same firearms as Ex #1a, #1b, #1c, #3, #4, and #5. This exhibit is consistent in weight and physical characteristics with bullets commonly loaded in 9mm Luger caliber cartridges. Manufacturers of firearms with similar rifling specifications include, but are not limited to: Bryco Arms, Astra, Sigarms, Smith & Wesson, Beretta, and Walther. Ex #3, #4, and #5 were fired from the same firearm; however, they were not fired from the same firearm as Exhibits #1a, #1b, and #1c. They are consistent in weight and physical characteristics with bullets commonly loaded in 9mm Luger caliber cartridges. Manufacturers of firearms with similar rifling specifications include, but are not limited to: Ruger, Walther, Luger, Heckler & Koch, and Fabrique Nationale/Browning.
NYT9GH	1. Items 2, 3, 4 and 5 were eliminated as having been fired in the exhibit Ruger P95DC handgun. 2. Item 2 was fired in a different firearm than the firearm used to fire items 3, 4 and 5. 3. Items 3, 4 and 5 were fired in the same firearm.
P327DX	Item 2 was eliminated as having been fired from the same firearms as Items 1 or Items 3, 4 and 5. Items 3, 4 and 5 were identified as having been fired from the same firearm and

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	eliminated as having been fired from the same firearm as Item 1.
P48ZKH	Exhibits #1-1, #1-2, and #1-3 were fired from the same firearm. These exhibits were represented as having been test fired from a recovered firearm ("Ruger P95DC"). Exhibits #3, #4, and #5 were fired from the same firearm. They were not fired from the same firearm as Exhibits #1-1, #1-2 and #1-3. Ex. #2 was not fired from the same firearm as Exhibits #1-1, #1-2 and #1-3. Exhibit #2 was not fired from the same firearm as Exhibits #3, #4, and #5. Exhibits #3, #4, and #5 display six (6) lands and grooves with right hand twist. Manufacturers of firearms with similar rifling specifications include but are not limited to: Beretta, Browning, EAA, FN/Browning, H&K, Kel-Tec, Luger, Norinco, Ruger, SWD, Tanfoglio, and Walther. This list is not all inclusive; therefore, any suspected firearm should be submitted for comparison. Exhibit #2 displays six (6) lands and grooves with right hand twist. Manufacturers with similar rifling specifications include but are not limited to: Astra, Beretta, Bryco Arms, FEG, IMI, Intratec, Llama, Mauser, Sigarms, S & W, Star, SWD, and Walther. This list is not all-inclusive; therefore, any suspected firearm should be submitted for comparison purposes.
P4EQ9U	Items 2, 3, 4 and 5 are 38 class caliber fired bullets exhibiting six lands and grooves with a right twist. Based on class characteristics, Item 2 was eliminated as having been fired from the same firearm that fired Item 1. A list of firearms that could have fired Item 2 is too extensive to report; however, is available upon request. Items 3, 4, and 5 were identified as having been fired from the same firearm. Microscopic comparisons of the individual characteristics observed on Items 3, 4 and 5 did not reveal enough information to identify or eliminate them as having been fired from the same firearm that fired Item 1. A list of firearms that could have fired Items 3, 4 and 5 is too extensive to report; however, is available upon request.
P4NKC2	Item 2 was not fired from the same firearm that fired Item 1 or from the same unknown firearm that fired Item 3, 4 & 5. Item 2 is consistent in weight, diameter, & appearance w/ bullets loaded in 9mm Luger caliber cartridges & display rifling characteristics of six lands & grooves, right twist. Manufacturers of firearms w/ similar rifling characteristics include but are not limited to Astra, Beretta, Fabrique Nationale, IMI, Sigarms, Smith & Wesson, Star, & Walther. Items 3, 4, & 5 were identified as having been fired from the same unknown firearm. They were not fired from the same unknown firearm that fired Item 2 or from the same firearm that fired Item 1. Items 3, 4, & 5 are consistent in weight, diameter, & appearance w/ bullets loaded in 9mm Luger caliber cartridges & display rifling characteristics of six lands & grooves, right twist. Manufacturers of firearms w/ similar rifling characteristics include but are not limited to Beretta, Colt, FN/Browning, Heckler & Koch, Keltec, Norinco, Ruger, Springfield Inc, Tanfoglio, & Walther.
P667AP	The test fired bullets in Item 1 were microscopically examined in conjunction with the fired bullets in Items 2, 3, 4, and 5. Based on these comparative examinations, it was determined that: A. The fired bullets in Items 3, 4, and 5 had been fired through the barrel of the same firearm. Items 3, 4, and 5 bear the same class characteristics as the test bullets in Item 1. However, there were no similar individual characteristics found to link Items 3, 4, and 5 as having been fired through the same barrel as the test bullets in Item 1. The general rifling characteristics present on the bullets in Items 3, 4, and 5 are common to a variety of 9mm Luger caliber firearms. Some of the more common brands include: Beretta, Ceska Zbrojovka/Czechoslovakia, Daewoo, EAA, FMJ (Cobray), FN/Browning, Heckler & Koch, IMI/UZI, Intratec, Kahr Arms, Keltec, Ruger, Springfield, Tanfoglio, and Walther. B. The fired bullet in Item 2 had not been fired through the same barrel as Items 1, 3, 4, and 5 due to differences in class characteristics. The general rifling characteristics present on Item 2 are common to a variety of 9mm Luger caliber firearms. Some of the more common brands include: Astra, Beretta, Bryco, Czechoslovakia, FN/Browning, FEG, Heckler & Koch, Helwan, IMI/UZI, Ingram, Intratec, Jennings, Llama, Norinco, Sigarms, Smith & Wesson, Stallard Arms,

TABLE 2

WebCode	Conclusions
	Star, SWD, and Walther.
P7WBFG	<p>The submitted fired copper jacketed bullets, Items 2, 3, 4, and 5 exhibit physical and design characteristics consistent with the 9mm/38/357 caliber class. They exhibit rifling characteristics of six land and groove impressions with a right twist. Item 2 was microscopically examined and compared to the submitted bullets inside of Items 1, 3, 4, and 5. Based on the disagreement of class and individual characteristics, Item 2 was eliminated as having been fired from the same firearm(s) as Items 1, 3, 4, and 5. Items 3, 4, and 5 were microscopically examined and compared versus Item 1. There is agreement of class characteristics. However, there is insufficient agreement of the individual characteristics to either identify or eliminate Items 3, 4, or 5 as having been fired from the suspect firearm, Item 1. Items 3, 4, and 5 were microscopically examined and compared versus each other. Based on the agreement of class characteristics and patterns of significant agreement of individual characteristics, Items 3, 4, and 5 are identified as having been fired from the same firearm. The rifling characteristics exhibited by Items 2, 3, 4, and 5 are consistent with those of firearms produced by numerous manufacturers. Any firearm that becomes suspect in this investigation should be submitted for laboratory examination. Items 2, 3, 4, and 5 exhibit individual characteristics that would be of value for comparison purposes versus suspect firearms.</p>
P94N4A	<p>Items 1-5 were examined and analyzed using microscopy. Items 3, 4, and 5, each a caliber 9mm Luger bullet, were identified as having been fired from the same firearm having a barrel rifled with six (6) lands and grooves inclined to the right. Items 3, 4, and 5 have the same general rifling class characteristics as the Item 1 bullets, however, microscopic examination revealed sufficient differences in individual characteristics to eliminate Items 3, 4, and 5 as having been fired from the same firearm as Item 1. Firearms that produce general rifling class characteristics like those present on Items 3, 4, and 5 include firearms with the brand names listed below. This list is not all encompassing; it is possible a firearm produced these class characteristics and is not listed due to the content of the database searched. FN/Browning, pistol; Heckler & Koch, pistol; Keltec, carbine; Ruger, pistol; Springfield, pistol; SWD, pistol; Tanfoglio/EAA, pistol; Walther, pistol; Zastava, pistol. Because of differences [sic] class characteristics, the Item 2 caliber 9mm Luger bullet was eliminated as having been fired from the same firearm as the Item 1, 3, 4, and 5 bullets. Firearms that produce general rifling class characteristics like those present on Item 2 include pistols with the brand names listed below. This list is not all encompassing; it is possible a firearm produced these class characteristics and is not listed due to the content of the database searched. FN/Browning; IMI; Llama; Smith & Wesson; SWD; Walther.</p>
P9UXRR	<p>Projectiles 001-3 through 001-5 were fired in one 9mm pistol. Projectiles 001-3 through 001-5 were not fired in the 9mm Ruger P95DC pistol that supplied # 001-1 based on differences in individual characteristics. Projectile 001-2 was fired in a second 9mm pistol. Projectile 001-2 was not fired in the 9mm Ruger P95DC pistol that supplied #001-1 based on differences in class characteristics.</p>
PAX9C4	<p>I microscopically examined and compared the above listed bullets with the following results: I observed sufficient matching class and individual marks on items 3, 4, and 5 to conclude they were all fired in the same firearm. I observed consistent class marks but differing individual marks in comparisons of test fired bullets from the suspect's Ruger P95DC to Items 3, 4, and 5. The bullets recovered from the scene were not fired in the suspect's Ruger P95DC. I observed different class marks on item 2 as compared to all other submitted evidence. This bullet was not fired in the suspects Ruger P95DC or the firearm that fired Items 3, 4 and 5. The evidence examined shows two firearms were used. The suspect's Ruger P95DC did not fire any of the submitted bullets examined. The class and rifling marks on Items 2 and 3 were measured and entered into the Rifling Data Search version 10.3 in order to locate potential firearms may have</p>

TABLE 2

WebCode	Conclusions
PBM9ME	<p>been used. For a list of potential firearm that may have fired these bullets contact the laboratory. Note: other firearms may exist with similar class and rifling marks that are not on this list.</p> <p>I microscopically compared Items 1A, 1B, and 1C to each other. I identified Items 1A, 1B, and 1C as being fired through the same firearm based on sufficient agreement of individual characteristics within the land impressions. I microscopically compared Item 2 to Item 1A and Item 3. Based on different class characteristics, Item 2 was eliminated from being fired through the same firearm as Item 1A or Item 3. Item 2 was fired through a second firearm. I microscopically compared Items 3, 4, and 5 to Items 1A, 1B, and 1C. Although Items 3, 4, and 5 have the same class characteristics as Items 1A, 1B, and 1C, based on significant disagreement of individual characteristics, Items 3, 4, and 5 can be eliminated from being fired through the same firearm as Item 1A, 1B, and 1C. I microscopically compared Items 3, 4, and 5 to each other. I identified Items 3, 4, and 5 as being fired through a third firearm based on sufficient agreement of individual characteristics within the land impressions. Sufficient agreement means the quantity and quality of the agreement of toolmarks produced by the firearm exceed the agreement of toolmarks produced by different firearms, such that the likelihood another firearm could have produced these marks is so remote as to be considered practically impossible.</p>
PGJXZJ	<p>Microscopic examination and comparison revealed that the bullets (Items 3, 4 and 5) were fired from the same unknown firearm but were not fired from the same firearm as Item 1. Microscopic examination and comparison revealed that the bullet (Item 2) was not fired from the same firearm as Items 1 and 3.</p>
PPNM6W	<p>Exhibit #2 was not fired from Exhibit #1 or Exhibits #3, #4, and #5. Exhibits #3, #4, and #5 were all fired from the same firearm. Exhibits #3, #4, and #5 could not be identified or eliminated as having been fired from Exhibit #1.</p>
PQKNEZ	<p>The item #1 pistol was not used to fire any of the items #2-5 projectiles. The items #3-5 projectiles were fired from the same unknown firearm. However, they were not fired from the same firearm as the item #2 projectile.</p>
PT4RLJ	<p>1. Microscopic examinations were performed on Exhibits 2, 3, 4, and 5. The findings of these examinations are the following: a. Exhibits 2, 3, 4, and 5 are consistent with .38 caliber class projectiles normally loaded in a 9mm Luger cartridge. b. Exhibits 3, 4 and 5 were fired from the same firearm. However, Exhibits 3, 4, and 5 were eliminated as being fired from Exhibit 1. The elimination is based on individual characteristics. c. Exhibit 2 was eliminated as being fired from Exhibit 1 and also eliminated as being fired from the same firearm as Exhibits 3, 4, and 5. Both eliminations are based on class characteristics. 2. The firearm recovered was not the firearm that was used at this particular scene. There were two different firearms used. For investigative purposes, if a 9mm Luger firearm is recovered it should be sent to the laboratory for comparison. For a complete list of possible firearm please contact the Firearms unit.</p>
PWYAEY	<p>1. Exhibit 2 (One 9mm bullet from victim) and Exhibits 3, 4 and 5 (Three 9mm bullets from scene) were visually examined and microscopically compared to Exhibit 1 (Test bullets from a recovered 9mm firearm) and compared to one another. 2. Exhibit 2 (Victim bullet) was not fired by the same firearm as Exhibit 1 (Test bullets). 3. Exhibits 3, 4 and 5 (Scene bullets) were not fired by the same firearms as Exhibit 1 (Test bullets). 4. Exhibit 2 (Victim bullet) was not fired by the same firearm as Exhibits 3, 4 and 5 (Scene bullets). Possible makes of 9mm firearms that may have fired Exhibit 2 include, but are not limited to, weapons marketed by Beretta, Bryco, Sigarms, Smith and Wesson and Walther. 5. Exhibits 3, 4 and 5 (Scene bullets) were fired from the same firearm. Possible makes of 9mm firearms that may have fired Exhibits 3, 4 and 5 include, but are not limited to, weapons marketed by Browning, Hechler and Koch,</p>

TABLE 2

WebCode	Conclusions
	Ruger and Walther.
Q37X9D	Microscopic comparisons of the three (3) fired bullets from Items #3-5 revealed matching barrel engraved striations. This finding confirms the three (3) bullets from Items #3-5 were all fired from the same firearm. Microscopic comparisons of the group of three (3) fired bullets from Items #3-5 with the test fired bullets from Item #1 revealed corresponding class characteristics (caliber, number of lands and grooves, direction of twist, land/ groove widths). However, distinct differences were noted in the individual characteristics confirming the group from Items #3-5 were not fired from the same firearm as the test fired bullets from Item #1. Microscopic comparisons of the fired bullet from Item #2 with the test fired bullets from Item #1 and the group of three (3) fired bullets from Items #3-5 revealed differences in class characteristics (land/ groove widths). This finding confirms the bullet from Item #2 was not fired from the same firearm as the test fired bullets from Item #1 or the same firearm that fired the three (3) bullets from Items #3-5.
Q4QUBJ	The four fired copper jacketed bullets (Exhibits 2, 3, 4 and 5) were microscopically compared. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibits 3, 4 and 5 were fired from the same firearm. Based on a disagreement of class characteristics, Exhibit 2 was not fired from same firearm as Exhibits 3, 4 and 5. The three submitted test fired bullets (Exhibit 1) were microscopically compared to each other and to the four fired copper jacketed bullets in Exhibits 2, 3, 4 and 5. Based on a disagreement of class characteristics, Exhibit 2 was not fired from the same firearm as Exhibit 1. Based on a disagreement of individual characteristics, Exhibits 3, 4 and 5 were not fired from the same firearm as Exhibit 1. The manufacturer of the firearm that could have fired Exhibit 2 includes, but is not limited to, 9mm Luger caliber Smith and Wesson, Sigarms, Walther and SWD pistols. This does not preclude the possibility that another make of firearm not listed was used. The manufacturer of the firearm that could have fired Exhibits 3, 4 and 5 includes, but is not limited to, 9mm Luger caliber Walther, Browning, Ruger and Beretta pistols. This does not preclude the possibility that another make of firearm not listed was used.
Q7DKB4	The projectile in Submission 2 was not fired in the gun that fired the projectiles in Submission 1. The projectiles in Submissions 3 through 5 bear class characteristics consistent with the projectiles in Submission 1. However, due to insufficient reproducible individual characteristics, the projectiles in Submissions 3 through 5 could not be positively included or excluded as having been fired in the gun that fired the projectiles in Submission 1.
Q8EVHX	None of the submitted bullets (Items 2-5) were fired in the same firearm as the submitted test fired bullets (Item 1). Three of the four submitted bullets (Items 3-5) were fired in a single firearm. The remaining submitted bullet (Item 2) was fired in a second firearm.
Q8HYCW	The 9 mm caliber Luger bullet recovered from the victim and described in ID 2 and the 3 9mm caliber Luger bullets recovered at the scene - described in IDs 3, 4 and 5, were not shot by the suspect firearm. Mismatch.
QLDAEF	Exhibits 1A through 1C consist of three (3) 38 class copper jacketed bullets reportedly fired from a Ruger 95DC[sic] 9mm Luger pistol with six (6) grooves and a right twist. The overall shape, size and physical features are consistent with caliber 9mm Luger bullets. Exhibits 2 through 5 consist of four (4) 38 class copper jacketed bullets, which were fired from a barrel fired with six (6) grooves and a right twist. The overall shape, size and physical features are consistent with caliber 9mm Luger bullets. A microscopic examination was conducted between Exhibits 2, 3, 4, 5 and the reported Exhibit 1A-1C test fires. There is agreement of all discernible class characteristics; however, there lacks sufficient agreement of individual characteristics to identify or eliminate Exhibits 3, 4 and 5 as having been fired from the firearm that reportedly fired Exhibit 1A through 1C. There is agreement of all discernible class

TABLE 2

WebCode	Conclusions
	characteristics and sufficient agreement of individual characteristics to identify Exhibits 3, 4 and 5 as having been fired from the same firearm. Firearms which produce similar rifling impressions as Exhibit 3, 4 and 5 consist of several firearm types and brand too numerous to list. Due to a difference in class and individual characteristics, Exhibit 2 was not fired from the same firearm as Exhibit 3, 4 and 5 or the reported Exhibit 1A-1C test fires. Firearms which produce similar rifling impressions as Exhibit 2 consist of several firearm types and brand too numerous to list.
QP37MD	All four recovered bullets found on the crime scene can be excluded from the suspected weapon. Items 3, 4 and 5 can be pooled together as being fired in the same firearm, whereas item 2 must have been shot in a third weapon.
QPBRUV	The bullets in Items 3, 4 and 5 were found upon microscopic comparison to have been discharged from the same unknown barrel. The bullets in Items 3, 4 and 5 lacked sufficient individual characteristics agreement for identification with known test fired bullets in Item 1. However, these bullets could have been discharged from the same barrel from which the bullets in Item 1 were discharged based on an agreement of class characteristics. The bullet in Item 2 was not discharged from the same barrel which discharged any of the bullets in Items 1, 3, 4, or 5 based on differences of class characteristics.
QQGL3Z	Item #3 through Item #5 were microscopically examined and compared. Based on the agreement of class characteristics and patterns of sufficient corresponding individual characteristics, Items #3 through Item #5, expended projectiles, are identified as having been fired from the same firearm. Item #1, Item #2, and Item #3 were microscopically examined and compared. Based on the difference of class characteristics and/or patterns of individual characteristics, the Item #1, Item #2, and the Item #3, expended projectiles, were eliminated as having been fired from the same firearm.
QRWPV8	The fired bullets from Items 2, 3, 4 and 5 were microscopically compared to each other and to the bullets from Item 1 said to be test fires from a Ruger P95DC with the following results: -Item 2 was not fired from the same barrel as the test fires from Item 1 due to differences in class characteristics. -Items 3, 4 and 5 exhibited the same class characteristics but different individual characteristics as the tests from Item 1 and it was determined Items 3, 4 and 5 were not fired from the same barrel as the tests from Item 1. -Items 3, 4 and 5 exhibited the same class characteristics and agreement of microscopic individual characteristics and were determined to have been fired from the same barrel. -Item 2 was not fired from the same barrel as Items 3, 4 and 5 due to differences in class characteristics. The fired bullet from Item 2 was fired from a barrel exhibiting the general rifling characteristics of six lands and grooves with a right twist including, but not limited to, barrels in 9mm Luger firearms marketed by Astra, Beretta, Bryco Arms, FEG, FN/Browning, Heckler & Koch, Norinco, Sigarms, Smith & Wesson, Star, SWD Inc., and Walther. The fired bullets from Items 3, 4 and 5 were fired from a barrel exhibiting the general rifling characteristics of six lands and grooves with a right twist including, but not limited to, barrels in 9mm Luger firearms marketed by Beretta, Czechoslovakia, FN/Browning, Heckler & Koch, Kel-Tec, Norinco, Ruger, SWD Inc., Tanfoglio, and Walther.
R2GBJ2	The evidence and test fired bullets were examined and microscopically inter- compared with the following results: The submitted bullet (Item 2) was eliminated from having been fired by the firearm which fired the test fired bullets (Item 1). The remaining three submitted bullets (Items 3, 4, & 5) were identified as having been fired by a single firearm. These bullets were eliminated[sic] from having been fired by the firearm which fired the test fired bullets (Item 1) and were also eliminated from having been fired by the firearm which fired Item 2.
R8M3TY	The bullet in item 2 was excluded as having been fired in the same firearm as the bullets in item 1 due to a class characteristic difference. The bullet in item 2 was excluded as having

TABLE 2

WebCode	Conclusions
	<p>been fired in the same firearm as the bullets in items 3, 4, and 5 due to a class characteristic difference. The bullets in item 3, 4, and 5 could not be identified as having been fired in the same firearm as the bullets in item 1. Microscopic examination revealed that the bullets in items 3, 4, and 5 and the bullets in Item 1 lacked sufficient correspondence of individual characteristics for an identification. Similar class characteristics indicate the bullets in items 3, 4, and 5 could have been fired in the same pistol as the bullets in item 1 or in any other firearm having similar rifling characteristics. The bullets in items 3, 4, and 5 were identified as having been fired in the same firearm.</p>
R8XF8P	<p>Items[sic] 2 was not fired with the Ruger P95DC pistol. Item 3, 4 and 5 were not fired with the Ruger P95DC pistol.</p>
RBZVHE	<p>I made an examination of the three test fired bullets using a comparison microscope. This type of examination allows two objects to be viewed simultaneously so that microscopic marks left behind on the circumference of bullets during discharge can be compared and assessed. This was done to determine which marks on the test fired bullets replicates. I then performed a similar comparison between these test fired bullets and the question fired bullets, Item 2 to Item 5. As a result of this examination I formed the following opinion: The bullets from Item 1, 2, 3, 4 and 5 were discharged from three different firearms as follow: The bullets from Item 1 were discharged from one firearm. The bullet from Item 2 was discharged from a second firearm. The bullets from Item 3, 4 an[sic] 5 were discharged from a third firearm.</p>
RC4U9D	<p>Item 2 and Item 1 were eliminated from having been fired in the same firearm based on differences in class characteristics. Item 3 and Item 1 were eliminated from having been fired in the same firearm based on differences in individual characteristics. Item 4 and Item 1 were eliminated from having been fired in the same firearm based on differences in individual characteristics. Item 5 and Item 1 were eliminated from having been fired in the same firearm based on differences in individual characteristics. Item 2 and Item 3 were eliminated from having been fired in the same firearm based on class characteristic differences. Item 2 and Item 4 were eliminated from having been fired in the same firearm based on class characteristic differences. Item 2 and Item 5 were eliminated from having been fired in the same firearm based on class characteristic differences. Item 3, Item 4, and Item 5 were identified as having been fired in the same firearm based on significant correspondence of individual characteristics.</p>
RCPQZZ	<p>Based on class characteristic differences, item 2 (bullet) can be eliminated as having been fired through item 1 (pistol) and items 3 through 5 (bullets). There are sufficient individual markings present to identify items 3 through 5 (bullets) as having been fired through the same firearm. Although they have the same general rifling characteristics, items 3 through 5 can neither be identified nor eliminated as having been fired through item 1 (pistol).</p>
RCWA4C	<p>The Item 2 bullet was not fired in the same firearm as the Item 1 test fired bullets. The Item 2 bullet was not fired in the same firearm as the Item 3, 4 and 5 bullets. Item 2 is most consistent with bullets loaded in 9mm Luger caliber ammunition. It was fired from a firearm with six lands and grooves and right twist. Some possible firearms include, but are not limited to the following: Astra, Beretta, Bryco Arms, FEG, Llama, Sigarms, Smith & Wesson, SWD and Walther. The Item 3, 4 and 5 bullets were fired from the same unknown firearm. They were not fired from the same firearm as the Item 1 test fired bullets or the Item 2 bullet. The Item 3, 4 and 5 bullets are most consistent with bullets loaded in 9mm Luger caliber ammunition. They were fired from a firearm with six lands and grooves and right twist. Some possible firearms include, but are not limited to the following: FN/Browning, Heckler & Koch, Luger, Norinco, Radom, Ruger, Springfield, Tanfoglio and Walther.</p>
RDKAZG	<p>A microscopic examination and comparison of the above evidence revealed the following:</p>

TABLE 2

WebCode	Conclusions
	Bullet (2) was not fired from the above pistol based on sufficient disagreement of class characteristics. Bullet (3, 4, 5) were not fired from the above pistol based on sufficient disagreement of individual characteristics. Bullets (3, 4, 5) were fired from the same gun based on sufficient agreement of class and individual characteristics. Bullet (2) and bullets (3, 4, 5) were fired from different firearms based on sufficient disagreement of class characteristics.
RGUPYE	Tests fired from Item 1.1 have been compared microscopically w/ Items 1.2 - 1.5. Due to differences in class characteristics Item #1.2 (Item 2) was not fired from Item 1.1 (Item 1) or from the same firearm as Items 1.3 - 1.5 (3-5). Items 1.3 - 1.5 share class characteristics and have sufficient agreement in individual characteristics w/ each other. They were all fired from the same firearm. Items 1.3 - 1.5 share class characteristic with Item 1.1 but disagree in individual characteristics. They were not fired from the same firearm as tests in Item #1.1.
RL3EU8	Microscopic comparison was conducted with the following results: B-2, B-3, B-4 were fired from the same firearm, however not Pistol P-1 due to differences in individual characteristics. B-1 was not fired from the same firearm as B-2 and P-1 group due to differences in class and individual characteristics.
RLVWNB	Microscopic comparisons of Item #2 with the submitted test fired bullets (Item #1) revealed different class characteristics (rifling measurements) confirming Item #2 was not fired from the same firearm as the test fired bullets in Item #1. Microscopic inter-comparisons of Items #3-5 revealed matching barrel engraved striations confirming they were fired from the same firearm. Microscopic comparisons of Items #3-5 with the submitted test fired bullets (Item #1) revealed corresponding class characteristics; however, different individual detail was observed confirming Items #3-5 were not fired from the same firearm as the test fired bullets in Item #1. Microscopic comparisons of Item #2 with Items #3-5 revealed different class characteristics (rifling measurements) confirming Item #2 was not fired from the same firearm as Items #3-5.
RUF4Y8	Items 3, 4, and 5 were microscopically examined and identified as having been fired from the same firearm. Items 3, 4, and 5, each consistent in design with a caliber 9mm Luger full metal jacketed bullet were fired from a firearm having a barrel rifled with six (6) lands and grooves inclined to the right. These bullets exhibit markings that may be suitable for identification with the firearm from which they were fired. Items 3, 4 and 5 were eliminated as having been fired from the same firearm as Item 1 due to differences in individual characteristics. Firearms that produce general rifling class characteristics like those present on Items 3, 4 and 5 are too numerous to list. Item 2 is consistent in design with a caliber 9mm Luger, full metal jacketed bullet which has been fired from a firearm having a barrel rifled with six (6) lands and grooves inclined to the right. This bullet exhibits markings that may be suitable for identification with the firearm from which it was fired. Item 2 was microscopically examined, and eliminated as having been fired from the same firearms as Items 1, 3, 4 and 5 due to different general rifling characteristics. Firearms that produce general rifling class characteristics like those present on Item 2 are too numerous to list.
RUWDTT	Item 2 was microscopically compared to Items 1, 3, 4, and 5. Item 2 was eliminated as having been discharged from the same firearm as Item 1. Item 2 was also eliminated as having been discharged from the same firearm as Items 3, 4, and 5. The eliminations were based on differences in a class characteristic. Items 3, 4, and 5 matched each other and were discharged from the same firearm. The identifications were based on the agreement of individual characteristics observed during a microscopic comparison. Items 3, 4, and 5 were microscopically compared to the Item 1 bullets. The bullets were eliminated as having been discharged from the same firearm, based on sufficient disagreement of individual characteristics.
RVBXJH	Exhibit 1 is (3) 9mm caliber, 6 lands and grooves, right twist, metal jacket bullets fired from a

TABLE 2

WebCode	Conclusions
	<p>Ruger, 95DC[sic] pistol. The bullets were marked "A", "B" and "C". Exhibit 2 is a 9mm caliber, 6 lands & grooves, right twist metal jacket bullet. Exhibit 3 is a 9mm caliber, 6 lands & grooves, right twist metal jacket bullet. Exhibit 4 is a 9mm caliber, 6 lands & grooves, right twist metal jacket bullet. Exhibit 5 is a 9mm caliber, 6 lands & grooves, right twist metal jacket bullet. Exhibits 3, 4 and 5 were microscopically compared against each other. Based on agreement of class and sufficient agreement of individual characteristics, Exhibit 3, 4 and five were fired from the same firearm. Exhibits 3, 4 and 5 were microscopically compared against the Exhibit 1 test fired bullet "C". Based on a disagreement of individual characteristics, Exhibits 3, 4 and 5 were not fired in the same firearm as fired Exhibit 1. Exhibit 2 was microscopically compared to the test fired bullet "C" in Exhibit 1 and Exhibits 3, 4 and 5. Based on disagreement of class characteristics, Exhibit 2 was not fired from the same firearm as fired Exhibit 1, or the same firearm as fired Exhibits 3, 4 and 5. The possible makes and types of firearms which may have fired Exhibit 2 are: Smith & Wesson and SIG semi-auto pistols. This does not preclude the possibility that a make not listed was used. The possible makes and types of firearms which may have fired Exhibits 3, 4 and 5 are: Ruger and Browning semi-auto pistols. This does not preclude the possibility that a make not listed was used.</p>
TBABZK	<p>Microscopic examination of the bullet, Item 1B, reveals that it is consistent with being fired from Smith & Wesson, FN/Browning, Walther, Beretta, Sigarms, and Star 9mm pistols. Microscopic examination and comparison of the bullets, Items 1C, 1D, and 1E, reveal that they were fired from the same firearm, and are consistent with being fired from Ruger, Walther, FN/Browning, Beretta, Springfield, and Tanfoglio 9mm pistols. Microscopic examination and comparison reveal that the bullets, Item 1A, were not fired from the same firearm as the bullet, Item 1B, or from the same firearm as the bullets, Items 1C, 1D, and 1E. Microscopic examination and comparison reveal that the bullet, Item 1B, was not fired from the same firearm as the bullets, Items 1C, 1D, and 1E.</p>
TFMRBG	<p>A MICROSCOPIC EXAMINATION AND COMPARISON OF THE ABOVE EVIDENCE REVEALED THE FOLLOWING: Bullets (3,4,5) were fired from the SAME gun. Bullet (2) was fired from ANOTHER gun. Bullet (2) and test fires (1.1,1.2,1.3) were fired from DIFFERENT guns based on sufficient disagreement of class characteristics. Bullets (3,4,5) and test fires (1.1,1.2,1.3) were fired from DIFFERENT guns based on sufficient disagreement of individual characteristics.</p>
TLRDL6	<p>Microscopic comparison of the Item 1 bullets with Items 2, 3, 4, and 5 revealed that none of these bullets had been fired from the firearm that fired Item 1, based on differences in both class and individual characteristics. Further microscopic examinations and intercomparisons of Items 2, 3, 4, and 5 revealed that Item 2 was fired by one gun, and Items 3, 4, and 5 were fired by another gun. The general rifling characteristics of Items 2 and 3 were determined and lists of possible makes and/or origins of firearms that could have fired Items 2 and 3 were generated. These lists will be attached to the report. [List was not included in report]</p>
TM4CC9	<p>The Ruger pistol, sp #1, was test fired by CTS. The reference projectiles obtained were compared to the unknown caliber copper jacketed projectiles, specimens #2, #3, #4 & #5. It was determined that specimens 2-5 were consistent with .38 caliber class ammunition (which includes 9mm) and were not fired from specimen #1. Further examination revealed the following: - Specimens #3, #4 and #5 were fired from the same weapon. - Specimen #2 was fired from a second weapon.</p>
TQCPRT	<p>Item 2 was fired in/through the barrel of one firearm. Items 3, 4 and 5 were fired in/through the barrel of a second firearm. Item 2 is eliminated as having been fired in/through the barrel of the same firearm as item 1 based on differences in land and groove width measurements. Item 2 is eliminated as having been fired in/through the barrel of the same firearm as items 3, 4 and 5 based on differences in land and groove width measurements. Items 3, 4, and 5 could</p>

TABLE 2

WebCode	Conclusions
	not be identified nor eliminated as having been fired from the same firearm as item 1 and are therefore inconclusive.
TVDA8J	Projectiles B, C, D were fired in the same 9mm weapon. Suspect weapons include numerous 9mm pistols; however, any suspect weapon should be submitted for examination. Projectiles B, C, D were not fired in the same weapon as Item 1 based on differences in individual characteristics. Projectile A was fired in a third 9mm weapon. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted for examination. Projectile A was not fired in the same weapon as Item 1 based on differences in class characteristics.
U9FMXN	Item #2 was not fired in Item #1 or in the same firearm as Items #3 through #5. Item #2 is suitable for further microscopic comparisons. Items #3 through #5 were fired in the same firearm. Items #3 through #5 could not be identified or eliminated as having been fired in Item #1.
UH9AYF	Items #1.1, #1.2, #1.3, #2, #3, #4 and #5 are consistent with seven (7) caliber 9mm Luger copper jacketed bullets. Items #3, #4 and #5 were identified as having been fired from the same barrel rifled with six (6) grooves, right twist. Due to a difference in rifling characteristics Items #3, #4 and #5 could not have been fired from the Item #1 firearm. Among the firearms which may produce similar rifling impressions are caliber 9mm Luger pistols marketed by Walther, Ruger and Beretta. Due to a difference in rifling characteristics Item #2 was not fired from the same barrel as Items #3, #4 and #5 or from the Item #1 pistol. Among the firearms which may produce similar rifling impressions are caliber 9mm Luger pistols marketed by Hi-Point.
UHVPUV	The bullets in items 3, 4 and 5 could not be identified or excluded as having been fired in the same firearm as the bullets in item 1, due to insufficient agreement of individual characteristics. The bullet in item 2 was excluded as having been fired in the same firearm as the bullets in item 1.
UJYERM	Examinations showed Item 2 was not discharged[sic] from the same firearm as Item 1 due to differences in class characteristics. Examinations showed Items 3, 4 and 5 were not discharged from the same firearm as Item 1 due to differences in individual characteristics. Examinations showed Items 3, 4 and 5 were discharged from the same unknown firearm. Examinations showed Item 2 was not discharged from the same firearm as Items 3, 4 and 5 due to differences in class characteristics.
UKCQ63	All evidence in item 1, 2, 3, 4, and 5 was analyzed by physical and/or microscopic examination. The four (4) bullets in item 2, 3, 4, and 5 were determined not to have been fired from the weapon which fired the three (3) reference bullets in item 1. The bullet in item 2 was determined to have been fired from a different weapon than the three (3) bullets in items 3, 4, and 5. The three bullets in items 3, 4, and 5 were fired from one weapon.
ULMFJ9	The Item 2 bullet was not fired from the recovered firearm. The items 3, 4 and 5 bullets were identified as having all been fired from the same firearm. The items 3, 4 and 5 bullets could not be identified or eliminated as having been fired from the recovered firearm.
UMPZTV	Conclusions: Microscopic comparison of test fired caliber 9mm Luger bullet specimens (Item 1) with evidence caliber 9mm Luger bullet specimens (Item 2, Item 3, Item 4, and Item 5) revealed the following results: Item 2 was not fired with the same firearm as Item 1, Item 3, Item 4, and Item 5 due to a difference in land and groove width dimensions. Item 3, Item 4, and Item 5 were fired with the same unknown firearm. They were not fired with the same firearm as Item 1, due to a difference in individual microscopic markings present. Should any additional firearms be recovered, submit, and refer to above case number.

TABLE 2

WebCode	Conclusions
UNEK6T	The questioned bullets labeled as items 3, 4 and 5, recovered at the scene, and the 3 bullets fired with the recovered firearm (item 1) were fired with the same firearm. The bullet labeled as item 2, recovered from the victim, was not fired by the recovered firearm.
UPMQB3	By means of gravimetric study, microscopic examination and microscopic comparison it was determined that: 1. The bullets described in Item 1, are 9 mm caliber, metal case, with right rifling (R-6) and were fired by the same firearm (recovered firearm). 2. The bullet described in Item 2, is 9 mm caliber, metal case, with right rifling (R-6) and was fired by a firearm. It was not fired by the same firearms used for bullets described in Items 1, 3, 4 and 5. 3. The bullets described in Items 3, 4 and 5, are 9 mm caliber, metal case, with right rifling (R-6) and were fired by the same firearm but not by the recovered firearm nor the firearm used for bullet described in Item 2.
UUHF38	It was determined that the projectile from the victim (Ex.2) was not fired in the Ruger 9mm pistol (Ex.1). It was determined that the three projectiles from the scene (Ex.3,4,5) were all fired in the same gun. Results were inconclusive as to whether or not that gun was the Ruger 9mm pistol (Ex.1).
UZTHCH	Item #2 was not fired from the same firearm as Items #1, #3, #4, or #5. Items #3, #4, and #5 were fired from the same firearm. Items #3, #4, and #5 were not fired from the same firearm as Item #1. Items #2, #3, #4, and #5 are of 9mm/38 class caliber exhibiting six lands and grooves with a right hand twist.
V233Y4	Microscopic comparison was conducted with the following results: B-2 thru B-4 (Item #3-5) were fired from the same firearm, not P-1 (Item #1) due to difference in individual characteristics. B-1 (Item #2) was not fired from P-1 (Item #1) or B-2 group (Item #3-5) due to difference in class characteristics (LAG dimensions).
V2JHT7	The questioned bullets Item 2, 3, 4 and 5 and the known bullet were analysed. A difference was observed during the class characteristics comparison between Item 2 and the test-fired bullets. Item 2 presents lands' width smaller than the test-fired bullets. This leads to an exclusion. However, no difference was observed with the Items 3, 4, 5 and the test-fired bullets regarding this level of comparison. Regarding the "individual" characteristics : The known[sic] bullets (Items 1) were compared: the amount of similarities are quite good. The comparisons showed a good reproducibility on general aspect, of the skid marks and of the main and well-designed striations, but we noticed however variations regarding small and finest striations. The well-designed striations cannot be excluded to so-called 'sub-class carryover', since there[sic] are large, well-designed and might be found along the land impressions. The striations cannot totally be considered with a high discrimination capability. For the questioned bullets Items 3 to 5: Items 3, 4 and 5 (all recovered in drywall) showed agreement on few grooves and lands impressions, without major discordances. They do show groove impressions well marked, when their skid marks are low impressed. For the comparison between known (Item 1) and questioned bullets (3, 4, 5): The known items show well defined skid marks and few lands impressions with a lot of well-marked striations, that might not be totally excluded to 'so-called carryover'. Since we do not have the firearm under examination, we cannot control the state of the barrel and cannot infer whether or not the barrel might have been modified, changed or altered. No significant agreement have been found between the questioned bullets and the known items, and the discordances observed cannot be interpreted as significant without having examined the barrel. CONCLUSION The absence of significant discordance, the fact that the reproducibility of the test-fired bullets characteristics cannot totally be excluded to 'so-called carryover', we hand out an 'inconclusive' statement for the items 3, 4 and 5.
V792TF	- Projectile A (Item 2) was not fired in the same firearm as tests from the submitted Ruger P95DC (Item 1) based on differences in class characteristics. - Projectiles B (Item 3), C (Item 4)

TABLE 2

WebCode	Conclusions
	and D (Item 5) were fired in the same firearm. These projectiles were not fired in the same firearm as tests from the submitted Ruger P95DC (Item 1) based on differences in individual characteristics. - Projectile A (Item 2) and projectiles B (Item 3), C (Item 4) and D (Item 5) were not fired in the same firearm based on differences in class characteristics.
V9CF92	Item #2 was fired from a different gun than Item #1, the Ruger P95DC pistol. Item #3, 4 & 5 were all fired by one gun not Item #2 or the 9mm Ruger P95DC based on class and individual characteristics.
VAANLQ	Item 2 is not consistent with item 1. Item 2 was not fired with a Ruger P95 DC handgun. Differences were found in the macro marks width. Items 3 and 5 are not consistent with item 1. These items were not fired by a Ruger P95DC hand gun. Differences were found in the macro marks width.
VCE8ET	I conducted an examination of items 1, 2, 3, 4 and 5 using a comparison microscope and report the following:- 1 - The questioned bullets of item (1) could not be matched to items (2,3,4,5). 2 - The questioned items (3,4,5) were identified as matching each other and therefore have been fired from the same firearm. 3 - The questioned bullet of item (2) could not be matched to items (3,4,5) therefore have been fired from different firearm. [sic]
VE44WE	1) The bullet, Exhibit 2, had not been fired from the same firearm as the bullets, Exhibit 1. 2) The bullets, Exhibits 3, 4 and 5, have been neither identified nor eliminated as having been fired from the same firearm as the bullets, Exhibit 1. 3) The bullets, Exhibits 3, 4 and 5, had been fired from a single firearm. They had not been fired from the same firearm as the bullet, Exhibit 2.
VMETPX	The Q-1 (Item 2) and T-1, T-2, T-3 (Item 1) bullets were not fired from the same firearm. The Q-2 (Item 3), Q-3 (Item 4), and Q-4 (Item 5) bullets were fired from the same firearm, but were not fired from the same firearm as the T-1, T-2, T-3 (Item 1) bullets, or the same firearm as the Q-1 (Item 2) bullet.
VTDEEM	Items 2, 3, 4, and 5 are 38 caliber class fired bullets exhibiting six land and groove impressions with a right twist. Items 3, 4 and 5 were identified as having been fired by the same firearm. Item 2 could not have been fired by the firearm that fired Items 3, 4, and 5 or the firearm that fired Item 1 due to differences in class characteristics. Items 3, 4, and 5 could not be identified or eliminated as having been fired by the firearm that fired Item 1 due to the limited amount of information obtained from the comparison of the individual characteristics. A list of firearms that could have fired Item 2 would include Bryco Arms, Hi- Point Firearms, Lorcin, Rossi and any other firearm having similar rifling and caliber characteristics. A list of firearms that could have fired Items 3, 4 and 5 is too numerous to report; however, is available upon request.
VWDUGH	See attached [Report not included]
W9RGWF	Items 3 through 5 were fired in one 9mm pistol. Items 3 through 5 were not fired in the submitted 9mm Ruger pistol, model P95DC. Item 2 was fired in a third 9mm pistol. The specific brands of the suspect weapons are unknown at this time; however, any suspect weapon should be submitted to the laboratory for examination.
WA9X7V	On examination and comparison, I found the characteristic fine striations on the expanded bullet item'2' to item '5' not to correlate with characteristic fine striations on the three test fired bullets in item'1'. Hence, I am of the opinion that item'2' to item'5' were not fired with the same firearm as known expanded bullets in item'1'.
WADY3Z	The fired bullets, items #2, 3, 4 and 5 were microscopically compared to each other and to the test fired bullets, item #1, with the following results: The fired bullet, item #2, was

TABLE 2

WebCode	Conclusions
	<p>eliminated based on class differences from having been fired in the firearm used to test fire item #1 and also eliminated from having been fired in the unknown 9mm Luger firearm that fired bullets, items #3, 4, 5. The fired bullets, items #3, 4 and 5, were microscopically eliminated from having been fired in the firearm used to test fire item #1. The fired bullets, items #3, 4 and 5, were microscopically identified as having been fired in the same unknown 9mm Luger firearm. The fired bullet of item #2 was visually and microscopically examined and found to be a .38 caliber bullet most commonly loaded into 9mm Luger cartridges. It was fired from a conventionally rifled barrel with six lands and grooves with a right hand twist. A search of the General Rifling Characteristics (GRC) database returned a list of manufacturers. This list included Astra, Beretta, Bryco, CZ, FN, FEB, Helwan, IMI, Intratec, Llama, Luger, Mauser, Sigarms, Smith and Wesson, Stallard Arms, Star, SWD and Walther. The fired bullet of item #3 was visually and microscopically examined and found to be a .38 caliber bullet most commonly loaded into 9mm Luger cartridges. It was fired from a conventionally rifled barrel with six lands and grooves with a right hand twist. A search of the General Rifling Characteristics (GRC) database returned a list of manufacturers. This list included Beretta, Browning, Calico, CZ, Colt, Daewoo, EAA Corp, FEG, FN, H&K, IMI, Kahr, Keltec, Luger, Masterpiece Arms, Mauser, Norinco, Radom, Ruger, Springfield, Sterling Arms, Steyr, SWD, Tanfoglio and Walther.</p>
WGUK4R	<p>Findings: The four recovered bullets (items: 2, 3, 4 and 5) were examined and compared to each other and to the submitted test bullets (item 1). The four recovered bullets are consistent in size, weight and physical appearance with 9mm Luger caliber bullets. Three of the four recovered bullets (items: 3, 4 and 5) displayed similar class rifling characteristics and areas of matching individual characteristics. No significant areas of matching individual characteristics were noted when these three bullets (items: 3, 4, 5) were compared with the test bullets (item 1). The bullet from item number 2 displayed rifling dimensions that were significantly different than those noted on three of the recovered bullets (items: 3, 4 and 5) and the test bullets (item 1). Submit any suspect guns for comparison to the four recovered bullets (items: 2, 3, 4 and 5). Opinions: Items: 3, 4 and 5 were identified as having been fired through the same barrel and were eliminated as having fired in the same gun as the test bullets (item number 1). Item number 2 was eliminated as having been fired from the same gun as the test bullets (item number 1) or the three other recovered bullets (items: 3, 4 and 5).</p>
WJBRAF	<p>1. Class characteristics were found to be different between the fired bullets, Exhibits 1 and 2. The fired bullet, Exhibit 2, was not fired from the pistol that fired the bullets, Exhibit 1. 2. Class and individual characteristics were found to be in agreement among the fired bullets, Exhibits 3, 4 and 5. They were fired from a single firearm. 3. Class characteristics were found to be in agreement between the fired bullets (Exhibits 3, 4 and 5) and the bullets fired from the pistol (Exhibit 1); however, insufficient individual characteristics were found to be in agreement to permit identification. The fired bullets, Exhibits 3, 4 and 5, were neither identified nor eliminated as having been fired from the pistol that fired the bullets, Exhibit 1.</p>
WNDNCF	<p>The Item 1A, Item 1B, and Item 1C bullets were fired from the same firearm. The Item 2 bullet was fired from a second, unknown firearm. Manufacturers of 9mm Luger caliber firearms with similar rifling characteristics as this bullet include, but are not limited to, Star, Walther, and Sigarms. The Item 3, Item 4, and Item 5 bullets were fired in a third, unknown firearm. Manufacturers of 9mm Luger caliber firearms with similar rifling characteristics as these bullets include, but are not limited to, Ruger, Walther, and Fabrique Nationale/Browning.</p>
WRFPEM	<p>1. Examinations showed that Item 2, Item 3, Item 4, and Item 5 were not discharged from the recovered firearm. 2. Examinations showed that Item 3, Item 4, and Item 5 were all discharged from the same unknown firearm. 3. Examinations showed that Item 2 was not discharged from the same unknown firearm from which Item 3, Item 4, and Item 5 were discharged.</p>

TABLE 2

WebCode	Conclusions
WRPEZG	Exhibit #2 was not fired from the same firearm as Exhibit #1. Exhibits #3 through #5 could not be identified or eliminated as having been fired from the same firearm as Exhibit #1. The fired bullets in Exhibit #1 are of 9 mm caliber and exhibit six land and groove impressions with a right hand twist. Exhibit #2 was not fired from the same firearm as Exhibits #3 through #5. Exhibit #2 is suitable for microscopic comparison. Exhibit #2 is of 9 mm/38 caliber and exhibits six land and groove impressions with a right hand twist. Exhibits #3 through #5 were fired from the same firearm. Exhibits #3 through #5 are of 9 mm/38 caliber and exhibit six land and groove impressions with a right hand twist.
WRPTLU	The items 2, 3, 4 and 5 bullets are eliminated as having been fired in the same firearm that fired the item 1 bullets. The item 3, 4 and 5 bullets are identified, with practical certainty, as having been fired in the same unknown firearm. The item 2 bullet is eliminated as having been fired in the same unknown firearm that fired the item 3, 4, and 5 bullets.
WRXLV4	Item 1 - Three (3) 9mm Luger caliber fired bullets (samples from Ruger P95DC pistol) (1) Item 2 - One (1) fired bullet (2) Item 3 - One (1) fired bullet (3) Item 4 - One (1) fired bullet (4) Item 5 - One (1) fired bullet (5) The submitted specimens marked Item 2, 3, 4, and 5 were examined and identified as fired 9mm Luger caliber copper jacketed bullets exhibiting six (6) land and groove impressions with a right twist. Items 1 through 5 were microscopically intercompared. As a result of microscopic examination, it was concluded that Items 3, 4, and 5 were identified as having been fired in the same firearm but were eliminated as having been fired in the same firearm that fired Item 1 due to differences in individual characteristics. Item 2 was eliminated as having been fired from the same firearms that fired Item 1 and Items 3, 4, and 5 based on differences in class characteristics. Firearms that produce similar rifling characteristics as those exhibited on Item 2 include, but are not limited to: 9mm Luger caliber firearms marketed by Astra, Beretta, Bryco Arms, Fabrique Nationale, FEG, Heckler & Koch, Intratec, Llama, Norinco, Sigarms, Smith & Wesson, Star, and Walther. Firearms that produce similar rifling characteristics as those exhibited on Item 3, 4, and 5 include, but are not limited to: 9mm Luger caliber firearms marketed by Browning, Colt, Heckler & Koch, Kahr Arms, Keltec, Luger, Norinco, Ruger, Tanfoglio, and Walther.
WUNRAA	Items 3-5 were fired in the same firearm (identification). This conclusion was verified by Firearms Examiner [name]. Items 3-5 could not be identified or eliminated as having been fired in the same firearm (inconclusive).[sic] This conclusion was verified by Firearms Examiner [name]. Items 3-5 are consistent with the 38 caliber family, which includes 9mm Luger. In the event that Items 3-5 were fired in a 9mm Luger firearm, then in addition to the firearm that fired Item 1, they could have been fired in a firearm of the following manufacture: Agram, American Eagle, Arcus, Australia, Belgium, Beretta, Bergmann, Browning, Ceska Zbrojovka, China (PRC), Colt, Czechoslovakia, Daewoo, DWM, EAA Corp, England/UK, FEG, FMJ (Cobray), FN, FN/Browning, Fox Co, Germany, Heckler & Koch, Hungary, IMI (Uzi), Indust. Argentina, Interdynamic, J&R Engineering, Kassnar, Keltec, KSN Industries, Luger, Muaser, MK Arms Inc., Navy Arms, Norinco, Pletter, Radom, Ruger, Sardius, Schmeisser, Springfield Inc., Sterling Arms, SWD Inc, Tanfoglio, Tanfoglio (EAA), Vulcan Armament, Walther, Wilkinson Arms, Zastava. Item 2 was not fired in the same firearm as Item 1 (elimination). This conclusion was verified by Firearms Examiner [name]. Item 2 was not fired in the same firearm as Items 3-5 (elimination). This conclusion was verified by Firearms Examiner [name]. Item 2 is consistent with the 38 caliber family, which includes 9mm Luger. In the event that Item 2 was fired in a 9mm Luger firearm, then it could have been fired in a 9mm Luger firearm of the following manufacture: AA Arms Inc Astra, Beretta, Bryco Arms, Calico, Czechoslovakia, DWM, England/UK, Fabrique Nationale, FEG, Finland, FN/Browning, France, Germany, Glock, Heckler & Koch, Helwan, Hungary, IM Metal, IMI, IMI (Uzi), Ingram (Mac), Intratec, Italy, John Inglis, Lahti, Llama, Luger, Mauser, Maverick Arms Inc, Norinco, Schmeisser, Sigarms, Smith & Wesson, Stallard Arms, Star, SWD Inc, Swiss Ind. Gesell, US Military

TABLE 2

WebCode	Conclusions
	Weapons, Valmet, Walther, Wilkinson Arms. Manufacturers lists are investigative tools are[sic] are not intended to be all-inclusive. Any suspect firearms should be submitted for comparison. For additional clarification regarding conclusion statements, please go to [website].
WYPBNZ	The Item 2, Item 3, Item 4 and Item 5 bullets were microscopically compared to the Item 1 bullets with Negative Results. The Item 2, Item 3, Item 4 and Item 5 bullets were not fired through the barrel of the same firearm as the Item 1 bullets.
X6V976	Item 1 Item 1 are three (3) test fired bullets received as submitted evidence. All three (3) are 9mm class bullets that were compared to one another. All three (3) were identified as having been fired from the same firearm. Item 2 Item 2 is a 9mm class bullet that was eliminated as having been fired from the same firearm that fired the Item 1, 3, 4, and 5 bullets due to differences in the land and groove class characteristics. Item 2 was searched against the database which provided a lengthy list of potential firearms that could have fired this bullet. See the list in the Object Repository. Items 3, 4 and 5 Items 3, 4 and 5 are all 9mm class bullets that shared class characteristics with the Item 1 test fired bullets, however they were eliminated as having been fired from the same firearm due to differences in individual characteristics. Items 3, 4 and 5 were identified as having been fired from the same firearm. Item 3 was searched against the database which provided a lengthy list of potential firearms that could have fired this bullet. See the list in the Object Repository.
X9F7NT	The fired bullet, item F1-2, was eliminated as having been fired in the Ruger pistol, item F1-1, based on a difference in class characteristics (land and groove width). The three (3) fired bullets, items F1-3, F1-4, and F1-5, were consistent in all observable class characteristics (caliber, direction of twist, number and width of lands and grooves) as the Ruger pistol, item F1-1. While there is some disagreement of microscopic markings, the markings present are insufficient for either an identification or elimination. The results are inconclusive. The three (3) fired bullets, items F1-3, F1-4, and F1-5, were each identified as having been fired in the same firearm. The fired bullet, item F1-2, was eliminated as having been fired in the same firearm as the three (3) fired bullets, items F1-3, F1-4, and F1-5, based on a difference in class characteristics (land and groove width).
XCB7YD	Item #1: Three fired bullets said to have been taken from Ruger P95DC Findings: The fired bullets in Item #1 are of 9mm caliber exhibiting six land and groove impressions with a right hand twist. The fired bullets in Items #2 through #5 are of 9mm/38 class caliber exhibiting six land and groove impressions with a right hand twist. Item #2 was not fired from Item #1 or from the same firearm as Items #3, #4, and #5. Items #3, #4, and #5 could not be identified or eliminated as having been fired from Item #1. Items #3, #4, and #5 were fired from the same firearm. Item #2: One fired bullet Findings: See Findings for Item #1. Item #3: One fired bullet Findings: See Findings for Item #1. Item #4: One fired bullet Findings: See Findings for Item #1. Item #5: One fired bullet Findings: See Findings for Item #1.
XFK9FU	Items 3, 4 and 5 have the same class of rifling and were compared to each other. Sufficient corresponding individual microscopic marks were found to conclude that these bullets were all fired by the same firearm. Item 1 (the Ruger pistol test fire bullets) and Items 3, 4 and 5 have the same class of rifling but significant differences in individual marks. In the absence of alteration, the bullets items 3, 4, and 5 were fired in a different firearm than Item 1. Item 2 (victim bullet) had different rifling measurements than Items 1, 3, 4, and 5. Item 2 was fired by a different firearm than Items 1, 3, 4, and 5.
XLJG89	Item 1 consisted of three (3) 9mm.P calibre bullets with full metal jacket (FMJ). These bullets were rifled 6R and had been fired using the recovered firearm (known). Item 2 consisted of one fired 9mm.P calibre FMJ bullet, rifled 6R which had been recovered from the victim (questioned). Items 3-5 each consisted of one fired 9mm.P calibre FMJ bullet, each rifled 6R.

TABLE 2

WebCode	Conclusions
	<p>These three bullets had been recovered from the scene (questioned). The three bullets fired from the recovered firearm where[sic] microscopically compared and were matched in terms of gross detail, individual detail and consecutively matching land detail. Item 2 was compared microscopically to the control (known) bullets. This bullet did not match. The lands were narrower than those of the controls. This bullet was fired in a second firearm. Items 3, 4 and 5 were compared microscopically to the control bullets. These bullets did not match the controls in terms of gross, individual or consecutive land detail. The three bullets were then compared to each other. Microscopic examination showed that these three bullets matched each other and were fired in a third separate firearm.</p>
XQYPTM	<p>Based on the differences in the widths of the land/ groove impressions, the questioned bullet marked "Item 2" was not fired from the same firearm as the known bullets marked "Item 1". The class characteristics (design, magnetic properties, number and widths of land/ groove impressions, twist) of the bullets marked "Item 3" to "Item 5" were found to be in agreement to those of the known bullets marked "Item 1". Disagreements of individual characteristics were observed between the three questioned bullets marked "Item 3" to "Item 5" and the three known bullets marked "Item 1". Hence, the three bullets marked "Item 3" to "Item 5" were not fired from the same firearm as the known bullets marked "Item 1".</p>
XR2UQH	<p>The Exhibit 1 firearm did not fire Exhibits 2, 3, 4, or 5. Exhibit 2 was not fired from the Exhibit 1 firearm or the same unknown firearm that fired Exhibits 3, 4, & 5. Exhibits 3, 4, & 5 were fired from the same unknown firearm; however, they were not fired from the Exhibit 1 firearm or the unknown firearm that fired Exhibit 2.</p>
XUQ4YV	<p>The submitted firearm (#1) did not fire any of the submitted bullets (#2 through #5). The #2 bullet was not fired from the same firearm that fired the #3 through #5 bullets. The #3 through #5 bullets were fired from the same unknown firearm.</p>
Y3G7FX	<p>All four of the submitted evidence bullets, items 2-5, are consistent in weight and design characteristics with 9mm Luger caliber, full metal jacketed bullets, exhibiting six lands and grooves inclined to the right. The submitted bullet, item 2, was microscopically compared to the test-fired bullets, item 1. The land impression widths on the evidence bullet were observed to be narrower than those present on the test-fired bullets. Based on this difference in general rifling characteristics, the bullet (item 2) was eliminated as having been fired from the same firearm that fired the test-fired bullets (item 1). The submitted bullet, item 2, was also microscopically compared to the remaining evidence bullets, items 3-5. The land impression widths on the evidence bullet, item 2, were also observed to be narrower than those present on the remaining evidence bullets, items 3-5. Based on these differences in general rifling characteristics, the bullet (item 2) was eliminated as having been fired from the same firearm that fired the remaining evidence bullets (items 3-5). The initial microscopic comparisons between the test-fired bullets (item 1) and the remaining evidence bullets (items 3-5) were inconclusive. There was agreement of general rifling characteristics with no agreement of individual characteristics. However, when the remaining three evidence bullets, items 3-5, were inter-compared, all three evidence bullets were identified as having been fired from the same (unknown) firearm. Since the three test-fired bullets (item 1) showed good reproducibility of their individual characteristics, and the three evidence bullets (items 3-5) also exhibited good reproducibility, it was concluded that none of the recovered bullets (items 2-5) were fired from the suspect weapon.</p>
Y4WFRW	<p>Examination of Items 2 through 5 determined them to be fired full metal jacket bullets consistent with 9mm Luger caliber engraved with six land and groove right twist rifling. These items were microscopically compared to each other and to the known test fired bullets (Item 1). Items 3, 4, and 5 were identified as having been fired in one firearm, and were eliminated as having been fired in the firearm that produced the known bullets (Item 1) due to differences in</p>

TABLE 2

WebCode	Conclusions
	individualizing characteristics. Item 2 was eliminated as having been fired in the same firearm that fired Items 3, 4, and 5 as well as the firearm that produced the known bullets (Item 1) due to differences in general rifling characteristics. If suspect firearms are submitted, microscopic comparison with Items 2 through 5 may be possible.
Y8TF3G	The fired bullets in Item #1 are of 9 mm caliber exhibiting six land and groove impressions with a right hand twist. Item #2 is of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. Item #2 was not fired from the same firearm as Item #1 or from the same firearm as Items #3, #4, and #5. Item #3 is of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. Items #3, #4, and #5 were fired from the same firearm. Items #3, #4, and #5 could not be identified or eliminated as having been fired in the same firearm as Item #1. See Findings for Item #2. Item #4 is of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. See Findings for Items #2 and #3. Item #5 is of 9 mm / 38 class caliber exhibiting six land and groove impressions with a right hand twist. See Findings for Items #2 and #3.
YCB6RQ	Reportedly, the three fired bullets in Item 1 were fired from the suspect's Ruger P95DC. The bullets in Item 1 were microscopically inter-compared and observed to show good reproducibility of class characteristics as well as individual characteristics of the firearm's barrel. Items 2, 3, 4, and 5 were eliminated as having been fired from the suspect's firearm. Items 3, 4, and 5 were identified as having been fired in the same firearm. Item 2 has been eliminated as having been fired in the firearm that fired items 3, 4, and 5.
YDBV6Z	Item #2 (one 9mm caliber FMJ projectile from victim) was examined on 06/10/2014. Item #2 (projectile from victim) was eliminated as having been fired from Item #1 (Ruger P95DC pistol). Item #2 (projectile from victim) was also eliminated as having been fired from the same firearm as Items #3, 4, and 5 (three projectiles from drywall). The general rifling characteristics of Item #2 (projectile from victim) are consistent with Smith & Wesson 9mm caliber pistols; however, this listing is not all inclusive. Items #3, 4 and 5 (three 9mm caliber FMJ projectiles from drywall) were examined on 06/10-06/12/2014. Items #3, 4 and 5 (three projectiles from drywall) were positively identified as having been fired from the same firearm. Although they had the same class characteristics, Items #3, 4 and 5 (three projectiles from drywall) were eliminated as having been fired from Item #1 (Ruger P95DC pistol) based on significant disagreement of individual characteristics.
YQ2EP3	The three (3) fired bullets, items 3, 4, and 5, were identified as being fired from one firearm; however they were not fired from the same firearm that generated the submitted test fired bullets, item 1. Items 3, 4, and 5, are most consistent with bullets commonly loaded in 9mm Luger caliber cartridges. Firearms known to exhibit similar general rifling characteristics as these items include, but are not limited to, firearms manufactured by Agram, American Eagle, Arcus, Beretta, Browning, Ceska Zbrojovka, Colt, Daewoo, EAA Corp., Federal Engineering, FM, FN/Browning[sic], Fox Co., Heckler & Koch, IMI, Industria Argentina, Kahr Arms, Keltee, KSN Industries, Luger, Mauser, Navy Arms, Norinco, Pleter, Radom, Ruger, Sardijs, Springfield Inc., Sterling Arms, SWD Inc., Tanfoglio (EAA), Vulcan Armament, Walther, and Zastava. The one fired bullet, item 2, was not fired from the same firearm that fired items 3, 4, and 5, nor was it fired from the firearm that generated the submitted test fired bullets, item 1. Firearms known to exhibit similar general rifling characteristics as item 2 include, but are not limited to, firearms manufactured by AA Arms Inc., Astra, Beretta, Bryco Arms, DWM, Fabrique Nationale, Feather Industries, FEG, FN/Browning, Glock, Helwan, IM Metal, IMI, Ingram (MAC), Intratec, Lahti, Llama, Luger, Mauser, Maverick Arms Inc., SigArms, Smith & Wesson, Stallard Arms, Star, SWD Inc., SIG, Valmet, Walther, Weaver Arms, and Wilkinson Arms.
YR286N	Item 001-A (CTS 1) consists of three test fired bullets from the recovered Ruger P95DC pistol. These were microscopically compared to the recovered bullets in 001-B (CTS 2), 001-C (CTS

TABLE 2

WebCode	Conclusions
	3), 001-D (CTS 4), and 001-E (CTS 5). It was determined that none of the recovered bullets in 001-B (CTS 2), 001-C (CTS 3), 001-D (CTS 4) or 001-E (CTS 5) were fired from the recovered Ruger P95DC pistol. The bullets in Items 001-C (CTS 3), 001-D (CTS 4) and 001-E (CTS 5) were all fired from the same firearm but different from the recovered Ruger P95DC pistol. The bullet in Item 001-B (CTS 2) was fired in a firearm that is different from the recovered Ruger P95DC and different from the firearm firing that fired the bullets in 001-C (CTS 3), 001-D (CTS 4) and 001-E (CTS 5).
YV46G2	The Item 1 bullets, each a caliber 9mm luger full-metal jacketed bullet, were examined microscopically and identified as having been fired from the same firearm. Items 3, 4, and 5, each a caliber 9mm luger full-metal jacketed bullet, were examined microscopically and identified as having been fired from the same firearm and exhibit markings that may be suitable for identification with the firearm from which they were fired. Firearms that produce general rifling class characteristics like those present on Items 3, 4, and 5 are too numerous to list. Items 3, 4, and 5 were eliminated as having been fired from the same firearm as the Item 1 bullets because of sufficient differences in individual characteristics. Item 2, a caliber 9 mm luger full-metal jacketed bullet, exhibits microscopic markings that may be suitable for identification with the firearm from which it was fired. Firearms that produce general rifling class characteristics like those present on Item 2 are too numerous to list. Item 2 was eliminated as having been fired from the same firearm as the Item 1 bullets and as Items 3, 4, and 5 because of differences in class characteristics.
Z33WJ4	Laboratory and comparison microscopic examinations were conducted and the findings are as follows: Items 2 through 5 were not fired in the same firearm as the Item 1 test fires. Items 3 through 5 were fired in one 9mm firearm. Suspect weapons include various makes of 9mm weapons; however, the most frequently encountered manufacturers that employ this rifling include Browning, FN, Hi-Point, IML, Luger, Norinco, Ruger, Tanfoglio and Walther. Item 2 was fired in a second 9mm firearm. Suspect weapons include various makes of 9mm weapons; however, the most frequently encountered manufacturers that employ this rifling include Astra, Beretta, FEG, Hi-Point, IML, Sigarms, Smith & Wesson, Star and Walther. Items 1 through 5 projectiles were not entered in the National Integrated Ballistic Information Network (NIBIN) database. Bullets are not entered into NIBIN.
Z4B832	Item #2 was not fired from the same firearm that fired Item #1. Items #3, #4, and #5 could not be associated to Item #1 by the use of toolmarks.
Z4BPZJ	The recovered questioned bullets labeled as item 2, 3,4 and 5, were not fired by the recovered firearm (Known.)
Z4GC2C	The test fired bullets in Item 1 were microscopically examined in conjunction with the bullets in Items 2, 3, 4 and 5. Based on these comparative examinations it was determined that: A) Item 2 had not been fired in the same firearm as the test fired bullets in Item 1 due to differences in class characteristics. B) Items 3, 4 and 5 bear no marks to link them as having been fired through the same barrel as Item 1. C) Items 3, 4 and 5 had all been fired through the barrel of the same unknown firearm.
Z6HRKA	Items 2 through 5 were not fired in the submitted 9mm Ruger pistol, model P95DC. Items 3 through 5 were fired in one 9mm weapon. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis. Item 2 was fired in a second 9mm weapon. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis.
ZBKBRT	Through the gravimetric study and microscopic comparison examination, the following was determined: 1) The bullets describe in Items 3,4 and 5, are 9 mm caliber, metal case type, with

TABLE 2

WebCode	Conclusions
	right rifling (R-6) and they were fired by the same firearm; they were not fired by the recovered firearm. 2)The bullet describes in the Item 2, is 9 mm caliber, metal case type, with right rifling (R-6)and was fired by a firearm; it was not fired by the recovered firearm. 3)The bullet describes in the Item 2, was not fired by the firearm that fired the bullets describe in the Items 3, 4 and 5.
ZEDKG9	Results: The bullets Exhibit 1 were identified as having been fired from a single firearm. The bullet Exhibit 2 was not fired from the same firearms as Exhibits 1, 3, 4, or 5. It bears rifling engravings of six grooves, right twist with dimensions most commonly encountered in 9mm Luger caliber pistols by many manufacturers. The bullets Exhibits 3, 4 and 5 were identified as having been fired from a single firearm. They were not fired from the same firearm as the bullets in Exhibit 1. They bear rifling engravings of six grooves, right twist with dimensions most commonly encountered in 9mm Luger caliber pistols by many manufacturers.
ZG4NAF	Ex 1, the test shots, were eliminated as having been fired from the same firearm as the fired bullet in Ex 2. Ex 1, the test shots, could not be identified or eliminated as having been fired from the same firearm as the fired bullets in exhibits 3, 4 and 5. Ex 2 was eliminated as having been fired from the same firearm as the fired bullets in exhibits 3, 4, and 5. Exhibits 3, 4 and 5 were compared and were identified as having been fired from the same firearm.
ZG8243	Exhibits 2, 3, 4 and 5 are nominal .38/9mm (includes 9mm Luger) caliber bullets. Exhibit 3, 4 and 5 were microscopically compared with each other. Based on similar discernible class characteristics and significant agreement of individual characteristics, Exhibits 3, 4 and 5 were identified as having been fired from the same firearm. Exhibit 3 was microscopically compared with the bullets of Exhibit 1, and they have significant differences in individual characteristics. Therefore, Exhibits 3, 4 and 5 were eliminated as having been fired from the firearm that fired the bullets of Exhibit 1. Exhibit 2 has different class characteristics than Exhibits 1, 3, 4 and 5; therefore, Exhibit 2 was neither fired from the firearm that fired the bullets of Exhibit 1 nor the firearm that fired the bullets of Exhibits 3, 4, and 5.
ZG84N2	The Item 2 bullet, Item 3 bullet, Item 4 bullet, and Item 5 bullet were compared to the Item 1 test bullets. They were not fired from the same firearm as the Item 1 bullets. The Item 3 bullet, Item 4 bullet, and Item 5 bullet were fired from the same 9mm caliber firearm rifled with six lands and grooves, right twist. Firearms chambered for this caliber with these rifling characteristics are too numerous to list. The Item 2 bullet was fired from a different 9mm caliber firearm rifled with six lands and grooves, right twist, Firearms chambered for this caliber with these general rifling characteristics include pistols manufactured by Bryco, SIGArms, and Smith & Wesson among others.
ZHX8G9	Items 2-5 were not fired in the same firearm as Item 1. Items 3-5 were not fired in the same firearm as item 2. Items 3-5 were fired in the same firearm.
ZJ2L8F	Items #1, 3, 4, and 5 were not fired in the same firearm as item #2. Item #2 exhibits different class characteristics (Different L & G width than items 1, 3, 4, and 5). Items 3, 4, and 5 were not fired in the same firearm as item #1. Item #1 exhibits similar class characteristics but different individual markings to items #3, 4, and 5. Items #3 and 4 were fired in the same firearm. Item #5 exhibits similar class characteristics but not enough individual markings to effect an identification to item #3, and 4. It could have been fired in the same firearm as items #3, and 4 or from a different firearm with similar manufacture.
ZKX74F	There were three different firearms. The RUGER P95DC which was siezed[sic] from the suspect, and two others. Bullet No.2, and 3-5 was fired from two different firearms.
ZM8PAA	Results: The bullets Exhibits 1 through 5 were compared microscopically with each other. The bullets Exhibit 1 were identified as having been fired from a single firearm. The bullet Exhibit 2 was not fired by the same firearms as the bullets Exhibit 1, Exhibit 3, Exhibit 4 and Exhibit 5.

TABLE 2

WebCode	Conclusions
ZN29H3	<p>This bullet bears rifling engravings of six grooves, right twist with dimensions encountered in 9mm Luger caliber firearms by many manufacturers. Therefore, any suspect firearm should be considered for submission to this laboratory for examination. The bullets Exhibits 3, 4 and 5 were identified as having been fired from a single firearm. They were not fired from the same firearm as the bullets Exhibit 1. This bullet bears rifling engravings of six grooves, right twist with dimensions encountered in 9mm Luger caliber firearms by many manufacturers. Therefore, any suspect firearm should be considered for submission to this laboratory for examination.</p>
ZNLYHA	<p>Item 2 was eliminated as having been fired from Item 1 based on differences in class characteristics. Item 2 was eliminated as having been fired from the same unknown firearm that fired Items 3-5. Items 3-5 were ID'd as having been fired from the same unknown firearm based on agreement of the combination of individual char. and all discernible class char. Items 3-5 eliminated as having been fired from Item 1 - based on differences in individual char.</p> <p>The Exhibit #2, #3, #4 & #5 fired bullets were microscopically compared to the Exhibit #1 test fires and to each other. Exhibits #2, #3, #4 & #5 were not fired from the same firearm as the Exhibit #1 test fires. Exhibits #3, #4 & #5 were fired from the same firearm. Exhibit #2 was fired from a second unknown firearm.</p>
ZP28W4	<p>Exhibits 1A through 1C consist of three (3) .38-caliber class copper jacketed bullets fired from a barrel rifled with six (6) lands and grooves with a right twist. The design features and characteristics of the Exhibit 1 bullets are consistent with bullets typically found loaded in caliber 9mm Luger cartridges. Exhibits 1A, 1B, and 1C are purported to have been fired from a Ruger, caliber 9mm Luger, model P95DC pistol. Exhibits 2 through 5 consist of four (4) .38-caliber class copper jacketed bullets fired from a barrel rifled with six (6) land and grooves with a right twist. The design features and characteristics of the Exhibit 2 through 5 bullets are consistent with bullets typically found loaded in caliber 9mm Luger cartridges. Microscopic comparisons were conducted between the Exhibit 1 through 5 fired bullets with the following results: Due to differences in class characteristics, it was determined that the Exhibit 2 bullet was not fired from the same firearm as the Exhibit 1, 3, 4, and 5 bullets. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Exhibits 1A, 1B, and 1C were identified as having been fired from the same firearm. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Exhibits 3, 4, and 5 were identified as having been fired from the same firearm. Though there is agreement of class characteristics, Exhibits 3, 4, and 5 could not be identified or eliminated as having been fired from the same firearm as Exhibits 1A, 1B, and 1C due to a lack of sufficient agreement of individual characteristics.</p>
ZPXT3G	<p>1. Pistol Ruger model P95DC caliber 9mm Luger serial number ?????? did not fired bullets that inscribed Item #1, Item #2, Item #3, and Item #4.[sic]</p>
ZTD2NU	<p>Comparison microscopy was used to intercompare questioned evidence and compare questioned evidence with submitted known test standards. The fired bullets, Item 3, Item 4 and Item 5, were fired from the same firearm. However, Item 3, Item 4 and Item 5 are eliminated as being fired from the firearm that fired the known test standards Item 1. Item 2 is eliminated as being fired from the firearm that fired the known test standards Item 1, and is eliminated as being fired from the firearm that fired Items 3, 4 and 5.</p>
ZUREGX	<p>The firearm that fired Item 1 (three bullets reportedly test fired from a Ruger Model P95DC 9mm Luger caliber pistol) did not fire Item 2 (a bullet). It could not be determined if the firearm that fired Item 1 fired Items 3, 4 or 5 (three bullets). Item 2 was fired from a different firearm than Items 3, 4 and 5. Examinations of Item 2 showed it to be consistent with a .38 or 9mm caliber bullet fired from a firearm with six lands and grooves with a right twist. Firearms with this rifling pattern include, but are not limited to, those manufactured under the brand names</p>

TABLE 2

WebCode	Conclusions
	Astra, Beretta, Bryco Arms, FEG, FN/Browning, Intratec, Llama, SIG Sauer, Smith and Wesson, Stallard Arms, Star, SWD Incorporated or Walther. Items 3, 4 and 5 were fired by the same firearm. Examinations of Items 3, 4 and 5 showed them to be consistent with .38 or 9mm caliber bullets fired from a firearm with six lands and grooves with a right twist. Firearms with this rifling pattern include, but are not limited to, those manufactured under the brand names Beretta, CZ, Colt, FEG, FN/Browning, Kahr Arms, Kel-Tec, Norinco, Ruger, Springfield Incorporated, SWD Incorporated, Tanfoglio or Walther. 1 The comparative examinations showed disagreement of individual characteristics, but insufficient for an elimination. The comparative examinations were inconclusive.
ZXQ4DC	Characterize the bullets in Items 1 through 5 and compare the bullets in Items 2 through 5 to the bullets in Item 1 to determine if they can be associated. FINDINGS AND OPINIONS: The questioned bullets, Items 1 through 5, were examined, documented, and compared with the known bullets, Item 1, with the following results: Item 2 bullet was eliminated as having been fired in the same firearm as the Item 1 bullets, because of a difference in class characteristics. Items 3 through 5 bullets exhibit similar class characteristics as Item 1 bullets; however, sufficient differences in individual characteristics were observed to eliminate Items 3 through 5 as having been fired in the same unidentified firearm as Item 1. Items 3, 4 and 5 bullets were identified as having been fired from the same firearm. A balance, stereoscope, comparison microscope and caliper were used in the examination of the bullets.
ZXUH8Y	Items 2-5 were not fired from item 1. Items 3-5 were all fired from the same firearm but a different firearm than item 2.
ZYKNK6	Item 2 was eliminated as having been fired from the same firearm as the test fires retained under this laboratory number and referencing item 1; due to disagreement of some of the discernible class characteristics. Item 2 is a 38/9mm caliber-class bullet fired from a firearm with a rifling pattern of six (6) lands and grooves with a right twist. Among the more common firearms that could have possibly fired item 2 include, but are not limited to, the following: AA Arms Inc., Astra, Beretta, Bryco Arms, Czechoslovakia, Fabrique Nationale, FN/Browning, Helwan, Intratec, Jennings/Bryco, Llama, Lorcin, Maverick Arms Inc., Stallard Arms, Star, Walther and Wilkinson Arms brands of 9mm Luger semi-automatic pistols. This is not meant to be an all-inclusive list but rather an investigative aide, any suspect firearm of the appropriate caliber-class should be submitted for comparison; however, the complete list will be maintained in the case file. Items 3-5 were eliminated as having been fired from the same firearm as the test fires retained under this case and referencing Item 1, due to disagreement of discernible individual characteristics. However, Items 3-5 were identified as having been fired from the same unknown firearm based on agreement of the combination of individual characteristics and all discernable class characteristics. Items 3-5 are 38/9mm caliber-class bullets fired from a firearm with a rifling pattern of six (6) lands and grooves with a right twist. Among the more common firearms that could have possibly fired Items 3-5 include, but are not limited to, the following: Beretta, Browning, Ceska Zbrojovka, Czechoslovakia, Daewoo, EAA Corp., FEG, FN/Browning, Kahr Arms, Keltec, Luger, Masterpiece Arms, Ruger, Springfield Inc., Tanfoglio and Walther brand of 9mm Luger semi-automatic pistols. This is not meant to be an all-inclusive list but rather an investigative aide, any suspect firearm of the appropriate caliber-class should be submitted for comparison; however, the complete list will be maintained in the case file.

Additional Comments

TABLE 3

WebCode	Additional Comments
23BYLN	The width of the land impressions on I2 are different to that on I1, I3, I4 and I5.
2GWXF2	Methods: 1) Exclusion (Elimination) - If two bullets have different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion) - If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for Identification. [A full methods and limitations section was included, but could not be reproduced here]
2LUHJL	Examination of questioned items 2, 3, 4, and 5 revealed them to be 38 nominal caliber fired bullets, which consists of 38 Spl, 9mm, and 357 Mag calibers among others, with 6 land and groove impressions with a right hand twist. The rifling characteristics of questioned items 2, 3, 4, and 5 are typical of firearms too numerous to list.
2W3VBF	Items #3, #4 and #5 have similar class characteristics as Item #1, so they cannot be eliminated. However, there is insufficient reproduction of individual characteristics that would enable them to be identified to Item #1.
36WZ4G	Inconclusive - Items #3, #4 and #5 have similar class characteristics as the fired bullets in Item #1 but have no clearly reproducing patterns of individual characteristics. This could be because Items #3, #4 and #5 were not fired from Item #1 or because they could have been but different variables may have caused the individual[sic] characteristics of the firearm not to reproduce consistently on these fired bullets.
38Q8WY	I also ran a GRC for Items 3-5 and Item 2.
3AB7QV	Results and Conclusions: Items 1A, 1B, 1C, 2, 3, 4 and 5 are 38 caliber class bullets based upon the diameter. Opinion/Interpretation: Items 1A, 1B, 1C, 2, 3, 4 and 5 are consistent with bullets loaded in 9mm (9x19) caliber cartridges based upon the weight/style. Items 1A, 1B, 1C, 3, 4, and 5, the bullets identified to be test fired from recovered firearm/bullets exhibits characteristics found in (but not limited to) the following firearms: Beretta, Browning, Ceska Zbrojovka, China (PRC), FN/Browning, Heckler & Koch, KelTec, Luger, Norinco, Ruger, Springfield Inc., Sterling Arms, SWD Inc., Tanfoglio, Walther and Zastava 9mm (9x19) caliber firearms. Item 2, the bullet, exhibits characteristics found in (but not limited to) the following firearms: Astra, Bryco Arms, FN/Browning, IML, Llama, Sigarms, Smith & Wesson, Stallard Arms Star, SWD Inc. and Walther 9mm (9x19) caliber firearms.
3PCRGP	he[sic] Firearms and Toolmarks Section (FTM) Standard Operating Procedures (SOP - FTM-03-30, Section 7) states: An insufficient correspondence of individual characteristics but a correspondence of class characteristics will lead the examiner to the conclusion that no identification or elimination could be made with respect to the items examined.
3RL6RJ	The three bullets from the scene (items 3 through 5) were fired in the same firearm based on sufficient corresponding individual characteristics observed in rifling marks. Although differences in individual characteristics were observed between the three bullets from the scene (items 3 through 5) and test-fired bullets from the suspect's pistol (Item 1), based on agreement of all rifling class characteristics and some agreement of individual characteristics, an inconclusive result was obtained.

TABLE 3

WebCode	Additional Comments
3T7TEX	The reason that Items 3A, 4A and 5A are rendered as inconclusive to test shots from the recovered firearm is that [State] State Police Forensic Science Division protocol does not allow eliminations based on individual characteristics.
4E4LU2	Although the Items 3, 4, and 5 bullets displayed the same class characteristics[sic] as the Items 1A-1C bullets, there was some disagreement of individualizing markings. However, the examiner was not comfortable eliminating the Items 3, 4, and 5 bullets as having been fired in the same weapon as the Items 1A-1C bullets without being able to examine the weapon itself or knowing the history of that weapon.
4FGAD2	When comparing Items 3-5 to Item 1, I did not find enough agreement of individual characteristics to make an identification. I also did not find enough disagreement to make an elimination, so I went with the more conservative conclusion of inconclusive.
4LZA6T	During the comparison of the questioned bullets (items 3, 4, & 5) to the known bullets (item 1), there was agreement of all discernible class characteristics, but no significant agreement or disagreement of the individual characteristics was noted.
4RTC2K	The fired bullet, Item 2, is consistent in physical design and construction with a 9mm caliber full metal jacketed bullet and exhibits six land and groove impressions with a right twist. The class characteristics of Item 2 were entered into the FBI's General Rifling Characteristics (GRC) File, and the attached list was generated referencing firearms with similar characteristics. This list is not all inclusive and firearms may exist that are not currently included. The fired bullet, Item 3, is consistent in physical design and construction with a 9mm caliber full metal jacketed bullet and exhibits six land and groove impressions with a right twist. The class characteristics of Item 3 were entered into the FBI's General Rifling Characteristics (GRC) File, and the attached list was generated referencing firearms with similar characteristics. This list is not all inclusive and firearms may exist that are not currently included.
4UGVYB	Documentation for Items #3, #4 and #5 being Inconclusive. The Limp/Gimp measurements and the rifling characteristics (6R) are the same for both the test shots and the fired bullets. In the "Scenario" it discusses that the firearm was recovered "close to" the scene and that the test shots (Item #1) were performed using consistent ammunition (PMC) as the fired bullets (Items #2 thru #5). If this was an actual case that I was working, it would not matter to me where/when the firearm was recovered. Also, as for the type of ammunition, I would try to use the same brand of ammunition, but with Limp/Gimp's that look very similar I am going to test fire different brands of ammunition to see how they mark. As for the ammunition, many bullets produced by different companies can have the same design. Also, we are to work these tests as if they are actual cases, the other information about where the firearm was recovered and type of ammunition should have no bearing on our results. We can only come to a conclusion based on what we [sic] in the microscope.
6DMP79	The reasons why Exhibits #3, #4 and #5 could not be identified or eliminated as having been fired in Exhibit #1 are as follows: 1) The rifling characteristics are similar. 2) Some limps can be phased with similar patterns between the two groups. 3) I do not have the firearm the tests were fired from in order to fire additional tests with various ammunition. These additional tests could help to prove an elimination or a possible identification. Additional tests are often fired using various ammunition brands when evidence is close in class characteristics and contain similar individual characteristics. Items 3, 4 and 5 have similar LIMP and GIMP measurements to Item 1; therefore no elimination can be made. Although the scenario lists that the firearm was secured immediately after the crime, and the scenario sheet lists that "similar" ammo was used in test firing the found gun - these factors cannot be considered reliable or scientific considerations when calling an identification or elimination.

TABLE 3

WebCode	Additional Comments
6L9JTJ	Items 3, 4, and 4[sic] were identified to one another. Additionally, the submitted "knowns" were reproducing and an identification was established between them. Although significant disagreement of individual characteristics was not observed, there is no indication that Items 3, 4, and 5 were fired in the Ruger P95DC that fired the "knowns" (Item 1). When all class characteristics are in agreement, it is strongly discouraged through laboratory policy to eliminate solely on disagreement of individual characteristics.
77QUVL	The differences observed between Item 1 and Items 3, 4, and 5 may indicate elimination, however the differences are insufficient for conclusive elimination. Examination of the firearm barrel may be helpful and since it could have been damaged, altered and/or fouled.
789GU4	In casework we do not eliminate on same class but lack of individual characteristics. We have a statement that says, Based on class characteristics, the projectiles could have been fired from the same firearm, however there are no individual characteristics to suggest that it was.
79GYNT	Items 3, 4 and 5 have class characteristics consistent with Item 1. The items have significant differences but some similar individual characteristics. Due to the presence of these similar individual characteristics a conclusive elimination was not made.
79PNED	Reason for inconclusive states in the conclusions, "there was not sufficient agreement nor sufficient disagreement of microscopic marks."
7QAEFX	The [State] State Police firearms and tool marks unit operations manual only allows for eliminations to be made on class characteristics not individual characteristics; therefore a conclusion of Inconclusive can only be made regarding the comparison of items 3, 4 and 5 to test shots from the suspect firearm.
7XNTYN	Possible firearm manufacturers include but are not limited to; Astra, Bryco, Hi-Point, Llama, Sigarms, Smith & Wesson, Stallard, Star & Walther for Item 2 and Beretta, Browning, Heckler & Koch, Hi-Point, KelTec, Ruger, Springfield Inc., Tanfoglio & Walther for Items 3, 4 & 5. Items 2, 3, 4 & 5 should be resubmitted along with any suspect firearms.
89DVCU	A gun list can be provided upon request for Item #2 and for Items #3-#5.
8GAV33	Exhibit 1 microscopically compared to Exhibits 3, 4, and 5 displayed agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility.
8HWKZV	Microscopic marks present on Items 3, 4, and 5 are not consistent with the marks present on Item 1 (Inconclusive).
8QH24C	A list of guns that could have fired Item 2 was developed based on the measured barrel rifling class characteristics (the developed list may not be all-inclusive). The list was too large to be included in this report. However, it will be made available upon request.
8WH6NN	** Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. In actual casework additional tests would have been fired from Item 1 pistol in order to explore the possibility of a more conclusive determination.
A2GENM	Comparison of Item 1 to Items 3-5 showed disagreement of Individual characteristics, however because there is agreement of class characteristics and I don't have the gun to examine the result is inconclusive.

TABLE 3

WebCode	Additional Comments
A3KPAK	Items 1 through 5 represent three different firearms. Items 2 through 5 should be resubmitted along with any suspect firearms.
A6QAXK	Quality of individual characteristics on Items 3, 4, and 5 are not as sharp as Item 1. Item 1 also has individual characteristics in the middle of the land impressions, these areas are not marked as well on Items 3, 4, and 5. I would want to test fire additional make/type of ammunition in Item 1 to ensure these areas are consistently marking and possibly eliminate Items 3, 4, and 5.
A6XNVZ	Items 3, 4, and 5 are inconclusive because they bear the same class characteristics as Item 1 and although no marks were found to link Items 3, 4, and 5 to Item 1, this is insufficient for an exclusion.
ACRZHF	The comparative examinations of Items 1 and 3 through 5 showed similar class characteristics and disagreement of individual characteristics. This disagreement was insufficient for an elimination and based on class characteristics the pistol used to test fire Item 1 could not be eliminated from having fired Items 3 through 5.
AFG3Y3	Item #3, 4, & 5 had the same class as the bullets in Item #1 but I didn't observe any matching individual characteristics. The tests were very easy to index. Items #3, 4, & 5 were equally easy to ID as having been fired in the same firearm.
AK86DG	A total of 3 firearms are involved; the Item 1 firearm (known) and 2 unknown firearms (one which fired Item 2 & one which fired Items 3, 4, 5).
AUZUGG	The projectile in Submission 2 has lands and grooves which are narrower than those of the projectiles produced by the gun in Submission 1. The projectiles in Submissions 3, 4, and 5 were ID as having been fired by the gun that produced the test fires in submission 1 on short parallel striae on base and fine and gross striae on lands and grooves.
AXZ4GB	Evidence items 1.2, 1.3, 1.4 and 1.5 were microscopically compared to each other with the following results. The expended bullets contained in items 1.3, 1.4 and 1.5 were all positively fired from the same firearm. The expended bullet contained in item 1.2 was positively NOT fired from the same firearm as 1.3, 1.4 and 1.5.
AZLR2X	Eliminations based solely on differences in the individual characteristics observed is not an acceptable practice for this laboratory.
AZXPTV	Item 3,4, and 5 were inconclusive to Item 1 due to a lack of corresponding individual characteristics.
BAZUFP	I feel that three (3) test bullets of identical ammunition are not enough exemplars for an exclusion. The firearm and various types of ammunition replicating the individual characteristics should be used for this determination. If excluding on individual characteristics I, personally, would have to take many more test fires to come to that conclusion.
BULQRA	Exhibit #2 was eliminated from Exhibit #1, #3, #4 and #5 due to a difference in LIMP and GIMP widths by using direct comparison. Exhibits #3, #4, and #5 had the same class characteristics as Exhibit #1, however there was not enough individual characteristics to make an identification or an elimination.
C8LUNN	Item # 1.5 (5) is a fired bullet within the .38 family caliber of bullets, which includes but is not limited to .38 Special, .357 Magnum, 9mm Luger and .380 Auto, with it being most consistent with the 9mm Luger. Item # 1.5 (5) was fired from a barrel rifled with six lands and grooves, right twist. Item # 1.5 (5) had similar class and individual characteristics as Item #'s 1.1.1, 1.1.2 & 1.1.3 (1); however, there was a lack of sufficient individual characteristics to

TABLE 3

WebCode	Additional Comments
	identify it as having been fired from the same barrel.
CC3J6W	Examination also showed that the fired bullets (Items 3 to 5) had been fired in the same weapon. Examination also showed that the fired bullet (Item 2) had been fired in a different firearm to that which had fired the exhibit fired bullets (Items 3 to 5).
CTHN34	Items 003, 004 and 005 could not be identified or eliminated as having been fired by Item 001 because microscopic examination of individual characteristics did not reveal enough information.
CUKZDE	The items 3 through 5 shared class characteristics with items 1 (T1 through T3) however there wasn't sufficient agreement of individual characteristics to conclude an identification. Items 3 through 5 were identified as having been fired through the same firearm. Items 1 (T1 through T3) were identified as having been fired through the same firearm. Though they could not be identified as having been fired through the same firearm and due to the agreement of class characteristics and some similar individual characteristics the only conclusion is an inconclusive result between items 3 through 5 and items 1 (T1 through T3).
DJ9GZ9	A search of the General Rifling Characteristics (GRC) through the FBI's databases indicated the bullet (Item 2) may have been fired from one of the following manufacturer's firearms: Astra, Beretta, Bryco, Calico, Czechoslovakia, DWM, FN, FEG, FN/Browning, France, Germany, Glock, H&K, Hi-Point, Hungary, IMI (UZI), John Inglis, Llama, Luger, Mauser, Maverick, Norinco, S&W, Stallard, SWD, Swiss Ind. Gesell, Valmet, Walther or Wilkinson Arms; and the bullets (Items 3, 4 & 5) from a firearm manufactured by: American Eagle, Arcus, Australia, Belgium, Browning, China (PRC), Colt, Daewoo, EAA Corp., England/UK, Federal Engineering, FM, FN/Browning, Fox Co., Germany, H&K, Hi-Point, IMI(UZI), Indust. Argentina, Keltec, KSN Ind., Luger, Mauser, MK Arms Inc., Navy Arms, Norinco, Radom, Ruger, Sardius, Springfield Inc., Sterling Arms, SWD, Tanfoglio, Walther, or Zastava. However, there may be add'l FA's w/ these GRC's.
DWKLQ3	The fired bullets in Exhibits #1, #3, #4, and #5 have the same class characteristics. During the microscopic examination there was not sufficient agreement in the individual characteristic to identify the fired bullets in Exhibit #1 to the fired bullets in Exhibits #3, #4, and #5. If possible, the firearm would be requested in order to create more test shots for comparison before reporting a result. Based on only the three fired bullets (known test shots) provided here in Exhibit #1, the finding is that the fired bullets in Exhibits #3, #4, and #5 could not be identified or eliminated as having been fired from the same firearm as the fired bullets in Exhibit #1.
DYGLVZ	Items #3, #4, & #5 have similar class characteristics as the fired bullets in Item #1. There are not enough differences in individual characteristics to eliminate Items #3, #4, & #5 from the fired bullets in Item #1. (I would fire a few more test shots just to be sure before I eliminate.)
ETELP4	See above for reasons of inconclusives. [See Table 2: Conclusions]
F9L37V	Microscopic Comparison completed between recovered evidence Items #2, #3, #4, & #5 with the following results. Items #3, #4, & #5 were fired from the same (one) Weapon. Item #2 was fired from a different (second) Weapon.
FGTZE7	The elimination of Items 3-5 from the pistol is based on the assumptions that the firing of the bullets into the bank walls was concurrent with the homicide incident, that the pistol was recovered shortly after the incident, and that the pistol was available for inspection[sic] to determine that the bore had not been altered. Were these assumptions not met, I would have reported it as inconclusive with the explanation that there was no significant correlation of

TABLE 3

WebCode	Additional Comments
	stria in either the land or groove impressions between the two groups of bullets. I would have also told the detective to look for another firearm.
FKZZDJ	Item 2 was eliminated based on differences/disagreement of class characteristics. (width of lands & grooves). Disagreement of class from Items 1, 3, 4 & 5. Items 3, 4, 5 - sufficient agreement of ind. characteristics, all class agree. Items 3, 4 and 5 were eliminated based on significant disagreement of individual characteristics. (although class char. agree, TF's of Item 1 were reproducing individual charact. of sufficient agreement which were significantly different from the indiv. charact. of Items 3, 4, and 5. The Item 1 firearm was recovered close to the scene, (and test fires were taken with similar ammunition), so the test fires were produced in close proximity to the crime (History of tool known since crime - short time). Individual characteristics of the questioned bullets were reproducible and yielded an identification. The criteria set forth by SWG GUN for eliminations based on individual characteristics have been satisfied, based on the above synopsis of the analysis.
FMHAWR	In our lab a lack of corresponding individual characteristics does not give sufficient cause for an elimination.
FUR2LM	* Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. Firearms/Toolmark Identification is an empirical science that relies on objective observations and a subjective interpretation of microscopic marks of value.
FWDFYJ	Items 3,4,5 have the same caliber/weight and land/groove measurements as Item 1. However, lack of corresponding individual characteristics leads to an inconclusive conclusion.
FWDQZ9	The bullet (item 2) from the victim shows differences in class characteristics of barrel rifling impressions from the test-fired bullets (item 1) from the gun recovered in the suspect's vehicle. The other bullets (items 3, 4, and 5) from the crime scene show agreement of class characteristics of barrel rifling impressions with the test-fired bullets (item 1) from the gun recovered in the suspect's vehicle. No significant agreement of individual characteristics of barrel rifling impressions was found. The three evidence bullets (items 3, 4, and 5) were compared with each other and showed agreement of individual characteristics. This shows that they were fired by the same firearm, a different firearm from the recovered firearm (used to fire the bullets in item 1).
FZMG2N	Firearms which produce similar rifling impressions like those on Exhibits 3 through 5 include, but are not limited to, 9mm Luger caliber semi-automatic pistols too numerous to list. Firearms which produce similar rifling impressions like those on Exhibit 2 include, but are not limited to, 9mm Luger caliber semi-automatic pistols too numerous to list.
G4HWMG	Absent extraordinary circumstances, laboratory policies in general do not encourage eliminations based on individual characteristics alone.
G9DJHQ	Based on the general rifling characteristics present, firearms that could have fired Exhibits 3 through 5 would include, but not be restricted to, those manufactured by Ruger, Browning, Walther, IMI, Norinco, SWD, Tanfoglio and Zastava. Based on the general rifling characteristics present, firearms that could have fired Exhibit 2 would include, but not be restricted to, those manufactured by Hi-Point, Smith and Wesson, Walther, Bryco, Llama, Mauser and SWD.
GQMVKM	The Ruger P95C[sic] Handgun could not have fired the fatal bullet (Item "2") recovered from

TABLE 3

WebCode	Additional Comments
	the victim as the class characteristics of the rifling differed from that shown on the Test Samples Item "1" Items 3 and 4 were consistent with having been fired by the Ruger P95C[sic] Handgun having the same class characteristics, but insufficient correspondence of Accidental characteristics for a positive comparison as having been fired in the same firearm as the known bullets (Item 1).
GTJ4C6	The Item 3 to 5 bullets matched each other and were discharged from the same firearm. The identifications were based on the agreement of individual characteristics observed during a microscopic comparison.
H89Y2V	Items #3 through #5 were determined to be inconclusive due to similar[sic] individual characteristics between[sic] known Item #1 and Items #3 through #5.
HBTKR3	Normally we would fire the Ruger pistol ourselves, so the wording of the report differs slightly than what it would be for regular casework.
HEZVUX	See Attached Report [Report not included]
HF36VW	The elimination based on individual characteristics between bullets from Item 1 and the fired bullets submitted as Items 3-5 was based on very good reproducing detail exhibited on the fired test bullets submitted as Item 1 and very good reproducing detail exhibited between the bullets submitted as Items 3-5, but a lack of agreement between the fired bullets from Item 1 and the fired bullets from Items 3-5.
HJ2PC2	Items #3, #4, and #5 were inconclusive to Item #1 because they had the same class characteristics, but a sufficiently similar pattern could not be found to allow for an identification. Even though Items #3, #4, and #5 and the test fired bullets in Item #1 seemed to have fairly consistent repeating patterns respectively, my training and experience would not allow me to eliminate based on differences in individual patterns. My training and experience has taught me to not underestimate the various factors that can change the microscopic patterns on bullet evidence.
HJBUHK	Per our policy, we do not eliminate based on individual characteristics, therefore, item #'s 3, 4 and 5 cannot be eliminated as having been fired from the same firearm as item #1.
HNWVZY	There is a conformity of class characteristics (width of land and groove impressions) of three bullets Item 1 with bullet Item 5. However, the conformity of individual identification characteristics left in Item 1 and Item 5 is not sufficient to undoubtedly state that the bullet Item 5 was fired from the Ruger P95DC pistol held in evidence. Therefore during the research it was determined that the bullet Item 5 was probably fired from the Ruger P95DC pistol held in evidence - probably yes.
HRRKHP	I was able to phase test to each other. It appears that the tests were fired from a different firearm than[sic] 3,4, and 5 but there is not enough information to eliminate, resulting in inconclusive finding.
HV2MNL	Methods: 1) Exclusion (Elimination) - If two bullets have different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion) - If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for Identification. [A full methods and limitations section was included, but could not be reproduced here.]

TABLE 3

WebCode	Additional Comments
HV9MYN	There was insufficient matching marking to identify, but not enough individual differences to eliminate.
JP6JUG	Items 3, 4 and 5 exhibited the same class characteristics as the test fired bullets (Item 1). Both corresponding and non-corresponding microscopic characteristics were observed between the test bullets and the questioned bullets, however there were insufficient microscopic characteristics for an identification or an exclusion. Further testing to the suspect firearm or the additional submission of the remaining firearms in this case would be beneficial for further testing.
K7AAPH	Methods: 1) Exclusion (Elimination) - If two bullets have different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion) - If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for Identification. [A full methods and limitations section was included, but could not be reproduced here]
KR4VU9	The firearm used to fire the three bullets described in item 1, was not the firearm used to fire the projectiles described in item 2,3, 4 and 5. The conclusions are based in gravimetric study, microscopic examination and microscopic comparison.
KV4AWH	CTS Item 1 Known Test Fires = Item 1A CTS Item 2 = Item 1B CTS Item 3 = Item 1C CTS Item 4 = Item 1D CTS Item 5 = Item 1E
KWN28G	Due to [State] State Police Forensic Science Division policy, an elimination can not be based solely on individual characteristics or lack thereof. Evidence can only be eliminated based on differences in class characteristics. The two fired metal jacketed bullets (Items #3 and #4) were recovered from the drywall at the scene and the fired metal jacketed bullet (Item #5) was recovered from the wall partition at the scene. While they were able to be identified to each other; the damage from penetrating the drywall and wall partition may have obliterated/abraded individual characteristics. The suspected firearm would need to be submitted to obtain additional test shots for further comparison.
L8UGAD	Excluding bullets that exhibit the same class characteristics should be done with extreme caution and with consideration to the facts of the case. In this instance, the gun was procured immediately following the incident. The test fires from the Ruger all exhibited serially[sic] reproducible identifying characteristics. Items 3, 4, and 5 did not exhibit those same characteristics. They did, however, exhibit their own serially reproducible identifying characteristics that allowed a determination to be made that these bullets had been fired out of the same firearm, but not the Ruger that was recovered immediately following the incident.
LAE4F2	Items #3, #4 and #5 have similar class characteristics as the test-fired bullet exemplars, Item #1, obtained from the Ruger, model P95DC pistol; however, due to insufficient corresponding individual barrel signatures it could not be identified or eliminated as having been fired from the Ruger pistol.
LF7KC7	The test-fires should be indexed to help facilitate the comparison. They should also be noted as testfire 1, 2, and 3, or as A, B, and C.
LGUVED	Items 3, 4 and 5 (fired bullets) were identified as having been fired from the same firearm barrel. However, they were not identified or eliminated (inconclusive) as having been fired

TABLE 3

WebCode	Additional Comments
	from the same firearm barrel as Items 1-A, 1-B and 1-C (test shots) due to the lack of agreement between individual characteristics. The class characteristics of Items 3, 4 and 5 were similar to the class characteristics of Items 1-A, 1-B and 1-C (test shots). Therefore, per policy, they were not eliminated as having been fired from the same firearm barrel as Items 1-A, 1-B and 1-C despite differences in individual characteristics.
LNCYR8	The determination of inconclusive for items 3, 4, and 5 is due to the lack of sufficient reproduced patterns of striations from the test fired bullets, but they show an agreement of class characteristics.
LQ2JJX	1) This laboratory does not normally render opinions of elimination based on individual characteristics. 2) Even if I were to contemplate an elimination on individual characteristics, it's a matter of normal lab procedure that I would examine the firearm and its barrel before doing this.
LYYZMA	It would be interesting if were submitted for analysis, bullets with polygonal rifling.
MQEG49	Microscopically compared the Item 1 tests to Items 3, 4, and 5 with agreement of all class characteristics, and some disagreement of individual characteristics; however, extent of disagreement is insufficient for elimination. Note that the Item 1 bullets have characteristics and reproducible patterns of individual marks that are not present on Items 3, 4, and 5, but I am unable to account for possible change to the firearm between the time of offense and testing. Additionally, some variability was noted in the pattern areas observed on Items 3, 4, and 5 which would lessen the ability to eliminate based on differences in individual characteristics.
MXEQLU	The characteristic marks on the recovered bullets Item 3, Item 4 and Item 5 matched with each other but did not match with the recovered bullet Item 2. Hence I am of the opinion that Item 3, Item 4 and Item 5 were fired from the same firearm while Item 2 was fired from another firearm.
NEFY9Y	The Q-2 through Q-4 fired bullets (Items 3 through 5, respectively) are being reported as inconclusive in that there is agreement of all discernible class characteristics and disagreement of individual characteristics, but insufficient for an elimination.
NX4733	Methods: 1) Exclusion (Elimination) - If two bullets have different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion) - If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for Identification. [A full methods and limitations section was included, but could not be reproduced here.]
NYT9GH	The general rifling characteristics of item 2 were different to the GRC's of the test items and also items 3, 4 and 5.
P48ZKH	Exhibits #2, #3, #4 and #5 are similar in diameter, weight and configuration to bullets commonly loaded in 9mm Luger caliber cartridges.
P4EQ9U	Current laboratory policy allows eliminations based on individual characteristics; however, due to the similarity of the class characteristics, minimal matching striae and not having the firearm available for analysis of the barrel, an inconclusive finding was rendered.

TABLE 3

WebCode	Additional Comments
P7WBFG	This laboratory does not routinely report eliminations when examined items share consistent class characteristics but lack significant combinations of corresponding patterns of individual characteristics.
PPNM6W	Exhibits #3, #4, and #5 have the same class characteristics and there is not enough difference or similarities between the individual characteristics of the two groups to identify or eliminate them from each other.
Q7DKB4	Submission 3 through 5 bear same class characteristics as Submission 1: insufficient reproducible individual characteristics to make ID. Submissions 1, 3, 4 and 5 have same type of individual characteristics (short and medium stria at base of groove and long stria near shoulders of each groove). Compared Submissions 3 through 5 to each other: ID on short and medium (near base) and long (near shoulders) stria in grooves and long stria on lands. Submissions 3 through 5 oriented using red mark at base of bullet.
QPBRUV	Inconclusive due to lab policy that eliminations must be based on differences in class characteristics.
R8M3TY	The bullets in items 3, 4, and 5 and the bullets in item 1 lack correspondence of individual characteristics, however, contain similar class characteristics.
RBZVHE	All the bullets received were of 9mm calibre and each was engraved with rifling characteristics of six land and grooves with a right direction of twist. The bullets from Item 1, 3, 4 and 5 had the same land and groove measurements while the bullet from Item 2 had narrower land and groove measurements.
RL3EU8	Item #1 test shots from P-1. Item #2 - B-1. Item #3 - B-2. Item #4 - B-3. Item #5 - B-4.
TQCPRT	Any and all microscopic comparison inconclusive conclusion above was reached due to the absence of sufficient significant agreement or significant disagreement of the individual characteristics observed among the firing marks compared.
U9FMXN	Inconclusive finding: Items #3 through #5 could not be identified or eliminated as having been fired in Item #1. Factors leading to the conclusion include limited sample sizes (three items per group; no ability for additional test shots to be fired), no readily distinguishable class characteristics differences (all 9 mm/38 class, 6R, with similar LIMP/GIMP measurements), and the lack of microscopic detail within some of the land impressions (an absence of information is not readily a difference of information)
UHVPUV	The bullets in items 3, 4 and 5 were identified as having been fired in the same firearm. The bullets in items 3, 4 and 5 were excluded as having been fired in the same firearm as the bullet in item 2.
UPMQB3	The bullets described in Item 1, were not fired by the firearm used for bullets described in Items 2, 3, 4, and 5.
UUHF38	Inconclusive results are reported when class characteristics are similar and no firearm is available to determine if the barrel could have been modified between the firing of the evidence projectiles and the test fired projectiles.
UZTHCH	The identification of Items #3, #4, and #5 to each other and the elimination of Items #3, #4, and #5 from Item #1 would have been verified by another examiner had they been an actual case.
VAANLQ	Item 3, 4 and 5 were fired with the same handgun (Ruger). Item 2 has macro marks different in width to those from items 3, 4 and 5.

TABLE 3

WebCode	Additional Comments
VE44WE	1) The Firearms Section of the [Country] Forensic Laboratory eliminates only with differences in class characteristics. 2) Further examinations with these exhibits would include a probable make and type examination with respect to the bullet, Exhibit 2, and the bullets 3, 4 and 5.
VTDEEM	Items 3, 4 and 5 were determined to be inconclusive due to the limited amount of information obtained from the comparison of the individual characteristics. All discernible class characteristics agree; however, very limited agreement of individual characteristics. Not enough individual disagreement was observed to eliminate them from the firearm that fired Item 1. If the firearm was available, additional test shots would be obtained in an attempt to ascertain a result of identification or elimination. Based upon the evidence submitted, I could not make such a conclusion.
VWDUGH	See attached [Report not included]
WA9X7V	The characteristic fine striations on the expanded bullets item'3' to item'5' to correlate with each other. Hence, I am of the opinion that item'3' to item'5' were fired with a same firearm. The characteristic fine striations on the expanded bullets item'2' not to correlate with the characteristic fine striations on the item'3' to item'5'. Hence, I am of the opinion that item'2' was not fired with the same firearm as expanded bullets in item'3' to item'5'
WJBRAF	Lab Policy manual states in part: " An elimination of a firearm by other than class characteristics is possible in an exceptional situation and with cartridge cases only, not be done with projectiles"
WRPEZG	Exhibits #3 through #5 exhibited class characteristics consistent with those of Exhibit #1. It was judged that there was not sufficient similarity in individual characteristics between Exhibits #3 through #5 and Exhibit #1 to identify Exhibits #3 through #5 as having been fired from the same firearm as Exhibit #1. It was also judged that there was not sufficient dissimilarity in individual characteristics between Exhibits #3 through #5 and Exhibit #1 to eliminate Exhibits #3 through #5 as having been fired from the same firearm as Exhibit #1.
WUNRAA	Items 3-5 are inconclusive to Item 1 due to an insufficient correspondence of individual characteristics. Specifically, there is an agreement of all discernible class characteristics and disagreement of individual characteristics, but insufficient disagreement for an elimination. If I was able to examine and test fire the firearm in question, perhaps a conclusion of elimination could be reached.
WYPBNZ	The Item 1 bullets were microscopically compared to each other with Positive Results. The Item 1 bullets were fired through the barrel of the same firearm. The Item 3, Item 4 and Item 5 bullets were microscopically compared to each other with Positive Results. The Item 3, Item 4 and Item 5 bullets were fired through the barrel of the same firearm. The Item 2 bullet was microscopically compared to the Item 3, Item 4 and Item 5 bullets with Negative Results. The Item 2 bullet was not fired through the barrel of the same firearm as the Item 3, Item 4 and Item 5 bullets.
X9F7NT	Laboratory policy does not allow for eliminations based on individual characteristics.
XCB7YD	Inconclusive: Items #3, #4, and #5 could not be identified or eliminated as having been fired from Item #1. Class characteristics are similar (6R, LIMP and GIMP widths, caliber), but individual characteristics are not similar.
XLJG89	Microscopic comparison showed that none of the questioned bullets matched the known bullets. It was concluded that the questioned bullets had been discharged from two separate firearms. The bullet recovered from the body was fired in a different firearm to those recovered from the scene. All bullets were fired from a 9mm.P calibre firearm.

TABLE 3

WebCode	Additional Comments
XQYPTM	1) The three questioned bullets marked "Item 3" to "Item 5" were found to be in agreement of class characteristics and there is sufficient agreement of individual characteristics. Hence, they were fired from the same firearm. 2) The elimination conclusion is based on the premise that the four shots at the jewelry store were fired during the same robbery and that the suspect firearm was recovered shortly afterwards. 3) An inconclusive result could be tendered if the three shots in the wall were from a previous incident and there was an appreciable time interval between the incident and the suspect firearm being recovered. In the intervening period the barrel could have been changed or altered in some way.
Y3G7FX	This is an interesting test and one that actually illustrates more typical casework. The class elimination is routinely observed in the laboratory; however, elimination based on individual characteristics is only occasionally seen and requires the examiner to consider the weight that might be given to good reproducibility of individual characteristics within a discrete subset(s) of the available evidence and the circumstances surrounding the shooting and the recovery of the gun. Given that some examiners never eliminate if there is an agreement of class characteristics, or if the firearm itself is unavailable, it will be interesting to see the consensus results of this test. Certainly, within the given scenario of the gun being recovered so soon after the event - and the reproducibility observed on both the test-fired bullets and three of the evidence bullets - no demonstrable changes to the working surface of the bore could be expected to have taken place.
Y8TF3G	Items #3, #4, and #5 were called inconclusive to item # 1 because they exhibited similar class characteristics, but not exhibit enough similarity in individual characteristics to state they were fired from the same firearm.
Z4B832	The elimination to Item #2 was made using class characteristics. Item #2 displays six lands and grooves with a right hand twist with a land-to-groove ratio of approximately 1:2. The test bullets (Item #1) display six lands and grooves with a right hand twist with a land-to-groove ratio of approximately 1:1. The examination of Items #3, #4, and #5 to Item #1 was an Inconclusive C per AFTE. (Agreement of all discernable class characteristics and disagreement of individual characteristics, but insufficient for an elimination). Not knowing the history of the firearm(s) involved I am hesitant to eliminate on individual characteristics alone. The cross-identifications of Items #3, #4, and #5 were made using striae in a land impression. Additional matching detail can be found in a land impression and three groove impressions.
Z4BPZJ	The recovered questioned bullet labeled as item 2, was fired by a different firearm, from the one used for items 3, 4 and 5. The recovered questioned bullets labeled as item 3,4 and 5, were fired by the same firearm.
Z6HRKA	Item 2 was eliminated based on differences in class characteristics. Items 3 through 5 were eliminated based on differences in individual characteristics.
ZEDKG9	Remarks: Questions regarding this report should be adressed to: [email]
ZG4NAF	In regards to the test shots from Ex #1 being found to be inconclusive to the fired bullets in Ex's 3, 4, 5, the class characteristics are similar, but there is an insufficient pattern of unique microscopic detail within the individual characteristics to render an opinion as to whether or not the fired bullets in exs 3, 4 and 5 were fired in the same firearm as the fired bullets in ex #1.
ZJ2L8F	Items #2, 3, 4, and 5 are all consistent with 38 caliber family which includes 9x19mm caliber.
ZM8PAA	Remarks: The bullets Exhibit 1 are said to be test fires fired from a Ruger P95DC semiautomatic pistol recovered by the submitting agency.

TABLE 3

WebCode	Additional Comments
ZP28W4	<p>Firearms which produce similar rifling pattern to Exhibit 2 include, but are not limited to: caliber 9mm Luger semi-automatic pistols marketed by Astra, Beretta, Bryco Arms, Calico, Czechoslovakia, Fabrique Nationale, FEG, FN/Browning, Heckler & Koch, Helwan, Hi-Point Firearms, IMI, Intratec, Kel-Tec, Llama, Luger, Masterpiece Arms, Mauser, Maverick Arms Inc., Norinco, Sigarms, Smith & Wesson, Stallard Arms, Star, SWD Inc., and Walther.</p> <p>Firearms which produce a similar rifling pattern to Exhibits 3, 4, and 5 include, but are not limited to: caliber 9mm Luger semi-automatic pistols marketed by Beretta, CZ, Colt, Czechoslovakia, EAA Corp, FMJ (Cobray), FN/Browning Heckler & Koch, Hi-Point Firearms, Intratec, Kahr Arms, Kel-Tec, Luger, Norinco, Ruger, Springfield Inc., Tanfoglio, and Walther.</p>
ZPXT3G	<p>1. Bullets that inscribed Item #2, Item #3 and Item #4 were fired in the same firearms but different from the suspect pistol and different from the pistol that fired bullet that inscribed Item #1. 2. Bullet that inscribed Item #1 have different family characteristics (GRC). [sic]</p>
ZUREGX	<p>Inconclusive: The class characteristics of Item 1 and Items 3, 4 and 5 were in agreement. It could not be determined if the firearm that fired Item 1 fired Items 3, 4 or 5 (three bullets).¹ 1 The comparative examinations showed disagreement of individual characteristics, but insufficient for an elimination. The comparative examinations were inconclusive.</p>

Appendix

Collaborative Testing Services ~ Forensic Testing Program Test No. 14-526: Firearms Examination

DATA MUST BE RECEIVED BY June 23, 2014 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB and ANSI-ASQ NAB/FQS. Please select one of the following statements to ensure your data is handled appropriately.

This participant's data is intended for submission to ASCLD/LAB and/or ANSI-ASQ NAB/FQS. (Accreditation Release section on the last page must be completed and submitted.)

This participant's data is NOT intended for submission to ASCLD/LAB or ANSI-ASQ NAB/FQS.

Online Data Entry

Visit www.cts-portal.com to enter your proficiency test results online. If you have any questions please do not hesitate to contact CTS.

Scenario:

Police are investigating a homicide that occurred at a jewelry store. The victim was shot once and the bullet was recovered by the medical examiner. Investigators also recovered three bullets from the scene, two from the drywall and one from a wall partition. A suspect was apprehended close to the scene and a handgun was seized from the vehicle. The firearm is a Ruger P95DC handgun. Three rounds of PMC® 9mm ammunition (which were consistent with the bullets recovered from the victim and scene) were test fired from the recovered firearm and the bullets collected. Investigators are asking you to compare the recovered bullets from the victim and scene with those test fired in the recovered firearm and report your findings.

Please note the following:

- Each item is in a labeled jewel box, it is suggested that when the items are removed from their labeled boxes, they be marked according to your laboratory procedure. However, in case the items are separated from their boxes before labeling has occurred, each item has been inscribed with its item number.
- The bullet stated to have been recovered from the victim was never exposed to biological material.

Items Submitted (Sample Pack F1):

Item 1: Three bullets fired using the recovered firearm (known).

Item 2: Bullet recovered from victim (questioned).

Item 3: First bullet recovered from drywall at the scene (questioned).

Item 4: Second bullet recovered from drywall at the scene (questioned).

Item 5: Bullet recovered from wall partition at the scene (questioned).

1.) Were any of the recovered questioned bullets (Items 2-5) fired in the same firearm as the known bullets (Item 1)?

Item 2 Yes No Inconclusive*

Item 3 Yes No Inconclusive*

Item 4 Yes No Inconclusive*

Item 5 Yes No Inconclusive*

*Should an item(s) be marked "Inconclusive", please document the reason in the Additional Comments section of this data sheet.

Please return all pages of this data sheet.

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Participant Code:

WebCode:

2.) What would be the wording of the Conclusions in your report?

3.) Additional Comments

<p>Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by <i>June 23, 2014</i> to be included in the report.</p>	<p>Participant Code: ONLINE DATA ENTRY: www.cts-portal.com FAX: +1-571-434-1937 or Toll-Free: 1-866-FAX-2CTS (329-2287)</p>
<p>QUESTIONS? TEL: +1-571-434-1925 (8 am - 4:30 pm EST) EMAIL: forensics@cts-interlab.com www.ctsforensics.com</p>	<p>MAIL: Collaborative Testing Services, Inc. P.O. Box 650820 Sterling, VA 20165-0820 USA</p>

Please return all pages of this data sheet.

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RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **14-526: Firearms Examination**

This release page must be completed and received by **June 23, 2014** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

If your lab has been accredited by ASCLD/LAB and you are submitting this data as part of their external proficiency test requirements, have the laboratory's designated individual complete the following.

The information below must be completed in its entirety for the results to be submitted to ASCLD/LAB.

ASCLD/LAB Legacy Certificate No. _____ ASCLD/LAB International Certificate No. _____

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

ANSI-ASQ NAB/FQS RELEASE

If your laboratory maintains its accreditation through ANSI-ASQ NAB/FQS, please complete the following form in its entirety to have your results forwarded.

ANSI-ASQ NAB/FQS Certificate No. _____

Signature and Title: _____ Date _____

Laboratory Name _____

Location (City/State) _____

Accreditation Release

Return Instructions

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

*Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com*

Please return all pages of this data sheet.

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