



Firearms Examination Test No. 11-527 Summary Report

This test was sent to 259 participants. Each sample set consisted of three known expended cartridge cases (Item 1) test-fired from a suspect weapon and four questioned expended cartridge cases (Items 2-5). Participants were requested to examine these items and report their findings. Data were returned from 221 participants (85% response rate) and are compiled into the following tables:

	<u>Page</u>
<u>Manufacturer's Information</u>	<u>2</u>
<u>Summary Comments</u>	<u>3</u>
<u>Table 1: Examination Results</u>	<u>4</u>
<u>Table 2: Conclusions</u>	<u>9</u>
<u>Table 3: Additional Comments</u>	<u>39</u>
<u>Appendix: Data Sheet</u>	<u>42</u>

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 cartridge cases fired in the "suspect's firearm". Items 2, 3, 4 and 5 each consisted of one expended cartridge case recovered from the scene. Federal Cartridge Company American Eagle® 9mm Luger 147 grain full metal jacket (FMJ) flat point ammunition was used for all five items. Participants were requested to determine which, if any, of the recovered questioned cartridge cases (Items 2-5) were fired from the same firearm as the known cartridge cases.

The expended cartridge cases in Items 1 and 5 were fired in a Beretta 92FS 9mm handgun (Serial number BER120696Z). Items 2 and 3 were fired in a Beretta 92D 9mm handgun (Serial number BER256610Z). Item 4 was fired in a Hi-Point 995 9mm rifle (Serial number A69981).

SAMPLE PREPARATION-

Items expended from the three weapons were prepared and packaged separately from each other, and no other firearm was present in the production area other than the one being used to create the immediate items.

ITEM 4 (ELIMINATION): Multiple magazines were loaded with ammunition totaling either 50 or 80 rounds in preparation for shooting with the Hi-Point 995 9mm rifle. After the ammunition was fired, the cartridge cases 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 cartridge cases was selected and inscribed with an item number "4" (one cartridge case), then sealed into an Item 4 jewel box.

ITEMS 2 and 3 (ELIMINATION): Multiple magazines were loaded with ammunition totaling between 80 - 140 rounds in preparation for shooting with the Beretta 92D 9mm handgun. After the ammunition was expended, the cartridge cases 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 cartridge cases were selected and inscribed with the following item numbers: "2" or "3" (one cartridge case each), then sealed into their respective jewel boxes and kept together as an elimination batch.

ITEMS 1 and 5 (IDENTIFICATION): Multiple magazines were loaded with ammunition totaling between 80 - 140 rounds in preparation for shooting with the Beretta 92FS 9mm handgun. After the ammunition was expended, the cartridge cases 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 cartridge cases was selected and inscribed with the following item numbers: "1" (three cartridge cases) or "5" (one cartridge case), then sealed in their respective jewel boxes and kept together as an association batch.

SAMPLE SET ASSEMBLY: For each sample set, Items 1 and 5 of the same association batch, Items 2 and 3 of the same elimination batch along with an Item 4 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 cartridge cases 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 identification and eliminations.

Summary Comments

This test was designed to allow participants to assess their proficiency in a comparison of expended cartridge cases. Participants were provided with four questioned expended Federal Cartridge Company American Eagle® 9mm Luger 147 grain full metal jacket (FMJ) cartridge cases (Items 2-5) which they were requested to compare with three known expended cartridge cases (Item 1) fired in the suspect's weapon, a Beretta 92FS 9mm handgun. For each sample set, the Item 5 cartridge case was fired in the same firearm that discharged the known expended cartridge cases (Item 1). Items 2 and 3 were fired in a second firearm and Item 4 was fired in a third firearm. [Refer to Manufacturer's Information for production details.]

In Table 1, 219 of 221 responding participants (99%) identified the Item 5 cartridge case as having been fired in the same firearm as the Item 1 cartridge cases, eliminated Item 4, and either eliminated (215) or reported "inconclusive" (4) for Items 2 and 3. Two participants identified Items 2, 3 and 5 cartridge cases as having been fired in the same firearm as the Item 1 cartridge cases and eliminated Item 4.

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

Examination Results

Were any of the questioned expended cartridge cases (Items 2-5) discharged from the same firearm as the known expended cartridge cases (Item 1)?

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
26REH9	No	No	No	Yes	4TPZ9M	No	No	No	Yes
2AMC6E	No	No	No	Yes	4XFK6B	No	No	No	Yes
2BWFFH	No	No	No	Yes	63UCXP	No	No	No	Yes
2F8CGK	No	No	No	Yes	64N344	No	No	No	Yes
2K4YEF	No	No	No	Yes	66ZTBM	No	No	No	Yes
2R4MM8	No	No	No	Yes	6EK3ZF	No	No	No	Yes
2VZ7P6	No	No	No	Yes	6L7X2K	No	No	No	Yes
2Y6UAM	No	No	No	Yes	6XXQ3F	No	No	No	Yes
327296	No	No	No	Yes	6Y9NHH	No	No	No	Yes
32N7NH	No	No	No	Yes	76R7D6	No	No	No	Yes
37ZYVB	No	No	No	Yes	7BYPQC	No	No	No	Yes
3C6TXJ	No	No	No	Yes	7FBKG8	No	No	No	Yes
3EU4TH	No	No	No	Yes	7FW4FM	No	No	No	Yes
3J6G7B	No	No	No	Yes	7G6BML	No	No	No	Yes
3TVZPP	No	No	No	Yes	7JEHPE	No	No	No	Yes
42K4CJ	No	No	No	Yes	7LG4TE	No	No	No	Yes
47WWJC	No	No	No	Yes	7MUXBZ	No	No	No	Yes
4BTD4H	No	No	No	Yes	7RR8P9	No	No	No	Yes
4FZ2GK	No	No	No	Yes	7TLXVM	No	No	No	Yes
4JLQXQ	No	No	No	Yes	7VLB9E	No	No	No	Yes
4KFG36	No	No	No	Yes	7XQYPP	No	No	No	Yes
4KWU9U	No	No	No	Yes	82T2D7	No	No	No	Yes
4MJ8FC	No	No	No	Yes	84ZCDF	No	No	No	Yes
4NRLGQ	No	No	No	Yes	8A777Q	Inc	Inc	No	Yes

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
8D6N4H	No	No	No	Yes	BFJ3KN	No	No	No	Yes
8KMRFQ	No	No	No	Yes	BGAJH3	No	No	No	Yes
8NJJJG	No	No	No	Yes	BL73K2	No	No	No	Yes
8YK9YX	No	No	No	Yes	BNP6KE	No	No	No	Yes
93XBH9	No	No	No	Yes	BQWH8M	No	No	No	Yes
97WME9	No	No	No	Yes	BT6FWX	No	No	No	Yes
98TT4E	No	No	No	Yes	BUH7MT	No	No	No	Yes
999FF2	No	No	No	Yes	BVCWT8	No	No	No	Yes
9A27KG	No	No	No	Yes	BWMPT2	No	No	No	Yes
9DEXR9	No	No	No	Yes	C82B8V	No	No	No	Yes
9KGXAQ	No	No	No	Yes	CFQY6H	No	No	No	Yes
9M794P	No	No	No	Yes	CNPKD7	No	No	No	Yes
9NH4QG	No	No	No	Yes	CUBAY2	No	No	No	Yes
9NY34E	No	No	No	Yes	CZ4ET6	No	No	No	Yes
9Q4R7N	No	No	No	Yes	D6RN8V	No	No	No	Yes
9U8GR6	No	No	No	Yes	DALKU2	No	No	No	Yes
9V28XJ	No	No	No	Yes	DD9X46	No	No	No	Yes
9WANPN	No	No	No	Yes	DEG67X	No	No	No	Yes
A8PQRF	No	No	No	Yes	DFBVCC	No	No	No	Yes
AACE8L	No	No	No	Yes	DR6AC9	No	No	No	Yes
AE84NT	No	No	No	Yes	DTG994	No	No	No	Yes
ALABB9	No	No	No	Yes	DXPEZ3	No	No	No	Yes
AM32GN	No	No	No	Yes	E6ARM9	No	No	No	Yes
AUMZAG	No	No	No	Yes	EBVRWU	No	No	No	Yes
B6F82H	No	No	No	Yes	EF4BVM	No	No	No	Yes
B93K92	No	No	No	Yes	FFKJQ9	No	No	No	Yes
BB4NY3	No	No	No	Yes					

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
FJH84A	No	No	No	Yes	JHDQE2	No	No	No	Yes
FPM4MA	No	No	No	Yes	JMTJ8F	Yes	Yes	No	Yes
FPQLRZ	No	No	No	Yes	JN3LZ7	No	No	No	Yes
FRCB87	No	No	No	Yes	JNLADU	No	No	No	Yes
FT72DK	No	No	No	Yes	JTEE7Y	No	No	No	Yes
G3TC9X	No	No	No	Yes	K6P7CJ	No	No	No	Yes
G7E2N6	Inc	Inc	No	Yes	KF7TKK	No	No	No	Yes
G8LEAC	No	No	No	Yes	KHD4LU	No	No	No	Yes
GEKBP3	No	No	No	Yes	KPDLWZ	No	No	No	Yes
GL69HW	No	No	No	Yes	KU7R9G	No	No	No	Yes
GN92DF	No	No	No	Yes	KVZHEV	No	No	No	Yes
GP2RJU	No	No	No	Yes	KZVAND	No	No	No	Yes
GVMP9	No	No	No	Yes	L4CPY7	No	No	No	Yes
GW7ML3	No	No	No	Yes	L88N6N	No	No	No	Yes
H3KW7G	No	No	No	Yes	LBN79Q	Inc	Inc	No	Yes
HCAQFT	No	No	No	Yes	LLR9MW	No	No	No	Yes
HD7W6Z	No	No	No	Yes	LPUZ2P	No	No	No	Yes
HFAWXJ	No	No	No	Yes	LRW47W	No	No	No	Yes
HRQJ7K	No	No	No	Yes	LWQ2VM	No	No	No	Yes
HVRKDA	No	No	No	Yes	M3PZRV	No	No	No	Yes
HWZRF3	No	No	No	Yes	M6YVNV	No	No	No	Yes
HXD9TF	No	No	No	Yes	MH2L6T	No	No	No	Yes
HZY9QB	No	No	No	Yes	MHL3MG	No	No	No	Yes
J764AB	No	No	No	Yes	MQXA8Q	No	No	No	Yes
J9QTQG	No	No	No	Yes	MRRZD7	No	No	No	Yes
JDZ7A2	No	No	No	Yes	MVRB6Y	No	No	No	Yes
JGZJQY	No	No	No	Yes					

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
MWL2BD	No	No	No	Yes	RKG8DH	No	No	No	Yes
N9T7Z7	No	No	No	Yes	RPAEPZ	Inc	Inc	No	Yes
NAMW7K	No	No	No	Yes	RX4GX3	No	No	No	Yes
NG8VYE	No	No	No	Yes	RYFCFN	No	No	No	Yes
NH3Q7N	No	No	No	Yes	RZRTT3	No	No	No	Yes
NNMVUH	Yes	Yes	No	Yes	TCZDAZ	No	No	No	Yes
NY4MHR	No	No	No	Yes	TGB9A4	No	No	No	Yes
P28QRT	No	No	No	Yes	TH6YFH	No	No	No	Yes
PBDHE3	No	No	No	Yes	TNQUGL	No	No	No	Yes
PC79KG	No	No	No	Yes	TZ3G6D	No	No	No	Yes
PDGDWK	No	No	No	Yes	U36FF7	No	No	No	Yes
PQ6H2V	No	No	No	Yes	UAPTZQ	No	No	No	Yes
PQU7UR	No	No	No	Yes	UK6PY3	No	No	No	Yes
PR4EXK	No	No	No	Yes	ULXF6G	No	No	No	Yes
PV3U8T	No	No	No	Yes	UMVLUN	No	No	No	Yes
PWVKD8	No	No	No	Yes	UPZCWW	No	No	No	Yes
PZHAUE	No	No	No	Yes	URPMRW	No	No	No	Yes
PZV2KA	No	No	No	Yes	VKVBW	No	No	No	Yes
QB9F33	No	No	No	Yes	VWZZ6N	No	No	No	Yes
QEAG9R	No	No	No	Yes	WAJZD3	No	No	No	Yes
QJ2QCX	No	No	No	Yes	WNDULM	No	No	No	Yes
QJ69GN	No	No	No	Yes	WRFLYU	No	No	No	Yes
R3BAL8	No	No	No	Yes	WX64EQ	No	No	No	Yes
R44ZRL	No	No	No	Yes	X6MQPL	No	No	No	Yes
R4R4P3	No	No	No	Yes	X8KGMK	No	No	No	Yes
RBN4YN	No	No	No	Yes	XBLHP4	No	No	No	Yes
RJKYWL	No	No	No	Yes					

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
XKXEZ2	No	No	No	Yes					
XUHQ6M	No	No	No	Yes					
XZBPL4	No	No	No	Yes					
Y462ZZ	No	No	No	Yes					
Y7QQG7	No	No	No	Yes					
Y9H2ZC	No	No	No	Yes					
YDR8RC	No	No	No	Yes					
YG8RHX	No	No	No	Yes					
YK9XYP	No	No	No	Yes					
YKTGX6	No	No	No	Yes					
Z3NC98	No	No	No	Yes					
ZCEVQL	No	No	No	Yes					
ZQWKN3	No	No	No	Yes					
ZRPNZB	No	No	No	Yes					

Response Summary					Participants: 221
<i>Were any of the questioned expended cartridge cases (Items 2-5) discharged from the same firearm as the known expended cartridge cases (Item 1)?</i>					
Responses		<u>Item 2</u>	<u>Item 3</u>	<u>Item 4</u>	<u>Item 5</u>
	Yes	2 (1%)	2 (1%)	0 (0%)	221 (100)%
	No	215 (97%)	215 (97%)	221 (100%)	0 (0)%
	Inc	4 (2%)	4 (2%)	0 (0%)	0 (0)%

Conclusions

TABLE 2

WebCode	Conclusions
26REH9	Examinations showed Item 5 was discharged within the same firearm as Item 1. Examinations showed Item 2 and Item 3 were discharged within the same unknown firearm. Examinations showed Item 4 was discharged within a second unknown firearm. Examinations showed Item 2, Item 3, and Item 4 were not discharged within the same firearm as Item 1.
2AMC6E	Item 5 was fired in item 1 firearm. There was sufficient agreement of unique surface contours to individualize. Items 2 and 3 were fired in the same firearm, but not item 1. There was sufficient agreement of unique surface contours to individualize to each other. Item 4 was not fired in item 1 firearm, nor was it fired in the firearm items 2 & 3 were fired in.
2BWFFH	[No Conclusions Reported.]
2F8CGK	The expended cartridge cases from Item 5, was fired with the known firearm. It means that the cartridge case from Item 5 is fired with the same weapon which has fired the cartridges from Item 1. The expended cartridge cases from Item 2 and Item 3, are fired from the same gun, but not from the known gun. The expended cartridge case from Item 4 is fired from another gun. All cartridge cases are[sic] fired from three different guns.
2K4YEF	The submitted specimens marked Items 2 through 5 were examined and identified as four (4) fired 9mm Luger caliber cartridge cases bearing the Federal headstamp. Items 2 through 5 were microscopically compared to Item 1. As a result of microscopic examination, Item 5 was identified as having been fired in the same firearm as Item 1. Due to differences in class characteristics, Items 2 through 4 were eliminated as having been fired in the same firearm as Item 1.
2R4MM8	Microscopic comparisons of the Federal 9mm Luger caliber fired evidence cartridge case, submitted as Item #5 with test cartridge cases reported as having been fired in a Beretta pistol (Item #1) revealed matching individual breechface characteristics. This finding confirms that the evidence cartridge case was fired in the submitted pistol. Microscopic comparisons of the Federal 9mm Luger caliber fired evidence cartridge cases, submitted as items #2, #3, and #4 with test cartridge cases reported as having been fired in a Beretta pistol (Item #1) revealed dissimilar firing pin impressions and individual breechface characteristics. These findings indicate that the evidence cartridge cases were not fired in the submitted pistol. Microscopic comparisons of the fired evidence cartridge cases, submitted as items #2 and #3 to each other revealed matching breech face characteristics and firing pin impressions, confirming that the evidence cartridge cases were fired in the same firearm. Microscopic comparisons of the fired evidence cartridge cases, submitted as items #2 and #4 to each other revealed dissimilar firing pin impressions and individual breechface characteristics. These findings indicate that the evidence cartridge cases were not fired in the same firearm.
2VZ7P6	Item 1 is three 9mm Luger (9x19mm) cartridge cases that bear the headstamp of Federal ammunition, they are reported to have been test-fired from the suspect's Beretta Model 92 FS pistol. Item 2 through Item 5 are 9mm Luger (9x19mm) cartridge cases that bear the headstamp of Federal ammunition. The Item 5 cartridge case was identified as having been fired in the same pistol that fired the Item 1 cartridge cases. The Item 2 and Item 3 cartridge cases were identified as having been fired in the same firearm. However, due to a difference in class characteristics, the Item 2 and Item 3 cartridge cases were not fired in the same pistol that fired the Item 1 cartridge cases. Due to differences in class characteristics in breech face marks, the Item 4 cartridge case was not fired in the same pistol that fired the Item 1 cartridge cases. Due to differences in firing pin aperture shapes, the Item 4 cartridge case was not fired in the same firearm that fired the Item 2 and 3 cartridge cases. Due to differences in class characteristics in breech face marks, the Item 4 cartridge case was not fired in the same

TABLE 2

WebCode	Conclusions
	firearm that fired the Item 5 cartridge case.
2Y6UAM	Items 2 and 3 were identified as having been fired in the same firearm. Items 2 and 3 were not fired in the same firearm as Items #4, 5 or the standards contained in Item 1. Item 4 was not fired in the same firearm as Item 5 or the standards contained in Item 1. Item 5 was identified as having been fired in the same firearm as the standards contained in Item 1.
327296	The cartridge cases in Items #2, #3 and #4 were excluded from having been fired in the same firearm as the cartridge cases in Item #1 based on class characteristic differences (breech face marks). The cartridge case in Item #5 was identified as having been fired in the same firearm as the cartridge cases in Item #1. The cartridge cases in Items #2 and #3 were identified as having been fired in the same firearm. The cartridge case in Item #4 could not be identified as or excluded from having been fired in the same firearm as the cartridge cases in Items #2 and #3 based on class characteristic similarities (breech face marks and firing pin impression).
32N7NH	Item 5 was fired in the submitted 9mm Beretta pistol, model 92FS. Items 2 and 3 were fired in a second 9mm firearm. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted to the laboratory for examination. Item 4 was fired in a third 9mm firearm. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted to the laboratory for examination.
37ZYVB	The fired cartridge case of item #5 was microscopically identified as having been fired in the known firearm that fired the test fired cartridge cases item #1. The fired cartridge cases of items #2, 3 and 4 were microscopically eliminated from having been fired in the known test fired firearm. Items #2 and 3 were microscopically identified as having been fired in the same unknown firearm. Item #4 was microscopically determined to have been fired in a separate unknown firearm.
3C6TXJ	Item 5 (P) was fired in the submitted 9mm Beretta 92FS pistol (Item 1). Item 2 (M) and 3 (N) were fired in a second 9mm firearm. Suspect weapons include 9mm Beretta or Taurus pistols; however, any suspect weapon should be submitted to the laboratory for analysis. Item 4 (O) was fired in a third 9mm firearm. Suspect weapons include 9mm Hi-point pistols; however, any suspect weapon should be submitted to the laboratory for analysis.
3EU4TH	The item 1 (three expended cartridge cases discharged from the suspect's weapon) and the four expended cartridges cases (Items 2, 3, 4 and 5) were microscopically examined and compared. Based upon matching microscopic detail in the breech face marking, firing, impressions, extractor and ejector[sic], one cartridge[sic] case (Item 5) was identified as having been fired in the suspect's firearm, two of the cartridge cases (Items 2 and 3) were fired in a different firearm, the remaining cartridge case (Item 4) was fired by a third firearm.
3J6G7B	3 firearms used. Item 5 fired by Item 1. Items 2 and 3 fired in the same firearm but not firearm - Item 1. Item 4 fired in another firearm.
3TVZPP	Test shots (item #1) from submitted Beretta 92FS 9mm semi-auto pistol were microscopically[sic] compared to four discharged 9mm cartridge casings (item 2, 3, 4, 5) recovered at shooting scene with the following results: Item #5 was discharged from submitted 9mm semi-auto pistol. Item #2 & 3 were discharged from the same second weapon. Item #4 was discharged from the same[sic] third weapon.
42K4CJ	As the result of physical and microscopic examinations of the above submitted Items the following are my opinions: A./The four /4/ 9mm caliber discharged cartridge casings mentioned in Item 1-1 and 1-5 were all fired by the 9mm caliber, Beretta, model 92FS, pistol. B./ The two/2/ 9mm caliber discharged cartridge casings mentioned in Item 1-2 and

TABLE 2

WebCode	Conclusions
	Item 1-3 were both fired by the same unknown weapon capable of firing 9mm caliber ammunition. Item 1-2 and Item 1-3 were not fired by the 9mm caliber, Beretta, model 92FS, pistol. C./The one/1/ 9mm caliber discharged cartridge casing mentioned in Item 1-4 was fired by an unknown weapon capable of firing 9mm caliber ammunition. Item 1-4 was not fired by the unknown weapon that fired Item 1-2 and Item 1-3 or the 9mm caliber, Beretta, model 92FS, pistol that fired Item 1-1 and Item 1-5.
47WWJC	Item 5 is identified as having been fired in the same firearm that fired item 1. Items 2 and 3 are identified as having been fired in the same unknown firearm (a 2nd firearm). Item 4 is identified as having been fired in a 3rd firearm.
4BTD4H	Item 5 was fired in the submitted 9mm Beretta pistol, model 92FS (Item 1). Item 2 and Item 3 were fired in a second 9mm pistol. Item 4 was fired in a third 9mm pistol.
4FZ2GK	Items 2 & 3 were not fired in the suspect firearm (the pistol used to produce the Item 1 known cartridge cases). However, Items 2 & 3 were identified as having been fired in the same unknown firearm. Item 4 was not associated with any of the other submitted cartridge cases. Item 4 was neither fired in the suspect firearm (the pistol used to produce the Item 1 known cartridge cases) nor the unknown firearm used to produce Items 2 & 3. Item 5 was identified as having been fired in the suspect firearm (the pistol used to produce the Item 1 known cartridge cases).
4JLQXQ	The cartridge cases listed as items 2, 3 and 4 were not fired at Beretta 92FS 9mm pistol. The cartridge case marked as item 5, if the gun was fired 9mm Beretta 92FS. [sic]
4KFG36	Microscopic comparisons of the fired cartridge case, submitted as item #5, with test cartridge cases reported as fired in the Beretta pistol, item #1, revealed matching individual firing pin and breech face impressions. This finding confirms that the evidence cartridge case, item #5, was fired in the Beretta pistol. Microscopic comparison of the two (2) fired cartridge cases, submitted as items #2 and #3, with each other, revealed matching individual breech face impressions. This finding confirms that the evidence cartridge cases were fired in the same firearm. Further microscopic comparison of the two (2) fired cartridge cases, items #2 and #3, with test cartridge cases reported as fired in the Beretta pistol, item #1, revealed dissimilar individual characteristics. This finding confirms that the fired cartridge cases, items #2 and #3, were not fired in the Beretta pistol. Microscopic comparisons of the fired cartridge case, submitted as item #4, with test cartridge cases reported as fired in the Beretta pistol, item #1, and with the two (2) fired cartridge cases submitted as items #2 and #3, revealed dissimilar individual characteristics. These findings confirm that the evidence cartridge case, item #4, was neither fired in the Beretta pistol nor in the firearm that fired items #2 and #3.
4KWU9U	1) The submitted 9mm Luger caliber fired cartridge cases #2 and #3 were microscopically examined and compared and were positively identified as having been fired in the same firearm. 2) The submitted 9mm Luger caliber fired cartridge cases #2 and #3 were microscopically examined and compared to tests fired in the submitted Beretta 9mm Luger caliber model 92FS auto-loading pistol (item #1). They were excluded as having been fired in this pistol. 3) The submitted 9mm Luger caliber fired cartridge cases #2 and #4 were microscopically examined and compared and were excluded as having been fired in the same firearm. 4) The submitted fired cartridge case #4 was microscopically examined and compared to tests fired in the submitted Beretta 9mm Luger caliber model 92FS auto-loading pistol (item #1). It was excluded as having been fired in this pistol. 5) The submitted 9mm Luger caliber fired cartridge case #5 was microscopically examined and compared to tests fired in the submitted Beretta 9mm Luger caliber model 92FS auto-loading pistol (item #1). It was positively identified as having been fired in the submitted pistol.

TABLE 2

WebCode	Conclusions
4MJ8FC	<p>Comparative examination of Item 5 (one 9mm Luger caliber cartridge case) against a cartridge case from Item 1 (three 9mm Luger caliber cartridge cases said to be test fired in a Beretta Model 92FS 9mm Luger caliber pistol) showed the presence of matching features. This means that Item 5 was fired in the same firearm as Item 1. Comparative examinations of Item 2 (one 9mm Luger caliber cartridge case) against Item 3 (one 9mm Luger caliber cartridge case) showed the presence of matching features indicating they were fired in the same firearm. Comparative examinations of a cartridge case from Item 1 against Items 2, 3 and 4 (one 9mm Luger caliber cartridge case) showed the presence of different features. This means that Items 2, 3, and 4 were not fired in the same firearm as Item 1. Comparative examinations of Items 2 and 3 against Item 4 showed the presence of different features. This means that Item 4 was not fired in the same firearm as Items 2 and 3.</p>
4NRLGQ	<p>The cartridge case 5 (item 5) was fired by Beretta 92 FS 9 mm pistol.</p>
4TPZ9M	<p>Item 1 fired cartridge cases were designated 1A, 1B and 1C. Item 1 fired cartridge cases were identified as having been fired in the same firearm. Item 5 was identified as having been fired in the same firearm as item 1. Items 2 and 3 were identified as having been fired in the same firearm. Items 2 and 3 were eliminated as having been fired in the same firearm as item 1. Item 4 was eliminated as having been fired in the same firearm as item 1. Item 4 was eliminated as having been fired in the same firearm as items 2 and 3.</p>
4XFK6B	<p>Comparative examination of Item 5 (one 9mm Luger caliber cartridge case recovered from the planter) against Item 1 (three 9mm Luger caliber cartridge cases said to be test fired in a Beretta Model 92FS 9mm Luger caliber pistol) showed the presence of matching features. This indicates that Item 5 was fired in the same firearm that fired Item 1. Comparative examinations of Items 2 - 4 (three 9mm Luger caliber cartridge cases recovered from the parking lot (Items 2 and 3) and main entrance (Item 4)) against Item 1 showed the presence of different features. This indicates that Items 2 - 4 were not fired in the same firearm that fired Item 1. Comparative examinations of Items 2 and 3 showed the presence of matching features, indicating they were fired in the same firearm, although different than the one used to fire Item 1.</p>
63UCXP	<p>Test fired cartridge cases generated from the seized Beretta 92FS pistol were microscopically compared against the four recovered fired cartridge cases (Items 2 to 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 seized Beretta 92FS pistol, was the same firearm used to discharge the fired cartridge case recovered from the planter (Item 5). (This conclusion is based on good agreement of class and individual characteristics in the firing pin impression and breech face marks). In my opinion there is significant disagreement of class and individual characteristic markings, to conclusively determine the fired cartridge cases recovered from the Parking lot (Items 2 and 3) and the fired cartridge case recovered from the main entrance (Item 4) were not discharged from the seized Beretta 92FS pistol. (This conclusion is based on differences in class and individual detail within the firing pin impressions and breechface marks, and the ejector markings seen on items 2 & 3). In my opinion, a microscopic comparison of the remaining three fired cartridge cases, items 2, 3 & 4 has shown that there is sufficient agreement of class and individual characteristic markings to conclusively determine the two cartridge cases recovered from the parking lot (Items 2 & 3) were discharged in the same firearm. Furthermore, there is significant disagreement of class characteristic markings and individual characteristic markings to determine [sic] cartridge case recovered from the main entrance (Item 4) was not fired in the same firearm used to discharge items 2 & 3. In conclusion 3 weapons were used to discharge the four recovered cartridge cases.</p>

TABLE 2

WebCode	Conclusions
64N344	The three (3) fired 9mm cartridge cases in items 2, 3, and 4 were determined not to match the three (3) reference fired 9mm cartridge cases in item 1; therefore, the three (3) fired 9mm cartridges cases in items 2, 3, and 4 were not fired in the suspect's weapon. The fired 9mm cartridge case in item 5 was determined to match the three (3) reference fired 9mm cartridge cases in item 1; therefore, the fired 9mm cartridge case in item 5 was fired in the suspect's weapon.
66ZTBM	Item #5 was fired in the same firearm as Item #1. Items #2 and #3 were fired in the same firearm. They were fired in a different firearm than were Items #1 and #5. Item #4 was fired in a third firearm.
6EK3ZF	The following evidence was submitted to this laboratory: Item 1: Three expended cartridge cases from the suspect's weapon (known). Item 2: One expended cartridge case recovered from the parking lot (questioned)(M). Item 3: One expended cartridge case recovered from the parking lot (questioned)(N). Item 4: One expended cartridge case recovered from the main entrance (questioned)(O). Item 5: One expended cartridge case recovered from the planter (questioned)(P). Comparison microscope examinations were conducted and the findings of this examiner are as follows: 1. Casing P was fired in the same 9mm Beretta 92FS pistol as the tests from Item 1. 2. Casings M and N were fired in the same 9mm gun, but not the 9mm Beretta pistol used to fire the tests from Item 1. 3. Casing O was not fired in the same 9mm Beretta pistol as the tests from Item 1. 4. Casing O was fired in a different 9mm gun from casings M and N.
6L7X2K	Identification - Cartridge case item 5 was fired in the same known firearm as the test fired cartridge cases in item 1. Elimination - Cartridge case items 2, 3 & 4 were not fired in the known firearm, based on differences in class characteristics. Identification - Cartridge case items 3 & 2 were fired in the same unknown firearm. Elimination - Cartridge case item 4 was not fired in the same firearm as items 3 & 2, based on differences in class characteristics.
6XXQ3F	Cartridge case item 5 was fired in the same firearm as cartridge cases item 1 (test fires from Beretta 92 FS). Cartridge cases items 2 and 3 were fired in a second firearm. Cartridge case item 4 was fired in a third firearm.
6Y9NHH	As a result of physical and microscopic examination of the submitted evidence to test fires fired from the 9mm caliber Beretta, model 92FS, semi automatic pistol seized from suspect, the following is my opinion: a. Item 1-2/ One/1/ 9mm caliber discharged cartridge case "FC" (recovered from parking lot) and 1-3/ One/1/ 9mm caliber discharged cartridge case "FC" (recovered from parking lot) were fired by the same unknown weapon (not suspect weapon), a weapon capable of chambering and firing 9mm caliber ammunition. b. Item 1-4/ One/1/ 9mm caliber discharged cartridge case "FC" (recovered from main entrance) was fired by an unknown weapon (not suspect weapon or unknown weapon that fired items 1-2, 1-3) a weapon capable of chambering and firing 9mm caliber ammunition. c. Item 1-5/ One/1/ 9mm caliber discharged cartridge case "FC" (recovered from planter) was fired by the same weapon that fired items 1-1/test fires from suspect weapon (9mm caliber, Beretta, model 92FS, semi automatic pistol, seized from suspect).
76R7D6	The Item 5 cartridge case matched the Item 1 test cartridge cases, reportedly discharged by the suspect's 9mm caliber Beretta Model 92FS pistol. The Items 2 and 3 cartridge case[sic] matched each other and were discharged by a second 9mm caliber firearm. The Item 4 cartridge case was discharged by a third 9mm caliber firearm.
7BYPQC	Items A1-1, A1-2, A1-3, A2, A3, A4 and A5: The fired cartridge cases are consistent in class characteristics. Items A1-1, A1-2 and A1-3 were compared to item A2. The fired evidence in question was not fired from the same firearm, firearm not received. Items A1-1, A1-2, and

TABLE 2

WebCode	Conclusions
	A1-3 were compared to item A3. The fired evidence in question was not fired from the same firearm, firearm not received. Items A1-1, A1-2, and A1-3 were compared to item A4. The fired evidence in question was not fired from the same firearm, firearm not received. Items A1-1, A1-2, and A1-3 were compared to item A5. The fired evidence in question was fired from the same firearm, firearm not received.
7FBKG8	It is our opinion that item #5 was fired in the same firearm as the item #1 cartridge cases submitted as tests. Items 2, 3 and 4 were eliminated as having been fired in the same firearm as the item 1 cartridge cases. Items 2 and 3 were fired in the same firearm. Item #4 was fired in [sic] different firearm than any of the other items.
7FW4FM	The Items 1 through 5 cartridge cases were microscopically examined and compared with the following conclusions: Item 5 had been fired in the same firearm as the test fire cartridge cases in Item 1. Items 2 and 3 had been fired in the same firearm but not the recovered pistol. Item 4 was fired from a third firearm.
7G6BML	The expended cartridge cases[sic] from the planter (Item 5) was identified as fired in the suspect Beretta 92FS pistol. The two expended cartridge cases from the parking lot (Items 2 and 3) were identified as fired in a single firearm; however, they were not fired in the Beretta pistol. The expended cartridge case from the main entrance (Item 4) was not fired in either the Beretta pistol or the firearm that fired the cartridge cases from the parking lot (Items 2 and 3).
7JEHPE	1) Casing P (Item 5) was fired in the Beretta 92FS (Item 1). 2) Casings M (Item 2) and N (Item 3) were fired in a second 9mm pistol. The specific brand of suspect weapon is unknown. 3) Casing O (Item 4) was fired in a third 9mm pistol. The specific brand of suspect weapon is unknown.
7LG4TE	Them Item #5 cartridge case was discharged in the same firearm that produced the Item #1 test fired cartridge cases. The Item #2 and #3 cartridge cases were discharged in a second firearm. The Item #4 cartridge case was discharged in a third firearm.
7MUXBZ	Item 5 was fired in the same Beretta 92FS 9mm as the item 1-test fired bullets. Items 2 and 3 were fired in a second firearm. Item 4 was fired in a third firearm.
7RR8P9	Item 5 was fired in the same firearm as item 1. This conclusion was verified by firearms examiner. Item 2 and item 3 were fired in the same firearm. This conclusion was verified by firearms examiner. Item 2 and item 3 were not fired in the same firearm as item 1. This conclusion was verified by firearms examiner. Item 4 was not fired in the same firearm as item 1 or as items 2-3. This conclusion was verified by firearms examiner.
7TLXVM	Items 1-1, 1-2, and 1-3 were three fired Federal 9mm Luger cartridge cases (Headstamp: FC 9mm Luger) reported to be test-fired in the suspect's firearm (Beretta 92FS). Items 2, 3, 4 and 5 were four fired Federal 9mm Luger cartridge cases (Headstamp: FC 9mm Luger) reported to be collected from the scene. Item 1-2 and Item 2 were microscopically compared to each other using a comparison microscope. Different class and individual characteristics were observed. Item 1-2 and Item 2 were fired in different firearms. The Beretta 92FS did not fire Item 2. Item 1-2 and Item 3 were microscopically compared to each other using a comparison microscope. Different class and individual characteristics were observed. Item 1-2 and Item 3 were fired in different firearms. The Beretta 92FS did not fire Item 3. Item 1-2 and Item 4 were microscopically compared to each other using a comparison microscope. Different class and individual characteristics were observed. Item 1-2 and Item 4 were fired in different firearms. The Beretta 92FS did not fire Item 4. Item 1-2 and Item 5 were microscopically compared to each other using a comparison microscope.

TABLE 2

WebCode	Conclusions
	Corresponding class characteristics and corresponding individual detail sufficient for identification was observed. Item 1-2 and Item 5 were fired in the same firearm. The Beretta 92FS fired Item 5. Item 2 and Item 3 were microscopically compared to each other using a comparison microscope. Corresponding class characteristics and corresponding individual detail sufficient for identification was observed. Item 2 and Item 3 were fired in a single firearm (a different firearm than the Beretta 92FS). Item 3 and Item 4 were microscopically compared to each other using a comparison microscope. Different class and individual characteristics were observed. Item 4 was fired in a different firearm than Items 2 and 3. Item 4 was fired in a third firearm.
7VLB9E	Items 1 & 5 were fired in the same firearm. Items 2 & 3 were fired in a second firearm. Item 4 was fired in a third firearm.
7XQYPP	The Item 1 test cartridge cases and the Item 5 cartridge case are the same caliber (9mm), manufacture and general class characteristics. Microscopic examinations determined that the Item 5 cartridge case and the Item 1 test cartridge cases were fired from the same firearm. The Items 2, 3, and 4 cartridge cases are eliminated as having been fired in the same firearm as the Item 1 test cartridge cases. The Items 2 and 3 cartridge cases are the same caliber and manufacture. Microscopic examinations determined that Items 2 and 3 were fired from a second firearm. The Item 4 cartridge case was fired in a third firearm which eliminates Item 4 from being fired in the firearm that fired Items 2 and 3.
82T2D7	Microscopic comparison examinations were conducted using the Leica FSC comparison microscope in relation to the firing pin, breech face, extractor, ejector and magazine loading markings. As a result of these microscopic examinations, the following conclusions were reached: Based on significant differences in class characteristics of firearm produced markings, the Items 2, 3 and 4 were not fired in the same firearm as Item 1. Item 5 and the test fire cartridges marked Item 1 have matching firing pin and breech face impressions, therefore it was determined that Item 5 was fired by the same firearm that was used to shoot the three cartridge casings from Item 1.
84ZCDF	As a result of physical and microscopic examination of the submitted evidence it is my opinion: A/ Item 1-5, One (1) 9mm caliber discharged cartridge casing, head stamped "F C 9mm LUGER" was fired by the submitted 9mm Caliber, Beretta, Model 92FS, Semi Automatic Pistol. B/ Items 1-2 and 1-3, two (2) 9mm caliber discharged cartridge casings, head stamped "F C 9mm LUGER" were fired by the same unknown weapon capable of chambering and firing 9mm caliber ammunition and were not fired by the submitted weapon. C/ The Item 1-4, One (1) 9mm caliber discharged cartridge casing, head stamped "F C 9mm LUGER" was fired by the[sic] an unknown weapon capable of chambering and firing 9mm caliber ammunition and was not fired by the submitted weapon or the unknown weapon used to fire items 1-2 or 1-3.
8A777Q	I macroscopically examined the spent Federal brand 9mm calibre cartridge case marked Item "5" and the test Federal brand 9mm calibre cartridge cases marked Item "1", comparing both class and individual characteristics. As a result of those examinations I formed the opinion that the Federal brand 9mm calibre cartridge case marked Item "5" had been fired from the Beretta 92FS 9mm calibre pistol. I macroscopically examined the spent Federal brand 9mm calibre cartridge cases marked Items "2" and "3" and the test Federal brand 9mm calibre cartridge cases marked Item "1", comparing both class and individual characteristics. The overall shape and position of features on Items "2" and "3" were similar to those on Item "1". Therefore Items "2" and "3" could have been fired from the Beretta 92FS 9mm calibre pistol, but could not be conclusively identified to, or eliminated from it. I macroscopically examined the Federal brand 9mm calibre cartridge case Item "4" and the test Federal brand 9mm

TABLE 2

WebCode	Conclusions
	calibre cartridge cases Item "1", comparing both class and any individual characteristics. As a result of those examinations I formed the opinion that the Federal brand 9mm calibre cartridge case from Item "4" could not have been fired from the Beretta 92FS 9mm calibre pistol.
8D6N4H	Item 5 was fired in item 1. Items 2, 3 and 4 were not fired in item 1. Item 2 and item 3 were fired in the same 9mm Luger firearm. Item 4 was not fired in the same firearm as item 2 and item 3. Item 4 could have been fired in a 9mm Luger Hi-Point firearm.
8KMRFQ	The fired cartridge case (Item 5) had been fired in the same firearm as that which had fired the three fired cartridge cases (Item 1).
8NJJJG	Microscopic examination and comparison of the reference cartridge cases of the 9mm pistol, Exhibit 1, to the cartridge case, Exhibit 5, revealed that Exhibit 5 was fired in the 9mm pistol, Exhibit 1. The cartridge cases, Exhibits 2, 3 and 4 were excluded from being fired in the 9mm pistol, Exhibit 1.
8YK9YX	1. The cartridge case (item 5) was discharged from the same firearm as the known cartridge case (item 1). 2. The cartridge case[sic] (item 2, 3) were discharged from the same firearm.
93XBH9	The cartridge case in item 5 was fired in the same gun that fired the cartridge cases in item 1. The cartridges cases in items 2, 3, & 4 were not fired in the same gun that fired the cartridge cases in item 1.
97WME9	The cartridge case in Submission 5 was fired in the same gun that fired the cartridge cases in Submission 1. The cartridge cases in Submission 2 through 4 were not fired in the same gun that fired the cartridge cases in Submission 1. The cartridge cases in Submissions 2 and 3 were fired from the same gun.
98TT4E	As a result of physical and microscopic examinations of the above submitted Items the following are my opinions: A./The four/4/ 9mm caliber discharged cartridge casings mentioned in Item 1-1 and 1-5 were all fired by the 9mm caliber, Beretta, model 92FS, pistol. B./The two/2/ 9mm caliber discharged cartridge casings mentioned in Item 1-2 and 1-3 were both fired from the same unknown weapon capable of firing 9mm caliber ammunition. Item 1-2 and 1-3 were not fired by the 9mm caliber, Beretta, model 92FS, pistol. C./The one/1/ 9mm caliber discharged cartridge casing mentioned in Item 1-4 was fired by an unknown weapon capable of firing 9mm caliber ammunition. Item 1-4 was not fired from the 9mm caliber, Beretta, model 92FS, pistol that fired Item 1-1 and 1-5 or the unknown weapon that fired Item 1-2 and Item 1-3.
999FF2	Item 2 and Item 3 were discharged within the same unknown firearm. Item 2 and Item 3 were not discharged within the same firearm as Item 4 due to differences in individual characteristics. Item 2 and Item 3 were not discharged within the same firearm as Item 1 due to differences in individual characteristics. Item 4 was not discharged within the same firearm as Item 1 due to the differences in individual characteristics. Item 5 was discharged within the same firearm as Item 1.
9A27KG	Item 5 was identified as having been fired in the same firearm (Beretta 92FS pistol) as the cartridge cases from Item 1. Items 2 and 3 were identified as having been fired in the same firearm as each other, but were eliminated from having been fired in the same firearm (Beretta 92FS pistol) as Items 1 and 5. Item 4 was eliminated from having been fired in the same firearm (Beretta 92FS pistol) as Items 1 and 5. Item 4 was also eliminated from having been fired in the same firearm as Items 2 and 3.
9DEXR9	The item 5 is fired with the same firearm as the items 1 (three test cartridge cases). The items

TABLE 2

WebCode	Conclusions
	2 and 3 are fired with some other firearm. The item 4 is fired with some third firearm.
9KGXAQ	The discharged cartridge cases 2, 3, 4 and 5 were compared against the test fired discharged cartridge cases (Item 1) fired by the exhibit Beretta 92FS 9mm pistol using a comparison microscope. This type of examination allows two objects to be viewed simultaneously so that microscopic marks caused by firing can be compared and assessed. As a result of this examination I found that the discharged cartridge case Item 5 had been fired in the exhibit Beretta 92FS pistol used to fire the discharged cartridge cases Item 1. The discharged cases Items 2 and 3 had been fired in the same firearm but one other than the exhibit Beretta pistol. Item 4 had been fired in another different firearm.
9M794P	1.) The questioned cartridge cases (four cartridge cases) fired with four different firearms. 2.) The questioned cartridge case "Item 5" was fired with recovered firearm samples (Item 1). Item 2 - unknown firearm; Item 3 - unknown firearm; Item 4 - unknown firearm; Item 5 - fired with (Item 1) recovered firearm "Beretta 92FS".
9NH4QG	It was determined that the fired cartridge case in Item 5 (questioned) was fired in the same firearm as the cartridge cases in Item 1 (known). The fired cartridge cases in Items 2, 3 and 4 (questioned) were not fired in the same firearm as the cartridge cases in Item 1 (known).
9NY34E	1. Examination of Exhibits 1 - 5 (Cartridge Cases), seven total, disclosed them to be 9x19mm Luger caliber, fired and consistent with being marketed by Federal. 2. Microscopic comparison of Exhibit 1 and Exhibit 5 disclosed that they were fired in the same firearm. 3. Microscopic comparison of Exhibit 2 and Exhibit 3 disclosed that they were fired in the same firearm, however they were not fired in the same firearm as Exhibits 1, 4 or 5. 4. Microscopic examination of Exhibit 4 disclosed that it was not fired in the same firearm as Exhibits 1, 2, 3 or 5.
9Q4R7N	Conclusion: Item 5 was fired from the known firearm. Items 2, 3, 4 fired from an other firearm than the known firearm.[sic] (Items 2 and 3 fired from the same weapon)
9U8GR6	It is our opinion that the Items 1 and 5 cartridge cases were fired in the same firearm. It is our opinion that the Items 2 and 3 cartridge cases were fired in the same firearm, but not the same firearm as Items 1, 4, and 5 cartridge cases. It is our opinion that the Item 4 cartridge case was not fired in the same firearm as either Items 1 and 5 or Items 2 and 3 cartridge cases.
9V28XJ	The discharged cartridge case in item #5 was positively identified as being fired from the same firearm that fired the three (known) cartridge cases provided in item #1 at some point in time. The discharged cartridge cases in items #2 and #3 were fired in the same firearm at some point in time but a different firearm that item #1.[sic] The discharged cartridge case in item #4 was fired in a firearm different then the firearms that fired item #1, #2 and #3.
9WANPN	1. The cartridge cases described in Item #1 and the cartridge case described in the Item #5, are 9mm caliber and were fired by the same firearm (suspect weapon). 2. The cartridge case described in the Item #2 and the cartridge case described in the Item #3, are 9mm caliber and were fired by the same firearm but not by the suspect's weapon. 3. The cartridge case described in Item #4 is 9mm caliber and was fired by a firearm different from the one that fired the cartridge cases described in Items #1, #2, #3 and #5.
A8PQRF	Item #5 was microscopically examined and was determined to have been fired by the Beretta model pistol - Item #1 - firearm #1. Items #2 & #3 were fired by one(1) second (2nd) firearm - firearm #2. Item #4 was fired by a third (3rd) firearm - firearm #3.
AACE8L	a. The questioned cartridge cases identified as Item 2, Item 3 and Item 4 were not discharged

TABLE 2

WebCode	Conclusions
	from the same firearm as the known cartridge cases (Item 1). b. The questioned cartridge case identified as Item 5 was discharged from the same firearm as the known cartridge cases (Item 1). c. The questioned cartridge cases identified as Item 2 and Item 3 were discharged from the same firearm. The questioned cartridge case identified as Item 4 was discharged from another firearm.
AE84NT	Only Item 5 was discharged from the same firearm used to discharge the known expended cartridge cases, Item 1. Items 2, 3 and 4 were not discharged from the firearm used for Item 1.
ALABB9	Items 2-4 were microscopically compared with the Item 1 test fired specimens, finding class and individual characteristic differences. It was concluded that Items 2-4 were not fired by the same firearm as the Item 1 test fired specimens. Item 5 was microscopically compared with the Item 1 test fired specimens, finding class and individual characteristic correspondence. It was concluded that Item 5 was fired by the same firearm as the Item 1 test fired specimens.
AM32GN	I found an excellent correspondence of shape and microscopic detail between the firing pin and breechface impressions of the cartridges test fired in the suspect's firearm (item 1) and the cartridge case recovered from the planter (item 5). In my opinion, this correspondence means that the cartridge case recovered from the planter was fired in the suspect's firearm. I found no correspondence of the breechface and firing pin impressions between the cartridges test fired in the suspect's firearm (item 1) and the cartridge cases recovered from the parking lot (items 2 and 3) and the main entrance (item 4). Therefore in my opinion, these three cartridge cases (items 2, 3 and 4) were not fired in the suspect's firearm.
AUMZAG	Item 1 and Item 5 were identified as having been fired by the same firearm. Item 1 was described as test fired cartridge cases fired from the suspect's weapon, a 9mm Luger Beretta 92FS. Item 2, Item 3, and Item 4 were excluded as having been fired by the same firearm as Item 1. Item 2 and Item 3 were identified as having been fired by the same firearm.
B6F82H	The cartridge case listed as items 2, 3 and 4 were not fired at Beretta 92FS 9mm pistol. The cartridge case marked as item 5, if the gun was fired 9mm Beretta 92FS. [sic]
B93K92	Item #5 spent cartridge cases matched the test cartridge cases of and was discharged by the 9MM caliber Beretta Pistol, Model 92FS. Items #2 and #3 spent cartridge cases matched each other and were discharged from a 2nd 9MM caliber pistol. The spent cartridge cases were not discharged from the known Beretta Pistol. Item #4 spent cartridge case was discharged from a third 9MM caliber pistol. Item #4 was not discharged from the known Beretta Pistol. Item #4 was not discharged from the same pistol that discharged items #2 and #3 cartridge cases.
BB4NY3	One of the submitted fired 9mm Luger caliber cartridge cases (Item 5) was identified as having been fired in the same firearm as the submitted test fired cartridge cases (Item 1). The remaining three submitted fired 9mm Luger caliber cartridge cases (Items 2, 3, and 4) were eliminated from having been fired in the same firearm as the submitted test fired cartridge cases (Item 1). Two of the submitted fired 9mm Luger caliber cartridge cases (Items 2 and 3) were identified as having been fired in the same firearm. One of the submitted fired 9mm Luger caliber cartridge cases (Item 4) could not be identified or eliminated as having been fired in the same firearm as two of the submitted fired 9mm Luger caliber cartridge cases (Items 2 and 3) due to a lack of reproducible marks.
BFJ3KN	Comparison Microscopic examination revealed that: 1. The cartridge discharged from suspected weapon mentioned in item (1) has same mark with cartridge case recovered from the planter mention in item (5). The cartridge case no. (5) fired from the suspected weapon.

TABLE 2

WebCode	Conclusions
	2. The two cartridge cases recovered from the parking mentioned in item (2) and (3) fired from another weapon. 3. The cartridge case recovered from entrance mentioned in item (4) fired from third weapon. [sic]
BGAJH3	Item 5 cartridge case was fired in the same firearm which fired the reported test fire cartridge cases submitted as item 1. Items 2 and 3 cartridge cases were fired in the same firearm. Due to class characteristic differences, they were not fired in the same firearm as items 1 and 5 cartridge cases. Due to class characteristic differences, item 4 was not fired in the same firearm which fired items 1 and 5 cartridge cases. Due to class characteristic differences, item 4 was not fired in the same firearm which fired items 2 and 3 cartridge cases.
BL73K2	The Item 1 through 5 cartridge cases, each a Federal brand caliber 9mm Luger cartridge case, were examined and analyzed using microscopy. The Item 1 and 5 cartridge cases were identified as having been fired in one (1) firearm. The Item 2 and 3 cartridge cases were identified as having been fired in one (1) firearm and exhibit markings that may be suitable for identification with the firearm in which they were fired. Due to differences in class characteristics in Item 2 and 3 cartridge cases could not have been fired in the same firearm as the Item 1 and 5 cartridge cases or the Item 4 cartridge case. The Item 4 cartridge case exhibits markings that may be suitable for identification with the firearm in which it was fired. Due to differences in class characteristics the Item 4 cartridge case could not have been fired in the same firearm as the Item 1 and 5 cartridge cases or the Item 2 and 3 cartridge cases.
BNP6KE	The item 1 (Three expended cartridge cases discharged from the suspect's weapon) and the four expended cartridges cases (items 2, 3, 4 y 5) were microscopically examined and compared. Based upon matching microscopic detail in the breech face marking, firing impressions, extractor and ejector, one of the cartridge case (item 5) was identified as having been fired in the suspect's firearm. The remaining cartridge cases (item 2, 3, and 4) were fired in differents firearm. [sic]
BQWH8M	(a) Test fired cartridge cases, (Items 1), positive to exhibit cartridge case (Item 5), negative to, (Items 2, 3 and 4). (b). Exhibit fired cartridge case, (Item 2), positive to exhibit fired cartridge case, (Item 3), negative to, (Items 1, 4 and 5). (c) Exhibit fired cartridge case, (Item 4), negative to, (Items 1, 2, 3 and 5).
BT6FWX	Item 2 and item 3 bear marks consistent with having been fired in the same firearm, firearm unknown. Item 2, item 3 and item 4 were not fired in K-1. Item 5 bears marks consistent with having been fired in K-1.
BUH7MT	The expended cartridge case marked as Item 5 has similar characteristics with Item 1. The expended cartridge cases marked as Item 2, Item 3 and Item 4 did not have similar characteristics with Item 1. In conclusion, the expended cartridge case marked as Item 5 was discharged from the same firearm as the known cartridge cases marked as Item 1.
BVCWT8	A microscopic examination and comparison of the submitted items revealed the following: Item #5 was fired from the submitted Beretta pistol. Item #2 and 3 were both fired from an unknown second weapon. Item #4 was fired from an unknown third weapon.
BWMPT2	The cartridge case (item 5) was identified as having been fired in the Beretta pistol represented by the test fired cartridge cases (item 1). The cartridge cases (items 2, 3 and 4) were eliminated from having been fired in the Beretta firearm represented by the test fired cartridge cases (item 1) due to differences in class characteristics. The cartridge cases (items 2 and 3) were identified as having been fired in a single unknown firearm. The cartridge case (item 4) was not identified to nor eliminated from having been fired in the same firearm as the cartridge cases (item 2 and 3) due to a lack of reproducible impressions.

TABLE 2

WebCode	Conclusions
C82B8V	The cartridge case in Item #5 was identified as having been fired in the same firearm as the cartridge cases in Item #1. The cartridge case in Item #2 was identified as having been fired in the same firearm as the cartridge case in Item #3. The cartridge cases in Items #2-#4 were excluded from having been fired in the same firearm as the cartridge cases in Item #1 based on class characteristic differences (breech face marks). The cartridge case in Item #4 could not be identified as or excluded from having been fired in the same firearm as the cartridge cases in Items #2 and #3.
CFQY6H	The item #5 fired cartridge case was fired in the item #1 pistol. The item #2 and item #3 fired cartridge cases were both fired in the same firearm. However, they were not fired in the item #1 pistol. This is due to differences in characteristics. The item #4 fire[sic] cartridge was not fired in the item #1 pistol or the firearm that item #2 and item #3 were fired in. This is due to differences in characteristics.
CNPKD7	The fired cartridge case submitted as item #5 was identified as having been fired in the same firearm that generated the test samples submitted as item 1. The fired cartridge cases submitted as items #2 and #3 were identified as having been fired in a second firearm. The fired cartridge case submitted as item #4 does not match either of the first two reported firearms and represents a third firearm.
CUBAY2	The two 9mm Luger cartridge cases (items 2 & 3) were fired in a single unknown firearm. Commonly encountered firearms with similar class characteristics include 9mm pistols manufactured by Taurus, Beretta, and Ruger. The cartridge cases (items 2 & 3) were not fired in the Beretta pistol represented by the three test fired cartridge cases (item 1) nor were they fired in the same firearm as the cartridge case (item 4). The 9mm Luger cartridge case (item 4) was not fired in the Beretta pistol represented by the three test fired cartridge cases (item 1). The cartridge case (item 4) has class characteristics commonly observed on cartridge cases fired in 9mm pistols manufactured by Hi-Point Firearms. The cartridge case (item 5) was fired in the Beretta pistol represented by the three test fired cartridge cases (item 1).
CZ4ET6	As a result of physical and microscopic examination of the submitted evidence, it is my opinion that; A/ The one (1) 9mm caliber discharged cartridge casing mentioned in item 1-5 was fired from the recovered 9mm caliber Beretta model 92FS semi automatic pistol (known). B/ The one (1) 9mm caliber discharged cartridge casing mentioned in item 1-4 was fired from an unknown weapon capable of chambering and firing 9mm caliber ammunition. C/ The two (2) 9mm caliber discharged cartridge casings mentioned in items 1-2 and 1-3 were both fired from the same unknown weapon capable of chambering and firing 9mm caliber ammunition. These items were fired from a different unknown weapon than mentioned in opinion B.
D6RN8V	Microscopic comparisons of Item #5 with test fired cartridge cases from Item #1 revealed matching breech face marks and firing pin impressions. This finding confirms that Item #5 was fired from the same firearm as Item #1 (Beretta pistol). Microscopic comparisons of Item #2 with Item #3 revealed matching breech face marks and firing pin impressions. This finding confirms that Items #2 and 3 were fired from the same firearm. Microscopic comparisons of Items #2 and 3 with test fired cartridge cases from Item #1 revealed different class characteristics (breech face styles-arch vs. parallel) confirming Items #2 and 3 were not fired from the same firearm as Items #1 and 5 (Beretta pistol). Microscopic comparisons of Item #4 with test fired cartridge cases from Item #1 revealed different class characteristics (breech face style-arch vs. parallel) and (firing pin style-concentric circles vs. smooth) confirming Item #4 was not fired from the same firearm as Items #1 and 5 (Beretta pistol). Microscopic comparisons of Item #4 with Items #2 and 3 revealed different class characteristics (firing pin style-concentric circles vs. granular) confirming that Item #4 was not

TABLE 2

WebCode	Conclusions
	fired from the same firearm as Items #2 and 3.
DALKU2	Item 5 was discharged from the same firearm that discharged the three cartridge cases marked Item 1. Item 2, Item 3 and Item 4 were not discharged from the firearm that discharged the cartridge cases marked Item 1.
DD9X46	Item 5 matched the Item 1 cartridge cases and was discharged from the same firearm. Items 2 and 3 matched each other and were discharged from the same 9mm caliber firearm. They were not discharged from the same firearm that fired the Item 1 cartridge cases. Item 4 was from a third 9mm caliber firearm.
DEG67X	Examinations showed that the cartridge case of Item 5 was discharged within the same firearm which discharged the cartridge cases of Item 1. Examinations showed that the cartridge cases of Items 2, 3 and 4 were not discharged within the firearm which discharged the cartridge cases of Item 1. Examinations showed that the cartridge cases of Items 2 and 3 were discharged within the same unknown firearm. Examinations showed that the cartridge case of Item 4 was not discharged within the same unknown firearm which discharged the cartridge cases of Items 2 and 3.
DFBVCC	Item 5 was identified as having been fired in the Beretta pistol (Item 1). Item 2 and Item 3 were identified as having been fired in the same firearm, but not from the Beretta pistol (Item 1). Item 4 was eliminated from having been fired in Item 1 or the firearm that fired Items 2 and 3. The elimination conclusion is based on different class and individual characteristics.
DR6AC9	Items 1 and 5 were fired in the same firearm. Items 2 and 3 were fired in the same firearm. Items 2 and 3 were not fired in the same firearms that fired items 1, 4 and 5. Item 4 was not fired in the same firearms as items 1, 2, 3 and 5.
DTG994	A) The 9mm caliber discharged cartridge casing listed in Item 1-5 was fired in the Suspect's 9mm caliber Beretta 92FS semi-automatic pistol. B) The 9mm caliber discharged cartridge casings listed in Items 1-2 and 1-3 were both fired in the same unknown weapon capable of chambering and firing 9mm caliber ammunition. C) The 9mm caliber discharged cartridge casing listed in Item 1-4 was fired in an unknown weapon capable of chambering and firing 9mm caliber ammunition. It is a different weapon than that identified in Conclusion B.
DXPEZ3	Items 1 and 5 were fired by the same firearm. Items 2 and 3 were fired by a second firearm. Item 4 was fired by a third firearm.
E6ARM9	As a result of physical and microscopic examination of the submitted evidence the following is my opinion: A/ Items 1-2 and 1-3 mentioned above were both fired by the same unknown weapon capable of chambering and firing 9mm caliber ammunition. Items 1-2 and 1-3 were not fired by the recovered weapon or the unknown weapon that fired item 1-4. B/ Item 1-4 mentioned above was fired by an unknown weapon capable of chambering and firing 9mm caliber ammunition. Item 1-4 was not fired by recovered weapon or weapon that fired items 1-2 and 1-3. C/ Item 1-5 mentioned above was fired by the recovered weapon 9mm Beretta model 92 FS.
EBVRWU	Item 5 was discharged in the same firearm as test fires item 1 i.e the suspect weapon. Items 2, 3 and 4 were not discharged in the suspect weapon. Items 2 and 3 were both discharged in a second different firearm, and item 4 was discharged in a third different firearm.
EF4BVM	The questioned expended cartridge case (Item 5) was discharged from the suspect's firearm. The questioned expended cartridge cases (Item 2 and Item 3) were discharged from the same firearm.

TABLE 2

WebCode	Conclusions
FFKJQ9	The Item 1 cartridge casings were confirmed as having been discharged in the same firearm. Items 2 and 3 were identified as having been discharged in the same unknown firearm. Items 2 and 3 were not discharged in the same firearm as the Item 1 and 5 cartridge casings. Item 4 was not discharged in the same firearm as the Item 1 and 5 cartridge casings. Item 4 was not discharged in the same unknown firearm as the Item 2 and 3 cartridge casings. Item 5 was identified as having been discharged in the same firearm as the Item 1 casings.
FJH84A	The item 1 (three expended cartridge cases discharged from the suspect's weapon) and the items 2, 3, 4 and 5 are cartridge cases and were microscopically compared with each other. Item 5 was identified as having been fired in the suspect's firearm item 1. Items 2 and 3 are consisten[sic] with having been fired in the other weapon. The remaining cartridge case item 4 was fired from a third firearm.
FPM4MA	Microscopic examination and comparison of the cartridge cases (items 1, 2, 3, 4 and 5) reveals sufficient evidence to conclude that the cartridge case item 5 recovered from the planter, was fired in the suspect's weapon. The three expended cartridge cases (item 2, 3, and 4) were compared one to the others to determine common origin.[sic] The two cartridge cases (items 2 and 3) recovered from the parking lot, were fired from a second firearm. The cartridge case item 4 recovered from the main entrance, was fired from a third firearm.
FPQLRZ	Comparative examination of Item 5 (a 9mm Luger caliber cartridge case) against Item 1 (three cartridge cases reportedly test fired in a Beretta Model 92FS 9mm Luger caliber pistol) showed the presence of matching features. This means that Item 5 and Item 1 were fired in the same firearm. Comparative examinations of Items 2 through 4 (three 9mm Luger caliber cartridge cases) against Item 1 showed the presence of different features. This means that Items 2 through 4 were not fired in the same firearm as Item 1. Comparative examinations of Item 2 and Item 3 showed the presence of matching features indicating they were fired in the same firearm. Comparative examinations of Item 4 against Item 2 showed the presence of different features. This means that Item 4 was fired in a different firearm from Item 2.
FRCB87	The Beretta pistol, specimen #1, was test fired using material from the laboratory collection. The reference fired cartridge cases obtained were compared to the 9mm caliber fired cartridge cases, specimens #2 through #5. Further examination revealed the following: Specimen #5 was fired by specimen #1. Specimens #2 and #3 were fired by the same weapon, but not by specimen #1. Specimen #4 was not fired by specimen #1, and was fired by a different weapon than specimens #2 & #3.
FT72DK	The cartridge cases item 1 and item 5 were both discharged in the same firearm. The cartridge cases item 2 and item 3 were both discharged in the same firearm but different to the firearm that discharged item 1 and item 5. The cartridge case item 4 was discharged from a different firearm to the firearms that discharged 1, 5, 2 and 3. Three firearms were used to discharge the cartridge cases items 1, 2, 3, 4 and 5.
G3TC9X	Specimens 2, 3, 4 and 5 were compared microscopically with specimen 1 (test-fired cartridge cases from suspect's weapon). The result of the comparison of specimen 5 with specimen 1 was positive. All have matching firing pin and breech face impressions: specimen 5 was fired in the suspect's weapon. The results of the comparisons of specimens 2, 3, and 4 with specimen 1 were negative: specimens 2, 3, and 4 differ from specimen 1, and were not fired in the suspect's weapon.
G7E2N6	As a result of a physical, visual, and macroscopic examination and comparison, it is my opinion that: A. The three /3/ 9mm Luger caliber discharged cases labeled as Item 1 (1A, 1B, 1C) which are purported to have been discharged in the Beretta 92FS 9mm Pistol for test specimens (known samples) are identified to each other based on sufficient agreement of

TABLE 2

WebCode	Conclusions
	<p>individual characteristics. B. The one /1/ 9mm Luger caliber discharged cartridge case labeled as Item 5 is identified to all three /3/ 9mm Luger caliber discharged cartridge cases (Items 1A, 1B, 1C) based on sufficient agreement of individual characteristics. C. The two /2/ 9mm Luger caliber discharged cartridge cases labeled as Items 2 and 3 bear some similar markings and have a similar firing pin impression to Items 1A, 1B, 1C and 5 however, there is an insufficient quantity and quality of individual characteristics to either identify or eliminate Items 2 and 3. D. The two /2/ 9mm Luger caliber discharged cartridge cases labeled as Items 2 and 3 bear some similar markings and have a similar firing pin impression to each other however there is an insufficient quantity and quality of individual characteristics to make an identification or elimination to/from each other. E. The one /1/ discharged cartridge case in Item 4 is eliminated from being discharged in the same firearm which discharged Items 1A, 1B, 1C, and 5 based on sufficient disagreement of individual characteristics.</p>
G8LEAC	<p>Item 5 was fired in the same firearm as used to fire the test fired cartridge cases Item 1. Items 2, 3 and 4 were not fired in the firearm used to fire the test fired cartridge cases Item 1. Items 2 and 3 have sufficient corresponding individual marks to conclude they were both fired in a second firearm. Item 4 was fired in a third firearm.</p>
GEKBP3	<ol style="list-style-type: none"> 1. The cartridge case of item #5 was discharged in same weapon that discharged item #1. 2. The cartridge case of item #2 was discharged in same weapon that discharged item #3. 3. The cartridge cases of item #2 and item #3 were not discharged in the same weapon that discharged item #1. 4. The cartridge case of item #4 was not discharged in the same weapon that discharged item #1. 5. The cartridge case of item #4 was not discharged in the same weapon that discharged item #2 and item #3. 6. Items #2 and #3 were possibly discharged in a weapon with the same family characteristics as item #1. 7. Item #4 was discharged in a weapon that had different family characteristics than the others.
GL69HW	<p>Based on the reproduction of corresponding patterns of individual microscopic characteristics, the recovered cartridge case (item 5) is identified as having been fired in the recovered Beretta pistol. Based on the reproduction of corresponding patterns of individual microscopic characteristics, recovered cartridge cases (Items 2 & 3) are identified as having been fired in the same firearm. Based on differences in class characteristics, the 2 cases were excluded from having been fired in the recovered Beretta pistol. The recovered cartridge case (Item 4) was excluded as having been fired in the recovered Beretta pistol and the pistol in which the cases (Items 2 & 3) were fired based on differences in class characteristics. Any firearms that subsequently become suspect in this investigation should be submitted for laboratory examination.</p>
GN92DF	<p>The cartridge case described in the item #5 is caliber 9mm Luger and was fired by the suspect weapon (Cartridge Cases) described in the item #1. The cartridge case described in the item #2 and the cartridge case described in the item #3 are caliber 9mm Luger and they were fired by the same firearm and were not fired by the suspect weapon described in the item #1. The cartridge case described in the item #4 is caliber 9mm Luger and was fired by a firearm, but not by the suspect weapon described in the item #1, not the one that fired the cartridge cases described in the item #2 and item #3.</p>
GP2RJU	<p>The spent cartridge case listed as Item 5 has been identified as having been fired in the same firearm as the three (3) spent cartridge cases listed as Item 1. The spent cartridge case listed as Item 2 has been identified as having been fired in the same firearm as the spent cartridge case listed as Item 3, but not the same firearm as the three (3) spent cartridge cases listed as Item 1. The spent cartridge case listed as Item 4 was not fired in the same firearm as the three (3) spent cartridge cases listed as Item 1 or the same firearm as those spent cartridge cases listed as Items 2 & 3.</p>

TABLE 2

WebCode	Conclusions
GVWMP9	1. Microscopic examination of Exhibit 5 (Cartridge case) disclosed that it was fired in the same firearm as Exhibit 1 (test-fired cartridge cases). 2. Microscopic examination of Exhibits 2, 3, and 4 (Cartridge cases) disclosed that they were not fired in the same firearm as Exhibit 1 (test-fired cartridge cases). 3. Microscopic examination of Exhibit 2 and 3 (Cartridge cases) disclosed that they were fired in the same firearm. 4. Microscopic examination of Exhibit 4 (Cartridge case) disclosed that it was not fired in the same firearm as Exhibits 2 and 3 (Cartridge cases).
GW7ML3	1. Microscopic examination of Exhibit 5 (Cartridge case) disclosed that it was fired in the same firearm as Exhibit 1 (Cartridge cases). 2. Microscopic examination of Exhibits 2, 3, and 4 (Cartridge cases) disclosed that they were not fired in the same firearm as Exhibit 1.
H3KW7G	Examined the four specimens marked #2 thru #5. They are 9mm Luger caliber discharged shells, headstamped FC. Compared the three shells marked #1 against the shell marked #5 with positive results. The shell marked #5 was discharged in the same firearm as the three shells marked #1. Compared the two shells marked #2 and #3 against each other with positive results. The two shells marked #2 and #3 were discharged in the same firearm. Compared the four shells marked #1 and #5 against the two shells marked #2 and #3 with negative results. The two shells marked #2 and #3 were not discharged in the firearm that discharged the four shells marked #1 and #5. Compared the three test shells marked #1 and the three shells marked #2, #3 and #5 against the shell marked #4 with negative results. The shell marked #4 was not discharged in the two firearms that discharged the six shells marked #1, #2, #3 and #5.
HCAQFT	Item 5 was shot in the seized Beretta handgun. Item 2 & 3 were shot in another firearm. Item 4 was shot in a third firearm.
HD7W6Z	The Item 5 cartridge case matched the Item 1 cartridge cases and were discharged by the same firearm. The Items 2 and 3 cartridge cases matched each other and were discharged by the same firearm. The cartridge cases were compared to the Item 1 cartridge cases. An elimination was made. The Items 2 and 3 cartridge cases were discharged by a second 9mm caliber firearm. The Item 4 cartridge case was compared to the Items 1, 2 and 3 cartridge cases. Eliminations were made. The Item 4 cartridge case was discharged by a third 9mm caliber firearm.
HFAWXJ	Microscopic examination and comparison of known test fire Item 1A and Item 5 revealed that there was agreement of combinations of individual and all discernible class characteristics. It is concluded that Item 5 was fired in the suspect's pistol, Item 1. Microscopic examination and comparison of known test fire item 1A versus Items 2, 3, and 4 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Items 2, 3, and 4 were eliminated as having been fired in the suspect's pistol, Item 1. Microscopic examination and comparison of Items 2 and 3 revealed that there was agreement of combinations of individual and all discernible class characteristics. It is concluded that Items 2 and 3 were fired in the same unknown firearm. Microscopic examination and comparison of Items 2 and 3 versus item 4 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Items 2 and 3 were eliminated as having been fired in the same unknown firearm as Item 4.
HRQJ7K	Item #5 shared sufficient agreement with the three test fire casings from the submitted Beretta, model 92FS, 9mm pistol, to identify it as having been fired from this gun. I found sufficient agreement of individual breechface marks, and of individual firing pin marks on the casings marked item #1 and item #5, and based my identification on these marks. Two photos were taken of the areas of agreement; (1) of the breechface marks, and (1) of the firing pin marks. Photos taken at 20x magnification.

TABLE 2

WebCode	Conclusions
HVRKDA	The 0001-AB, 0001-AC and 0001-AD cartridge cases were microscopically compared to the three 0001-AA cartridge cases and the 0001-AE cartridge case with negative results. The 0001-AB, 0001-AC and 0001-AD cartridge cases were eliminated as having been fired in the same firearm that fired the three 0001-AA cartridge cases reported to have been fired in a Beretta 92 FS 9mm Luger pistol and the 0001-AE cartridge case. The 0001-AB and 0001-AC cartridge cases were microscopically compared to each other with positive results. The 0001-AB and 0001-AC cartridge cases were fired in the same firearm. The 0001-AB and 0001-AC cartridge cases were microscopically compared to the 0001-AD cartridge case with negative results. The 0001-AB and 0001-AC cartridge cases were eliminated as having been fired in the same firearm that fired the 0001-AD cartridge case. The 0001-AE cartridge case was microscopically compared to the three 0001-AA cartridge cases with positive results. The 0001-AE cartridge case was fired in the same firearm that fired the three 0001-AA cartridge cases reported to have been fired in a Beretta 92 FS 9mm Luger pistol.
HWZRF3	The fired cartridge casings in item's[sic] 2, 3, 4, and 5 were microscopically compared to the test fired casings from the Beretta pistol in item 1. It was determined that the item 5 casing was fired from the Beretta pistol. The fired cartridge casings in item's[sic] 2 and 3 were fired from the same unknown firearm and not the Beretta pistol, based on differences in class characteristics. The fired cartridge casing in item 4 was fired from a second unknown firearm and not the Beretta pistol, based on differences in individual characteristics. All identifications are based on the correspondence of individual characteristics.
HXD9TF	Item 1 and Item 5 - discharged from the suspect's weapon. Item 2 and Item 3 - discharged from the other weapon.[sic] Item 4 - discharged from the other weapon.[sic]
HZY9QB	I microscopically examined and compared the fired cartridge cases in Items 1 through 5 with the following results: Based on consistent class characteristics and matching individual detail, I determine[sic] that the fired cartridge case in Item 5 was fired from the same firearm as the fired cartridge cases in Item 1. The cartridge cased[sic] in Item 1 were reportedly fired from the suspect's pistol. Based on consistent class characteristics and matching individual detail, I determined that the fired cartridge cases in Items 2 and 3 were fired from the firearm. This firearm is different from the one that fired Items 1 and 5. Based on differences in class characteristics, I determined that the cartridge case in Item 4 was not fired from either of the two firearms above.
J764AB	The cartridge cases in the above listed items were compared to one another on the comparison microscope. Based on these examinations, it is the opinion of this examiner that the cartridge case in item 5 was fired in the same firearm as those in item 1. The cartridge cases in items 2 and 3 were fired in the same firearm as one another. Based on differences in class characteristics, the cartridge cases in items 2, 3 and 4 were not fired in the same firearm as those in item 1. The cartridge case in item 4 was fired in a third firearm.
J9QTQG	Fired cartridge case #5 was identified as matching the set of test fired cartridge cases submitted as item #1. Items #2 and #3 match each other and represent a second firearm. Item #4 does not match set #1, set #2, 3, and represents a third firearm.
JDZ7A2	Of the examination and microscopic comparison our laboratory concludes: A. The cartridge case item 5, reveal sufficient evidence to conclude that it was fired for the firearm of the suspicious item 1. B. The cartridge cases items 2 and 3 were fired for a second firearm. C. The cartridge case item 4 was fired for a third firearm. [sic]
JGZJQY	Four fired 9mm Luger caliber cartridge cases were submitted for comparison to test exemplars, Exhibit 1. Exhibits 2-5 have been microscopically compared to each other and to

TABLE 2

WebCode	Conclusions
	the Exhibit 1 test exemplars with the following results: Exhibit 5 was identified as having been fired in the recovered Beretta pistol that fired the Exhibit 1 test exemplars. Exhibits 2 & 3 are identified as having been fired in one (unknown) firearm. Exhibits 2 & 3 are eliminated from having been fired in the recovered Beretta pistol that fired the Exhibit 1 test exemplars. The Exhibit 4 cartridge case represents an additional (unknown) firearm. Exhibit 4 is eliminated from having been fired in the recovered Beretta pistol that fired the Exhibit 1 test exemplars and from the (unknown) firearm that fired Exhibits 2 and 3. Any 9mm Luger caliber firearms recovered during the course of this investigation should be submitted along with Exhibits 2, 3 and 4 for comparison purposes.
JHDQE2	The fired cartridge case Item 5 was fired from the firearm that fired the test-fired cartridge cases Item 1. The fired cartridge cases Items 2 & 3 were fired from a second, unknown firearm. The fired cartridge case Item 4 was fired from a third, unknown firearm.
JMTJ8F	Item 5 has been fired and discharged by the suspects gun. Items 2 & 3 have been discharged from the suspects gun, but not fired with it. Items 2 & 3 have been fired from the same gun (not the suspects). Item 4 cannot be related to neither the suspects gun, nor the other cartridges (items 2, 3, 5). [sic]
JN3LZ7	The fired cartridge case, item 5, was fired in the same firearm as the test fired cartridge cases, item 1. The fired cartridge cases, items 2 and 3, were both fired in a second firearm. The fired cartridge case, item 4, was fired in a third firearm.
JNLADU	Cartridge case item n°5 was fired in the recovered weapon. Cartridge cases item 2 and 3 were fired in a same firearm different from recovered weapon.[sic] Cartridge case item 4 was fired in a third firearm.
JTEE7Y	Examination of item 1 revealed three (3) 9mm caliber cartridge cases that were reportedly test fired from one (1) 9mm caliber, Beretta, model 92FS semi-automatic pistol. Examination of items 2 thru 5 revealed four (4) fired 9mm caliber cartridge cases. Further examination of items 2 thru 5 with the test fired cartridge cases (item 1) revealed the following: Items 2 & 3 were fired in the same firearm but not fired in the Beretta semi-automatic pistol (item 1). (gun #1); Item 4 was not fired in the Beretta semi-automatic pistol (item 1) and was not fired in the same firearm as items 2 & 3. (gun #2); Item 5 was fired in the Beretta semi-automatic pistol (item 1). (gun #3)
K6P7CJ	On examination and comparison, I found that: (i) Sufficient characteristic marks on the expended cartridge cases in Item 1 and Item 5 for a positive correlation. Hence, I am of the opinion that the same firearm fired the expended cartridge cases in Item 1 and Item 5. (ii) Item 2, Item 3 and Item 4 were fired from different firearms.
KF7TKK	On examination and comparison, I found: i) the characteristic fine striations and markings on the base of the questioned cartridge case 'Item 5' to correlate with the characteristic fine striations and markings on the bases of the three expended cartridge cases discharged from the suspect's weapon 'Item 1'. Hence, I am of the opinion that 'Item 1' and 'Item 5' were fired from the same firearm. ii) the characteristic fine striations and markings on the bases of the questioned cartridge cases 'Item 2', 'Item 3' and 'Item 4' do not correlate with the characteristic fine striations and markings on the bases of the three expended cartridge cases discharged from the suspect's weapon 'Item 1'. Hence, I am of the opinion that the questioned cartridge cases 'Item 2', 'Item 3' and 'Item 4' were not fired in the same firearm as the known cartridge cases 'Item 1'.
KHD4LU	Item 5 was fired in the same firearm as item 1. Items 2 and 3 were fired in the same firearm. Items 2 and 3 were not fired in the same firearm as items 1 and 5. Items 2 and 3 could have

TABLE 2

WebCode	Conclusions
	been fired in a 9mm Luger firearm of the following manufacture: Beretta, Tanfoglio, Danshway, Taurus, Helwan. Item 4 was not fired in the same firearm as items 1 and 5. Item 4 was not fired in the same firearm as items 2 and 3. Item 4 could have been fired in a 9mm Luger firearm of the following manufacture: Beretta, Feg, Keltec, Skyy Industries, Talon, Czechoslovakia, Hungary, Ruger, Smith & Wesson, Tanfoglio, Fabrique Nationale, Kahr Arms, Sigarms, Star, Walther. Manufacturers lists are investigative tools and are not intended to be all-inclusive. Any suspect firearms should be submitted for comparison.
KPDLWZ	Comparison microscope examinations were conducted on the evidence listed above. The findings of this examiner are the following: 1. Cartridge cases M through P are 9mm Luger caliber spent cartridges manufactured for Federal. 2. Cartridge case P (item 5) was fired in the same firearm as tests from Item 1, labeled as being fired from the suspect's Beretta pistol. 3. Cartridge cases M (item 2) and N (item 3) were fired in a second 9mm Luger caliber firearm. 4. Cartridge case O (item 4) was fired in a different firearm than either the suspect's Beretta or the fired cartridge cases M (item 2) and N (item 3).
KU7R9G	The Item 5 fired cartridge case was fired from the same firearm as the Item 1 group (test shots). The Items 2 and 3 fired cartridge cases were fired in the same firearm, but not the same as item 1 group (test shots) or the Item 5. The Item 4 fired cartridge case was not fired in the same firearm as the Item 1 group or Item 2 pair, or Item 5.
KVZHEV	Item 5 was discharged in the same firearm as Item 1 (test fires). Items 2 and 3 were fired in a second firearm. Item 4 was fired in a third firearm.
KZVAND	Three questioned 9mm Luger cartridge cases (items 2-4) were not fired from the same firearm as known cartridge cases (item 1) fired from 9mm Beretta 92FS pistol (negative identification). One questioned 9mm Luger cartridge case (item 5) was fired from the same firearm as known cartridge cases (item 1) fired from 9mm Beretta 92FS pistol (positive identification).
L4CPY7	Items 1 and 5 were identified as having been fired from the same firearm. Items 2 and 3 were identified as having been fired from the same firearm; however a different firearm than that which fired Items 1 and 5. Item 4 was neither fired from the firearm which fired Items 1 and 5 nor the firearm which fired Items 2 and 3.
L88N6N	The test fired cartridge cases submitted as item 1 were microscopically evaluated and compared to the cartridge cases identified above as items 2-5. The comparisons disclosed the following: The cartridge case identified as item 5 was fired by the same firearm as the test fired specimens contained in item 1. The firearm that produced the test fired specimens contained in item 1 can be excluded as a possible source of items 2, 3, and 4. Items 2 and 3 can be identified as having been chambered in the same unknown firearm. Item 4 was not fired by the same unknown firearm as items 2 and 3 or the firearm that produced items 1 and 5. Three firearms are represented by items 2-5.
LBN79Q	Four of the seven 9mm Luger caliber cartridge cases (1A, 1B, 1C and 5) were fired in the same firearm. Two of the seven 9mm Luger caliber cartridge cases (2 and 3) were fired in the same firearm. Two of the seven 9mm Luger caliber cartridge cases (2 and 3) were neither identified nor eliminated as having been fired in the same firearm as were four of the seven 9mm Luger caliber cartridge cases (1A, 1B, 1C, and 5). There is agreement in all discernable class characteristics and in some of the individual characteristics. However, there is insufficient agreement in the individual characteristics to establish an identification. One of the seven 9mm Luger caliber cartridge cases (4) was not fired in the same firearm as were[sic] any of the other six 9mm Luger caliber cartridge cases (1A, 1B, 1C, 2, 3, and 5).
LLR9MW	The fired cartridge casings in Item 1 and 5 were originally fired in the same gun. The fired

TABLE 2

WebCode	Conclusions
	cartridge casings in Items 2 and 3 were originally fired in a second unknown gun. The fired cartridge casing in Item 4 was originally fired in a third unknown gun.
LPUZ2P	1. Examinations showed Item 5 was discharged within the same firearm as Item 1. 2. Examinations showed Item 2 was discharged within the same unknown firearm as Item 3. 3. Examinations showed Item 4 was discharged within a second unknown firearm. 4. Examinations showed Items 2, 3, and 4 were not discharged within the same firearm as Item 1.
LRW47W	Items 1, 2, 3, 4, and 5 were examined and analyzed using microscopy. The Item 5 cartridge case was identified as having been fired in the same reported firearm (suspect's weapon) that fired the three (3) cartridge cases submitted as Item 1. The Items 2 and 3 cartridge cases were identified as having been fired in the same firearm. Because of differences in class and/or individual characteristics, the Items 2 and 3 cartridge cases were eliminated as having been fired in the reported firearm (suspect's weapon) that fired the three (3) cartridge cases submitted as Item 1 or the firearm the[sic] fired the Item 4 cartridge case. Because of differences in class and/or individual characteristics, the Item 4 cartridge case was eliminated as having been fired in the reported firearm (suspect's weapon) that fired the three (3) cartridge cases submitted as Item 1 or the firearm that fired the Items 2 and 3 cartridge cases.
LWQ2VM	Items #2 - 5 were examined and found to be Federal brand 9mm Luger fired cartridge cases. Microscopic comparisons of Item #5 with Item #1 revealed matching breech face marks and firing pin impressions. This finding confirms that Item #5 and Item #1 were fired from the same firearm. Microscopic comparisons of Items #2 with Item #3 revealed matching breech face marks and firing pin impressions. This finding confirms that Items #2 and 3 were fired from the same firearm. Microscopic comparisons of Items #2 and 3 with Item #1 revealed different breech face styles. This finding confirms that Items #2 and 3 were not fired from the same firearm as Item #1. Microscopic comparisons of Item #4 with Item #1 revealed different class characteristics (breech face style and firing pin impression style). This finding confirms that Items #4 was not fired from the same firearm as Item #1. Microscopic comparisons of Item #4 with Items #2 and 3 revealed different firing pin styles and different breech face mark individual characteristics. This finding confirms that Item #4 was not fired from the same firearm as Items #2 and 3.
M3PZRV	Examined the three (3) Specimen[sic] marked #1. They are 9mm Luger caliber discharged cartridge case[sic] headstamped "FC", Federal Cartridge brand. Examined the Specimen marked #2. It is a 9mm Luger caliber discharged cartridge case headstamped "FC", Federal Cartridge brand. Examined the Specimen marked #3. It is a 9mm Luger caliber discharged cartridge case headstamped "FC", Federal Cartridge brand. Examined the Specimen marked #4. It is a 9mm Luger caliber discharged cartridge case headstamped "FC", Federal Cartridge brand. Examined the Specimen marked #5. It is a 9mm Luger caliber discharged cartridge case headstamped "FC", Federal Cartridge brand. Compared the shells marked #1 against the shells marked #2, #3 and #4 with negative results. The shells marked #2, #3, and #4 were not fired in the same pistol as #1. Compared the shells marked #1 against the shell marked #5 with positive results. The shell marked #5 was fired in the same pistol as #1. Compared the shells marked #2 against the shell marked #3 with positive results. The shell marked #3 was fired in the same pistol as #2. Compared the shells marked #2 against the shell marked #4 with negative results. The shell marked #4 was not fired in the same pistol as #2.
M6YVNV	The fired cartridge cases, Items 2, 3, 4 and 5, were microscopically examined, inter compared, and compared with the known test fires Item 1. Based on these comparisons, in my opinion, Item 5 was fired in the same firearm that fired the test fires Item 1. Items 2 and 3

TABLE 2

WebCode	Conclusions
	are identified as being fired in the same firearm, but are excluded as being fired in the firearm that fired the test fires Item 1. Item 4 is excluded as being fired in the firearm that fired the test fires Item 1 and is excluded as being fired in the firearm that fired Items 2 and 3.
MH2L6T	The item 5 cartridge case was fired in/from the same firearm as the item 1 testfires. Items 2 and 3 were fired in/from a second firearm. Item 4 was fired in/from a third firearm.
MHL3MG	Upon comparison, I found the characteristic marks on Item 5 (an expended cartridge case recovered from the planter) to be similar to Item 1 (the expended cartridge cases discharged from the suspect's weapon). Therefore, I am of the opinion that Item 5 and Item 1 were fired from the same Beretta 92FS 9mm pistol. I found the characteristic marks on the Item 2 (an expended cartridge case recovered from the parking lot), Item 3 (an expended cartridge case recovered from the parking lot) and Item 4 (an expended cartridge case recovered from the main entrance) to be dissimilar to Item 1 (the expended cartridge cases discharged from the suspect's weapon).
MQXA8Q	Item 5 was fired in the same firearm as item 1. This conclusion was verified by firearms examiner. Items 2 and 3 were not fired in the same firearm as item 1. This conclusion was verified by firearms examiner. Item 2 and item 3 were fired in the same firearm. This conclusion was verified by firearms examiner. Item 4 was not fired in the same firearm as item 1 or items 2 and 3. This conclusion was verified by firearms examiner.
MRRZD7	The cartridge case recovered from the planter, Item 001-05, was discharged from the suspect's firearm.
MVRB6Y	According to the microscopic comparison results submitted cartridge cases of item 2, item 3, item 4 and item 5 have been fired from three different weapons of caliber 9x19mm, as described below: a. submitted cartridge cases of item 2 and item 3 have been fired from same weapon. b. submitted cartridge cases of item 4 and item 5 have been fired from two different weapons (one cartridge case per weapon). According to the microscopic comparison results only cartridge case of item 5 has been fired from the same weapon that has fired submitted cartridge cases of item 1.
MWL2BD	A microscopic comparison was performed on the test fired cartridge cases from the recovered firearm & cartridge cases from the locus. In our opinion, from the firing detail present consisting of firing pin impressions, breech face detail & extractor/ejector markings, item 5 has been fired in the recovered Beretta 92FS pistol. Items 2 & 3 have been fired in the same firearm, but not in the recovered pistol. Item 4 has been fired in a different firearm from items 2, 3, & 5. Therefore a total of 3 different firearms have been discharged at the locus, including the recovered suspect firearm.
N9T7Z7	The expended cartridge described in item 5, was fired in the Beretta 92FS 9 mm pistol. The expended cartridge described in items 2, 3, y 4, was fired in two different firearms.[sic]
NAMW7K	Microscopic comparisons of the evidence cartridge case, submitted as item #5, with test cartridge cases reported as having been fired by the Beretta pistol, submitted as item #1, revealed matching breech face and firing pin impressions. This finding confirms that the evidence cartridge case, item #5, had been fired in the Beretta pistol. Microscopic comparisons of the remaining evidence cartridge cases, submitted as items #2, #3 and #4 with the test cartridge cases reported as having been fired by the Beretta pistol, submitted as item #1, revealed dissimilar breech face and firing pin impressions. These findings confirm that these evidence cartridge cases, items #2, #3 and #4, were not fired in the Beretta pistol. Further microscopic comparisons of the evidence cartridge cases to each other revealed that items #2 and #3 had matching breech face impressions and chamber marks. These findings

TABLE 2

WebCode	Conclusions
	confirm that the evidence cartridge cases had been fired by the same firearm.
NG8VYE	Items 2 to 5 each consisted of one fired cartridge case in 9x19mm calibre. Microscopic examination showed that: (a) The fired cartridge cases in Items 2, 3 and 4 were not discharged in the same firearm as the test fired cartridge cases in Item 1; and (b) The fired cartridge case in Item 5 was discharged in the same firearm as the test fired cartridge cases in Item 1.
NH3Q7N	The cartridge casing, item 5, was identified as having been fired in the Beretta 92FS pistol, Item 1. The three cartridge casings, items 2, 3, and 4 were eliminated as having been fired in the Beretta 92FS pistol, Item 1, based on class characteristics. The two cartridge casings, items 2 and 3, were identified as having been fired in the same firearm. The cartridge casing, item 4, was eliminated as having been fired in the same firearm as items 2 and 3, based on class characteristics.
NNMVUH	Pistol "A": Item 2, Item 3 and Item 5 (and Item 1). Pistol "B": Item 4
NY4MHR	Item 2 and Item 3 have been fired from the same weapon. Item 4 have discharged in a third weapon. Three weapons have been involved in this event. [sic]
P28QRT	Item 1 consists of three fired Federal brand 9mm Luger cartridge cases. They were reported to have been fired by a Beretta brand 9mm Luger pistol, model 92FS. Items 2, 3, 4 and 5 consist of four fired Federal brand 9mm Luger cartridge cases. They were microscopically compared to each other and the cartridge cases from Item 1. Item 5 was identified as having been fired by the same firearm that reportedly fired the cartridge cases from Item 1. Items 2 and 3 were identified as having been fired by the same firearm. They were eliminated as having been fired by the same firearm that fired Items 1, 4 and 5. Item 4 was eliminated as having been fired by the same firearm that fired Items 1, 2, 3 and 5. Item 4 possesses characteristics consistent with having been fired by a Hi-Point brand firearm.
PBDHE3	The four fired questioned cartridge cases (Items 2, 3, 4 and 5) were examined and determined to be brass 9x19mm cartridge cases marked by Federal having nickel-plated brass primers with hemispherical firing pin impressions. The fired questioned cartridge cases were microscopically compared to the submitted test-fired cartridge cases (Item 1) from the 9mm caliber Beretta 92FS pistol. Item 5 was identified as having been fired in the Beretta pistol based on sufficient microscopic agreement of individual characteristics in the breechface and firing pin impressions. Items 2 and 3 were determined to have been fired in the same unknown firearm based on sufficient microscopic agreement of individual characteristics in the breechface and firing pin impressions, but were determined to have not been fired in the Beretta pistol due to a difference in the class characteristics of the breechface impressions. Item 4 was not fired in the Beretta pistol of the same firearm as Items 2 and 3 based on a difference in the class characteristics of the breechface impressions. Representative digital images were taken.
PC79KG	Identification: Based on the comparison of breech face and firing pin markings of test fired cartridge cases #1 with cartridge case #5, cartridge case #5 was fired in the same firearm that fired items #1.
PDGDWK	Items 1A, 1B and 1C (test-fired cartridge cases of CTS 11-527) were microscopically compared to each other. There is sufficient agreement of individual characteristics within the breech face marks, firing pin impression, and chamber marks to identify Items 1A, 1B, and 1C as being fired in the same firearm. Items 2, 3 and 4 (cartridge cases, of CTS 11-527) were microscopically compared to Item 1A. Based on differences in class characteristics, Items 2, 3 and 4 were eliminated as being fired in the same firearm as Item 1A. Item 5

TABLE 2

WebCode	Conclusions
	(cartridge case, of CTS 11-527) was microscopically compared to Item 1A. There is sufficient agreement of individual characteristics within the breech face marks, firing pin impression, and chamber marks to identify Item 5 as being fired in the same firearm as Item 1A. Items 2, 3, and 4 (cartridge cases, of CTS 11-527) were microscopically compared to each other. There is sufficient agreement of individual characteristics within the breech face marks and firing pin impression to identify Items 2 and 3 as being fired in the same firearm. However, based on differences in class characteristics, Items 2 and 3 were eliminated as being fired in the same firearm as Item 4.
PQ6H2V	The items 1 + 5 cartridge cases were discharged in one firearm. The items 2 + 3 cartridge cases were discharged in a second firearm. The item 4 cartridge case was discharged in a third firearm.
PQU7UR	As the result of physical and microscopic examination of the submitted evidence against the test fires from the recovered weapon it is my opinion that: A/The discharged cartridge casings mentioned in items 1-2 and 1-3 above were both fired by the same unknown weapon, not the weapon that fired the tests in item 1-1. B/The discharged cartridge casing mentioned in item 1-4 above was fired by an unknown weapon capable of chambering 9mm Luger caliber ammunition but not the weapon that fired the tests in item 1-1 or the unknown weapon that fired item 1-2 and 1-3. C/The discharged cartridge casing mentioned in item 1-5 above was fired by the weapon that fired the tests in item 1-1.
PR4EXK	Examinations showed that the discharged cartridge case in Item 5 was discharged within the same firearm that was used to discharge the testfire cartridge cases in Item 1. Examinations showed that the discharged cartridge cases in Items 2, 3 and 4 were not discharged within the same firearm that was used to discharge the test fire cartridge cases in Item 1. Examinations showed the cartridge cases in Items 2 and 3 were discharged within the same unknown firearm. Examinations showed that the cartridge case in Item 4 was not discharged within the same unknown firearm as the cartridge cases in Item 2 and 3.
PV3U8T	Examined the four specimens marked #2 thru #5. They are 9mm Luger discharged shells headstamped FC. Compared test shells from Beretta pistol marked #1 against the shell marked #5 with positive results. The shell marked #5 was discharged in the Beretta pistol. Compared test shells marked #1 against the three shells marked #2 thru #4 with negative results. The three shells marked #2 thru #4 were not discharged in the Beretta pistol. Compared the two shells marked #2 and #3 against each other with positive results. The two shells marked #2 and #3 were discharged in the same firearm. Compared the two shells marked #2 and #3 against the shell marked #4 with negative results. The two shells marked #2 and #3 were not discharged in the same firearm as the shell marked #4.
PWVKD8	[No Conclusions Reported].
PZHAUE	On examination and microscopic comparison, the questioned cartridge case 'Item 5' was similar to 'Item 1'. Therefore 'Item 5' was fired from the same firearm as the known cartridge case 'Item 1'.
PZV2KA	Examined the four specimens marked #2 through #5. They are 9mm Luger caliber discharged shells, headstamped: FC. Compared the three test shells marked #1 through #1B against the evidence shell marked #5 with positive results. The evidence shell marked #5 was discharged in the same firearm as the three test shells marked #1 through #1B. Compared the two evidence shells marked #2 and #3 against each other with positive results. The two evidence shells marked #2 and #3 were discharged in the same firearm. Compared the four shells marked #1, #1A, #1B and #5 against the two evidence shells marked #2 and #3 with negative results. The two evidence shells marked #2 and #3 were

TABLE 2

WebCode	Conclusions
	not discharged in the firearm that discharged the four shells marked #1, #1A, #1B and #5. Compared the three test shells marked #1, #1A, #1B and the three evidence shells marked #2, #3 and #5 against the evidence shell marked #4 with negative results. The evidence shell marked #4 was not discharged in the two firearms that discharged the six shells marked #1, #1A, #1B, #2, #3 and #5.
QB9F33	IMO matching firing marks seen between box 1 & box 5. IMO no matching marks seen between box 1 & box 2, box 3, box 4. IMO a different gun or guns fired 2, 3 & 4.
QEAG9R	The cartridge cases were microscopically examined in conjunction with one another. Based on these comparative examinations, the following was determined: There are three firearms represented by the cartridge cases. The cartridge case in Item 5 had been fired by the same firearm that fired the cartridge cases in Item 1. The cartridge cases in Items 2 and 3 had been fired by a second firearm. The cartridge case in Item 4 had been fired by a third firearm.
QJ2QCX	Item 1 (three expended cartridge cases discharged from the suspect's weapon - known), Item 2 (one expended cartridge case recovered from the parking lot - questioned), Item 3 (one expended cartridge case recovered from the parking lot - questioned), Item 4 (one expended cartridge case recovered from the main entrance - questioned), Item 5 (one expended cartridge case recovered from the planter - questioned), were all microscopically examined in conjunction with one other. Based on the comparative examinations, and on the reproduction of class, and individual microscopic characteristics present, it was determined that: A) Item 5 were[sic] fired in the suspect's weapon Item 1. B) The Items 2 and 3 was[sic] fired by a second firearm. C) The other item 4 was fired by a third firearm.
QJ69GN	Items 2-5 were compared microscopically with Items 1(A-C). Item 5 was found to have matching firing pin and breech face impressions, therefore this result is positive. This means Item 5 was fired in the same firearm as Items 1(A-C). Items 2-4 were found to have different characteristics, therefore these results are negative. This means Items 2-4 were not fired in the same firearm as Items 1 (A-C). Additionally, Items 2-4 were compared microscopically with each other. Items 2 and 3 were found to have matching breech face impressions, therefore this result is positive. This means Items 2 and 3 were fired in the same firearm as each other. Item 4 was found to have different characteristics, therefore this result is negative. This means Item 4 was not fired in the same firearm as Items 2 and 3. Ultimately, these results indicate that three different firearms are represented by Items 2-5, one of which is the suspect's weapon (used to make Item 1).
R3BAL8	After a detailed microscopic comparison of gun firing marks I am satisfied the seized Beretta 92FS pistol discharged the cartridge case, item 5. However the pistol did not discharge the cartridge cases, items 2, 3 & 4. Furthermore, items 2 & 3 were both discharged in a second, unknown 9mm calibre pistol and item 4 was discharged in a third, unknown 9mm calibre pistol.
R44ZRL	On comparison, I found: i) The characteristic marks on the expended cartridge case recovered from the planter (Item 5) to match those on the three expended cartridge cases discharged from the parking lot (Item 1). ii) The characteristic marks on the expended cartridge case recovered from the parking lot (Item 2), expended cartridge case recovered from the parking lot (Item 3) and expended cartridge case recovered from the main entrance (Item 4) do not match those on the three expended cartridge cases discharged from the parking lot (Item 1). Hence, I am of the opinion that the expended cartridge case recovered from the planter (Item 5) was fired by Beretta 92FS 9mm pistol. [sic]
R4R4P3	In my opinion, a microscopical comparison of firing marks has shown there is sufficient

TABLE 2

WebCode	Conclusions
	agreement of class and individual characteristic markings to conclusively determine that items 5 was discharged in the same firearm as the test fires item 1. (Gun A).
RBN4YN	A microscopic examination and comparison was conducted on Item 1, 2, 3, 4 and 5. Item 1 (cartridges cases discharged from the suspects weapon's[sic]) was positively identified as a match with item 5. Items 2, 3, and 4 did not match test fires from item 1. However items 2 and 3 were positively identified as being matched to each other.
RJKYWL	The spent Federal 9MM Luger cartridge case #5, Test # 11-527, was microscopically examined and compared with test cartridge cases fired by the Beretta Model 92FS 9MM Luger pistol, Test# 11-527. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that this spent cartridge case #5 was fired by this firearm. The 3 spent Federal 9MM Luger cartridge cases #2, #3 and #4, Test# 11-527, were microscopically examined and compared with test cartridge cases fired by the Beretta Model 92FS 9MM Luger pistol, Test# 11-527. It is my opinion that these 3 spent cartridge cases were not fired by this firearm. The 2 spent Federal 9MM Luger cartridge cases, #2 and #3, Test# 11-527, were further microscopically examined and compared with each other. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that these 2 spent cartridge cases were fired by the same firearm. The spent Federal 9MM Luger cartridge case #4, Test# 11-527, was further microscopically examined and compared with the 2 spent Federal 9MM Luger cartridge cases #2 and #3, Test# 11-527. It is my opinion that this spent cartridge case #4 was fired by a 2nd unidentified firearm.
RKG8DH	1) Examinations showed the discharged cartridge case in Item 5 was discharged within the same firearm that was used to discharge the test fire cartridge cases in Item 1. 2) Examinations showed the discharged cartridge cases in Items 2, 3 and 4 were not discharged within the same firearm that was used to discharge the cartridge cases in Item 1. 3) Examinations showed the cartridge cases in Items 2 and 3 were discharged within the same unknown firearm. 4) Examinations showed the cartridge case in Item 4 was not discharged within the same unknown firearm as Item 2 or Item 3.
RPAEPZ	The cartridge case, Item 5, was fired in the same firearm as the cartridge case, Item 1. The cartridge case, item 4, was not fired in the same firearm as the cartridge case, Item 1. The cartridge cases, Items 2 & 3, agree in class characteristics with the cartridge cases, Item 1, but there were insufficient individual characteristics in agreement for identification. Items 2 and 3 were fired in a single firearm but were neither identified nor eliminated as having been fired in the same firearm as Item 1.
RX4GX3	One of the test-fired cartridge cases from Item 1 was microscopically compared to the submitted evidence fired cartridge cases in Items 2 through 5. Item 5 - Sufficient agreement in class and individual characteristics was observed to conclude that the fired cartridge case in Item 5 was fired in the same firearm as Item 1. Items 2, 3, and 4 - Significant disagreement in individual characteristics was observed to exclude Items 2, 3, and 4 as having been fired in the same firearm as Item 1. Items 2, 3, and 4 were not fired in the same firearm that fired Item 1. Items 2, 3, and 4 were microscopically intercompared. Sufficient agreement in class and individual characteristics was observed to conclude that the fired cartridge cases in Items 2 and 3 were fired in the same unknown firearm. Significant disagreement in individual characteristics was observed to exclude Item 4 as having been fired from [sic] same firearm as Items 2 and 3. Three firearms were used to fire the cartridge cases in Items 2, 3, 4 and 5.
RYFCFN	The submitted specimens marked Items 2 through 5 were examined and identified as four (4) 9mm Luger caliber fired cartridge cases bearing the Federal headstamp. Items 2 through 5 were microscopically compared to each other and to Item 1. As a result of microscopic examinations, it was concluded that Item 5 was fired in Item 1; Items 2 and 3 were fired in the

TABLE 2

WebCode	Conclusions
	same firearm, but a different firearm than Item 1; and Item 4 was fired in a different firearm than Item 1 and 2.
RZRTT3	I compared the characteristic markings on the expended cartridge cases 'Item 2', 'Item 3', 'Item 4' and 'Item 5' with those on 'Item 1' (three expended cartridge cases discharged from suspect's weapon). On analysis, found the characteristic markings on 'Item 5' to be similar with 'Item 1' but 'Item 2', 'Item 3', and 'Item 4' to be not similar with 'Item 1'. Hence, I am of the opinion that expended cartridge case 'Item 5' was fired from Beretta 9mm pistol.
TCZDAZ	1. In the opinion of this examiner, the one spent FC 9mm Luger cartridge case Item 5 was fired from the same firearm as the known spent cartridge cases Item 1. 2. In the opinion of this examiner, the one spent FC 9mm Luger cartridge case Item 4 was not fired from the same firearm as the known spent cartridge cases Item 1. 3. In the opinion of this examiner, the two spent FC 9mm Luger cartridge cases Item 2 and Item 3 were fired from the same firearm however they were not fired from the firearm that fired the known spent cartridge cases of Item 1.
TGB9A4	1. The cartridge casing identified E-1A, E-1B, and E-1C described in the exhibit #1 are 9mm Luger (Caliber) and the casing identified E-5 described in the exhibit #5 in[sic] 9mm Luger, and were fired by the same firearm. 2. The cartridge casing identified E-2 described in the exhibit #2 is 9mm Luger (caliber) and the cartridge casing identified E-3 described in the exhibit #3 were fired by the same firearms. 3. The cartridge casing identified E-4 described in the exhibit #4 is 9mm Luger (caliber) and was fired by a firearm of the same caliber.
TH6YFH	The cartridge case "item 5" has been fired in the suspect handgun. The three cartridge[sic] cases "item 2", "item 3" and "item 4" have not been fired in this weapon.
TNQUGL	Test shots from a Beretta model 92FS 9mm pistol were submitted as Item 1. These test shots were microscopically compared to Items 2 through 5. The following conclusions were reached: Item 5 was identified as having been fired by the Beretta model 92FS 9mm pistol represented by Item 1. Items 2 and 3 were not fired by the Beretta model 92FS 9mm pistol represented by Item 1. Items 2 and 3 were identified as having been fired by the same unknown firearm. Item 4 was not fired by the Beretta model 92FS 9mm pistol represented by Item 1 or by the same firearm that was used to fire Items 2 and 3.
TZ3G6D	Items 1 & 5 -The cartridge cases were identified as having been fired in the same firearm. Items 2 & 3 - The cartridge cases were identified as having been fired in the same firearm. However, these cartridges cases were fired in a different firearm than item 1. Item 4 - The cartridge case was fired in a different firearm than items 1 and 2.
U36FF7	Item 5 was identified as having been fired in the item 1 pistol. Items 2 and 3 were identified as having been fired in the same unknown firearm (unknown firearm #1). Item 4 retains marks of value for future comparative microscopy (unknown firearm #2).
UAPTZQ	Item 5 was fired in the same firearm as Item 1. Items 2 and 3 were fired in a second 9mm firearm. Suspect weapons include 9mm Beretta and Taurus pistols; however, any suspect weapon should be submitted for examination. Item 4 was fired in a third 9mm firearm. Suspect weapons are unknown at this time.
UK6PY3	Through the gravimetric study, microscopic examinations and microscopic comparisons was determined: 1-The cartridge cases marked as number 1 described in the Item 1 and the cartridge case marked as number 5 described in the Item 5, are 9mm Luger and were fired by the same firearm (suspects weapon). 2- The cartridge case marked as number 2 described in the Item 2 and the cartridge case marked as number 3 described in the Item 3, are 9mm Luger and were fired by the same firearm, and were not fired by the suspects weapon. 3- The

TABLE 2

WebCode	Conclusions
	cartridge case marked as number 4 described in the Item 4, is 9mm Luger, and was fired by a firearm, but not by the suspects weapon, not the one that fired the cartridge cases described in the Item 2 and 3. [sic]
ULXF6G	FCC 1 thru 4 were fired in three separate firearms as follows: Firearm A (P1) - FCC 4 (item 5) was fired in P1 (item 1). Firearm B - FCC 1 (item 2) and FCC 2 (item 3) were fired in the same firearm. Firearm C - FCC 3 (item 4).
UMVLUN	A. The item #5, expended cartridge case, was discharged in the same weapon as the item #1, expended cartridge cases. B. The items #2, #3, and #4, expended cartridge cases, were not discharged in the same weapon as the item #1, expended cartridge cases.
UPZCWW	Item 5 was identified as having been fired from the same firearm as Item 1. Items 2 and 3 were identified as having been fired from the same firearm; however, they were eliminated as having been fired from the same firearm as Items 1, 4 and 5. Item 4 was eliminated as having been fired from the Items 1 and 5 firearm, and the Items 2 and 3 firearm.
URPMRW	After analyzing under comparison microscope it is found that item no. 1 (cartridge case discharged from the suspect weapon) match with item no. 5 (cartridge case recovered from planter). Other items no. (2, 3 & 4) did not match with item no. 1.
WKVBW	Microscopic examination revealed that fired cartridge case Item 5, was fired in the same firearm as the Item 1 fired cartridge cases identified as test cartridges from the known firearm. Microscopic examination revealed that fired cartridge cases, Items 2, 3, and 4 were not fired in the same firearm as the test cartridges, Item 1. Items 2 and 3 were fired in the same unknown firearm. Item 4 was fired in a different unknown firearm than Items 2 and 3. A total of three firearms (one known and two unknown) were used to fire the four submitted questioned fired cartridge cases.
VWZZ6N	Tests in Item 1 have been compared microscopically to Items 2-5. Item 5 was fired in the same firearm as Item 1. Item 2 has been compared microscopically to Items 3-5. Items 2 and 3 were fired in the same firearm. Items 2 and 3 were not fired in the same firearm that Items 4 or 5 were fired in. Item 4 does not share the same class characteristics than[sic] Items 1-3 and 5 have and was not fired in the same firearm as these items.
WAJZD3	The case "5" and cases numbered "1a" to "1c" were fired by the same weapon a Beretta 92 FS from suspect. The cases "2" and "3" were fired by a handgun 9mm Luger caliber different from above. The case "4" was shot by a third weapon in 9mm Luger caliber.
WNDULM	Using the Bayesian approach in case work we view our findings under two hypotheses, namely: H1: The questioned cartridge case is fired with the same firearm as the known cartridge cases. H2: The questioned cartridge case is fired with a different firearm of the same caliber and with the same class characteristics as the firearm that produced the known cartridge cases. The likelihood of the findings under the two hypotheses is estimated. The likelihood is expressed on a verbal scale: equally probable; more probable; far more probable. The results would be expressed as follows: Item 2: The findings are far more probable under H2 than under H1. Item 3: The findings are far more probable under H2 than under H1. Item 4: The findings are far more probable under H2 than under H1. Item 5: The findings are far more probable under H1 than under H2.
WRFLYU	It was determined that the cartridge case in Item 5 was fired in the same firearm as the cartridge cases in Item 1. It was determined that the cartridge cases in Items 2, 3, 4 were not fired in the same firearm as the cartridge cases in Item 1.
WX64EQ	As a result of physical and microscopic examination of the submitted evidence it is my

TABLE 2

WebCode	Conclusions
	<p>opinion: A/ The Item 1-5 One (1) 9mm caliber discharged cartridge casing, head stamped "F C" was fired by the submitted 9mm Caliber, Beretta, Model 92FS, Semi Automatic Pistol. B/ Items 1-2 and 1-3 two (2) 9mm caliber discharged cartridge casings, head stamped "F C" were fired by the same unknown weapon capable of chambering and firing 9mm caliber ammunition and were not fired by the submitted weapon. C/ The Item 1-4 One (1) 9mm caliber discharged cartridge casing, head stamped "F C" was fired by the[sic] an unknown weapon capable of chambering and firing 9mm caliber ammunition and was not fired by the submitted weapon or the weapon used to fire items 1-2 or 1-3.</p>
X6MQPL	<p>Items #2, 3, 4,& 5 were microscopically compared to each other and test shots, Item #1. The results of the examinations with Item #1 and Item #5 are positive. The breech face impressions match, therefore, Item #5 was fired in the recovered Beretta firearm. The results of the examinations with Item # 1 and Item # 2, 3 & 4 are negative based on different class characteristics.</p>
X8KGMK	<p>Items #2 and #3 were fired in the same firearm however they are eliminated from being fired by the pistol that discharged the submitted test. Item #4 is eliminated from being fired by the pistol that fired the tests and the pistol that fired #2 and #3. Item #5 was fired by the same pistol that discharged the tests (1).</p>
XBLHP4	<p>Items 2 and 3 were identified as having been fired in the same unknown firearm, however they were eliminated as having been fired in the same firearm as Item 1, due to disagreement of discernible individual characteristics. Item 4 was eliminated as having been fired in the same unknown firearm as Items 2 and 3 due to disagreement of discernible class characteristics. Item 4 was also eliminated as having been fired in Item 1 due to disagreement of the discernible class characteristics. Item 5 was identified as having been fired in the same firearm that fired Item 1. The conclusions in this section are the opinions of the undersigned examiner. When a conclusion is verified, it is also the opinion of the verifier.</p>
XKXEZ2	<p>I conducted an examination of Items 1, 2, 3, 4 & 5 using a comparison microscope and report the following: 1. The questioned expended cartridge case of Item 1 could not be matched to Items 2, 3 & 4 with sufficient differences that they have been eliminated as having been discharged from the same firearm that produced Item 1. 2. Items 2 & 3 were identified as matching each other and therefore have been discharged in the same firearm but not of that linked to Item 1. 3. Item 5 was positively identified as being a match to the expended cartridge cases of Item 1 and therefore report that Items 1 and 5 were discharged in the same firearm.</p>
XUHQ6M	<p>Items 1 were microscopically compared against the questioned fired cartridge case received as Item 2 and was eliminated as being fired in the same firearm as Item 1. Items 1 were microscopically compared against the questioned fired cartridge case received as Item 3 and was eliminated as being fired in the same firearm as Item 1. Items 1 were microscopically compared against the questioned fired cartridge case received as Item 4 and was eliminated as being fired in the same firearm as Item 1. Items 1 were microscopically compared against the questioned fired cartridge case received as Item 5 and was identified as being fired in the same firearm as Item 1.</p>
XZBPL4	<p>Item 5 was fired in the same firearm as represented by the cartridge cases, item 1. Items 2, 3 and 4 were not fired in the same firearm as represented by the cartridge cases, item 1. Items 2 and 3 were fired in a different firearm than item 1. Items 2 and 3 were fired in the same firearm. Item 4 was fired in a different firearm than the cartridge cases, items 1, 2, 3 and 5.</p>
Y462ZZ	<p>1. Item 2 was not fired in the known Beretta 92FS 9mm pistol. 2. Item 3 was not fired in the known Beretta 92FS 9mm pistol. 3. Item 4 was not fired in the known Beretta 92FS 9mm</p>

TABLE 2

WebCode	Conclusions
	pistol. 4. Item 5 is identified as having been fired in the known Beretta 92FS 9mm pistol. 2. Items 2 and 3 are identified as having been fired in the same firearm. This firearm has not yet been received for examination at Physical Evidence & Firearm Examination.
Y7QQG7	Item #5 is a caliber 9mm Luger cartridge case, Federal brand. Item #5 was identified as having been fired in the Item #1 firearm. Items #2 and #3 are two (2) caliber 9mm Luger cartridge cases, Federal brand, which were identified as having been fired in the same second firearm. Item #4 is a fired caliber 9mm Luger cartridge case, Federal brand, which was not fired in the Item #1 firearm nor in the same firearm as Items #2 and #3.
Y9H2ZC	Item #1 - The three spent 9mm caliber cartridge cases matched each other and were reportedly discharged by a 9mm caliber Beretta model 92FS. Item #2 and Item #3 - The two spent 9mm caliber cartridge cases matched each other and were discharged by a second 9mm caliber firearm. Item #4 - The cartridge case was discharged by a third 9mm caliber firearm. Item #5 - The cartridge case matched the Item #1 cartridge cases, reportedly discharged by the suspects 9mm caliber Beretta model 92FS pistol.
YDR8RC	Three firearms have been used. The cartridge case of Item 5 has been fired with the seized Beretta 92FS, like the three expended cartridge cases discharged from the suspect's weapon (know)[sic]. The cartridge case of Item 2, and the one of Item 3 have been fired with a second weapon, probably a Berretta pistol or similar. The [sic] case of Item 4 has been fired with a third weapon.
YG8RHX	Items 1 and 5 were fired in the same firearm. Items 2 and 3 were fired in the same firearm, but not in the same firearm as the Item 1 test fired cartridge cases. Item 4 was not fired in the same firearm as any of the Items 1, 2, 3 or 5. Three firearms are represented by Items 1 through 5.
YK9XYP	Item 5 was identified as having been fired in the same firearm as Item 1. Item 2 and Item 3 were identified as having been fired in the same unknown firearm (Item 1 was not from the same firearm). Item 4 was fired in an unknown firearm; not the firearm that fired Item 5 and Item 1, nor the firearm that fired Item 2 and Item 3.
YKTGX6	On examination, I found that the characteristic marks on expended cartridge case 'Item 5' was similar with the characteristic marks on the test fired cartridge cases 'Item 1'. The characteristic marks on expended cartridge cases 'Item 2', 'Item 3' and 'Item 4' were different from 'Item 1'. Hence, in my opinion the expended cartridge 'Item 5' was fired from the seized pistol.
Z3NC98	From the four questioned cartridge cases only the cartridge case Item 5 has individual markings that matches with the individual markings on the cartridge cases Item 1. It is certain that the cartridge case Item 5 and the cartridge cases Item 1 were fired from the same weapon. The cartridges cases Item 2 and Item 3 have with each other matching individual markings, so it is certain that the cartridge cases Item 2 and Item 3 were fired from the same weapon but they were not fired from the same weapon as Item 1 and 5. The cartridge case Item 4 was neither [sic] from the same gun as Item 1 and 5 nor fired from the same gun as Item 2 and 3.
ZCEVQL	The submitted cartridge cases (Item 1) were discharged in the same firearm as the submitted cartridge case (Item 5). The submitted cartridge case (Item 2) was discharged in the same firearm as the submitted cartridge case (Item 3).
ZQWKN3	There are sufficient individual markings present to identify item 5 (cartridge case) as having been fired through the same firearm as item 1 (cartridge cases from suspects firearm.) Based on class characteristic differences items 2, 3 and 4 (cartridge cases) can be eliminated as

TABLE 2

WebCode	Conclusions
ZRPNZB	<p>having been fired in the same firearm as items 1 and 5 (cartridge cases). There are sufficient individual markings present to identify items 2 and 3 (cartridge cases) as having been fired in the same firearm. They lack the features necessary to determine brand of firearm that they were fired [sic]. Based on class characteristic differences item 4 (cartridge case) can be eliminated as having been fired in the same firearm as items 2 and 3 (cartridge cases).</p> <p>The cartridge cases from Item 1 and Item 5 matched each other and were discharged by the same firearm. The cartridge cases from item 2 and Item 3 matched each other and were discharged by the same firearm. This firearm is different from the firearm that discharged Item 1 cartridge cases. The cartridge case for item 4 was discharged by a firearm different from the firearm that discharged the Item 1 and Item 5 cartridge [sic] and different from the firearm that discharged the item 2 and item 3 cartridge cases.</p>

Additional Comments

TABLE 3

WebCode	Additional Comments
2AMC6E	Additional marks were found on items 2 and 3 that matched corresponding marks on item 1. These marks were not proof of firing. Some similar marks were found on unfired Federal cartridges examined from our stock supply indicating that some or all of these additional marks could be from the ammunition manufacturing process.
2K4YEF	Items 2 and 3 were identified as having been fired in the same firearm. Item 4 was eliminated as having been fired in the same firearm as Items 2 and 3.
3J6G7B	The same magazine used for obtaining items 1 and 5 was probably also used for obtaining items 2 and 3. Items 2 and 3 might even have been chambered in firearm item 1.
4KFG36	Three (3) firearms used.
4MJ8FC	Items 2 and 3 indicated to have been fired by the same firearm; not the same firearm as Item 1.
4NRLGQ	Item 2 and Item 3 were fired [sic] the same firearm
66ZTBM	Several of the heads display toolmarks that are reproducible but appear to not be related to the firearms that discharged them. The marks may be from loading tools at Federal Cartridge. This suggests a "sharing" of the ammo between firearms. The identifications and eliminations were made using distinctly different breechface impressions and firing pin impressions.
7BYPQC	Items A1-1, A1-2, and A1-3 received from CTS as Item 1. Item A2 received from CTS as Item 2. Item A3 received from CTS as Item 3. Item A4 received from CTS as Item 4. Item A5 received from CTS as Item 5.
82T2D7	Items 2 and 3 were positively identified as being matched to each other.
8A777Q	I observed correspondence of features in the firing pin aperture shape impression onto the primer, also location and shape of the ejector mark on the head between Items "2" and "3"- to indicate they had been fired by the same firearm, but not the subject Beretta 92FS 9mm pistol source of Item "1" or another separate pistol source for Item "4". In spite of the distinctive ejector marks on "2" and "3", I concluded these were very light impressions and featureless apart from general shape and location. The firing pin and aperture marks by themselves lacked sufficient features to conclusively identify another firearm or eliminate them from the Item "1" source Beretta pistol. I found there were sufficient differences in the class characteristic features between the cartridge cases Item "1" and Item "4" to eliminate the Item "4" cases from having been fired by the subject Beretta 92FS 9mm pistol source of the Item "1" cases.
8NJJJG	Exhibits 2 and 3 could not be excluded or included to one having been fired in the same unknown 9mm caliber pistol. Exhibit 4 displayed markings consistent with having been fired in a "Hi-Point" 9mm caliber pistol.
93XBH9	The cartridge cases in item 2 & 3 were fired in the same gun.
9KGAQ	Three different firearms had been used to fire the discharged cartridge cases collected from the scene at the mall. Item 5 collected from the planter was fired by the exhibit Beretta pistol used to fire the test cases Item 1. Items 2 and 3 collected from the parking lot had been fired by another firearm. Item 4 from the main entrance had been fired by a third firearm.
9Q4R7N	The quality of the samples was good.
AE84NT	Items 2 and 3 were both discharged from the same firearm. Item 4 was discharged in another firearm. Three (3) different firearms were used to discharge the questioned cartridge cases, Items 2, 3, 4 and 5.

TABLE 3

WebCode	Additional Comments
ALABB9	Items 2-4 were microscopically inter-compared. Items 2 and 3 exhibited class and individual characteristic correspondence, and it was concluded that Items 2 and 3 were fired by the same firearm (firearm not submitted). Items 2 and 3 exhibited class characteristic difference with Item 4. It was concluded that Items 2 and 3 were not fired by the same firearm as Item 4 (firearm not submitted).
AM32GN	I found an excellent correspondence of shape and microscopic detail between the firing pin and breechface impressions of the cartridge cases recovered from the parking lot (items 2 and 3). In my opinion, this correspondence means that these two cartridge cases were fired in the same firearm.
BB4NY3	Numerous differences in individual characteristics observed between item 4 and items 2 and 3. Mostly importantly, item 4 appeared to have a different shaped ejector mark than items 2 and 3, but having only one example of the possible ejector mark on item 4, I was unwilling to conclusively determine it to be an ejector mark, rather than a manufacturing mark. Therefore, I had no difference in class characteristics between items 2 and 3 and item 4, so I could not eliminate it. The phrase "due to a lack of reproducible marks" is a standardized statement our agency now requires us to put on all inconclusive determinations in response to an ASCLD requirement.
BVCWT8	A total of three guns were used to fire the expended submitted casings.
DALKU2	Item 2 and Item 3 were likely to have been discharged from the same firearm. Test fired cartridge cases from this firearm will have to be submitted for comparison to confirm this finding.
DR6AC9	All items have possible manufacturing marks that are similar in style and appearance to each other.
G3TC9X	Specimens 2 and 3 have matching firing pin + breech face impressions: both were fired in the same (not yet identified/submitted) weapon.
G7E2N6	Inconclusive: Inconclusive:[sic] Items 2 and 3. These 2 items do not exhibit the replicated toolmarks which exist on Items 1A, 1B, 1C and 5. Although there is a similar firing pin impression on both which is consistent in size, shape, and appearance, the primer is devoid of the replicated identifying individual characteristics on the primer itself. This lack of quantity and quality of individual characteristics precludes the ability to make a positive identification based on sufficient agreement or elimination based on significant disagreement. Knowns: These test fired specimens exhibit a significant amount of markings on the rim and extractor groove which are highly unusual for ammunition taken from a box which should not exhibit such markings. These markings are more consistent with cartridges that have been previously cycled through the mechanical action of a firearm(s).
GEKBP3	We found on item #1, item #2, item #3 and item #4 an unknown sign (in the Extractor groove area). This sign can be from different weapon extractor or by ammunition manufacture tools.
HRQJ7K	Item #s 2 & 3 were fired from a second gun. I found sufficient agreement between the individual breechface marks, and based my identification on these marks. Two photos were taken of areas of agreement at 20x magnification. Item #4 was fired from a 3rd gun (different class & individual characteristics than item #'s 1, 2, 3, 5).
JDZ7A2	The exercise was practical for the application to the comparative studies of cartridge cases that realizes in our tasks, activity that es very frequent in our laboratory by material evidence submitted for analysis of criminal cases which use one or more firearms.[sic]
JNLADU	Three different weapons fired the four cases found on[sic] crime scene.

TABLE 3

WebCode	Additional Comments
KHD4LU	All of the above conclusions were verified by a second examiner.
KZVAND	Two questioned 9mm Luger cartridge cases (item 2 and item 3) were fired from one (same) firearm (positive identification).
N9T7Z7	The expended cartridge described in items 2, 3, were fired in the same firearm. In the fact we used three firearms 9 mm. [sic]
PC79KG	Identification: Based on the comparison of breech face and firing pin markings of fired cartridge case #2 with cartridge case #3, cartridge cases #2 and #3 were fired in the same unknown firearm. Elimination: Based on the comparison of breech face and firing pin markings of test fired cartridge cases #1 with cartridge cases #2, #3 and #4, cartridge cases #2, #3 and #4 were not fired in the same firearm that fired items #1. Elimination: Based on the comparison of breech face and firing pin markings of fired cartridge cases #2 and #3 with cartridge case #4, cartridge case #4 was not fired in the same firearm that fired items #2 and #3.
PV3U8T	Shell marked #5 discharged in suspect pistol. Shells #2 thru #4 not discharged in suspect pistol. Shells #2 and #3 discharged in same firearm, (2nd Firearm). Shell #4 discharged in different firearm than shells #2, #3 and #5 (3rd Firearm).
R3BAL8	In summary, a total of three weapons were used to discharge the four cartridge cases recovered in this incident, one of which was the seized Beretta 92FS pistol.
R44ZRL	The characteristic marks on the expended cartridge case recovered from the parking lot (Item 2) and expended cartridge case recovered from the parking lot (Item 3) to match each other.[sic] Hence, I am of the opinion that they were both fired from the same firearm but not from the Beretta 92FS 9mm pistol.
R4R4P3	Items 2 + 3 matched together - from different gun B. Item 4 is from different gun C.
RPAEPZ	Can not eliminate Items 2 and 3 in absence of firearm.
U36FF7	Eliminations established by above wording.
WNDULM	Findings suggested that Item 2 and Item 3 were fired with the same firearm. The findings are viewed under two hypotheses, namely: H3: The cartridge cases (2 and 3) were fired with the same firearm. H4: The cartridge cases (2 and 3) were fired with two different firearms of the same caliber and with the same class characteristics. The results would be expressed as follows: The findings are far more probable under H3 than under H4.
X6MQPL	The breech face impressions on Item #2 & 3 match, therefore, Item #2 & 3 were fired in the same firearm which has yet to be identified.
Y462ZZ	Item 3 could have been fired from the same magazine used to fire the three test shots.

Test No. 11-527: Firearms Examination

DATA MUST BE RECEIVED BY October 31, 2011 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB and FQS-International. 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 FQS-International. (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 FQS-International.

Scenario:

Police are investigating a shooting at a mall. Investigators have recovered four cartridge cases from the area: two from the parking lot, one near the main entrance and one in a planter. A suspect was apprehended later that day and police seized a Beretta 92FS 9mm pistol from her. Three rounds of Federal American Eagle® 9mm ammunition (which were consistent with the cartridge cases found at the scene) were fired with the suspect firearm and the cartridge cases collected. Investigators are asking you to compare the recovered cartridge cases from the scene with those expended from the suspect's weapon and report your findings.

Please note:

- 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 CTS item number.
- Although this firearm has been used in a previous CTS test, that use has no relation to the current test and scenario.

Items Submitted (Sample Pack F2):

Item 1: Three expended cartridge cases discharged from the suspect's weapon (known).

Item 2: One expended cartridge case recovered from the parking lot (questioned).

Item 3: One expended cartridge case recovered from the parking lot (questioned).

Item 4: One expended cartridge case recovered from the main entrance (questioned).

Item 5: One expended cartridge case recovered from the planter (questioned).

1.) Were any of the questioned expended cartridge cases (Items 2-5) discharged from the same firearm as the known expended cartridge cases (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.

Page 1 of 3

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **11-527: Firearms Examination**

This release page must be completed and received by **October 31, 2011** 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) _____

FQS-INTERNATIONAL RELEASE

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

FQS-International 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.

Page 3 of 3