



Firearms Examination

Test No. 22-5262 Summary Report

Each sample set consisted of three known expended cartridge cases test-fired from a suspect weapon (Item 1) and four questioned expended cartridge cases (Items 2-5). Participants were requested to examine these items and report their findings. Data were returned from 316 participants and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set contained five items: Item 1 consisted of three cartridge cases fired from the suspect's gun. Item 2 consisted of one cartridge case recovered near the main entrance, Items 3 and 5 each consisted of one cartridge case recovered from the parking lot, and Item 4 consisted of one cartridge case recovered near the counter. Federal American Eagle 9mm Luger 124 grain Full Metal Jacket (FMJ) 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 (Item 1).

The cartridge cases in Items 1 and 2 were fired in a Beretta Model 92FS (Serial Number BER461281). Items 3 and 5 were fired in a Beretta Model 92F (Serial Number D762267). Item 4 was fired in a Springfield XD-9 4.0 Mod. 2 (Serial Number GM954664).

ITEMS 1 AND 2 (IDENTIFICATION): Multiple magazines were loaded with Federal American Eagle ammunition for firing with the Beretta Model 92FS handgun. After the ammunition was expended, the cartridge cases were collected and packaged together as a batch. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases were selected and marked with a "1" (three cartridge cases), and "2" (one cartridge case) then sealed into their respective boxes.

ITEMS 3 and 5 (ELIMINATION): Multiple magazines were loaded with Federal American Eagle ammunition for firing with the Beretta Model 92F handgun. After the ammunition was expended, the cartridge cases were collected. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases was selected and marked with a "3" (one cartridge case) and "5" (one cartridge case), then sealed into their respective boxes.

ITEM 4 (ELIMINATION): Multiple magazines were loaded with Federal American Eagle ammunition for firing with the Springfield XD-9 4.0 Mod. 2 handgun. After the ammunition was expended, the cartridge cases were collected. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases was selected and marked with a "4" (one cartridge case), then sealed into their respective boxes.

SAMPLE SET ASSEMBLY: For each sample set, Items 1-5 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. All three predistribution laboratories reported the expected responses.

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 American Eagle 9mm Luger 124 grain Full Metal Jacket (FMJ) cartridge cases (Items 2, 3, 4, and 5). Participants were requested to compare these with three known expended cartridge cases (Item 1) that were fired in the suspect's weapon, a Beretta Model 92FS (Serial Number BER461281). For each sample set, the Item 2 cartridge case was fired in the same firearm as the Item 1 known cartridge case. The Items 3 and 5 cartridge cases were fired in second firearm from that which discharged the Items 1 and 2 cartridge cases. The Item 4 cartridge case was fired in a third firearm, different from the one that discharged the Items 1 and 2 cartridge cases and from the Items 3 and 5 cartridge cases (Refer to Manufacturer's Information for preparation details).

In Table 1 Examination Results, 313 of the 316 responding participants (99%) identified Item 2 and either eliminated or reported inconclusive for Items 3, 4, and 5 as having been fired in the same gun as the Item 1 cartridge cases. Of the three remaining participants, one identified Item 4 and eliminated Items 2, 3, and 5 as having been fired in the same gun as the Item 1 cartridge cases, one participant identified Item 2 and left no response for Items 3, 4, and 5 as having been fired in the same gun as the Item 1 cartridge cases, and the last participant identified Items 2 and 4 and eliminated Items 3 and 5 as having been fired in the same gun as the Item 1 cartridge cases.

CTS is aware that many labs will not, as a matter of policy, report an elimination without access to the firearm or when class characteristics match. Thus, responses of "Inconclusive" are not indicated as outliers for Elimination items.

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
22LPL4	Yes	No	No	No	3ZKBFW	Yes	No	No	No
22VWN8	Yes	No	No	No	43LKCK	Yes	No	No	No
23DNXG	Yes	No	No	No	44AA3Q	Yes	No	No	No
23ENUB	Yes	No	No	No	44MAMA	Yes	No	No	No
29E2LD	Yes	No	No	No	46VGV4	Yes	No	No	No
2HNNBT	Yes	No	No	No	4F8VPP	Yes	No	No	No
2LRACC	Yes	No	No	No	4HF42V	Yes	No	No	No
2VUG36	Yes	No	No	No	4JDEWX	Yes	No	No	No
36W22R	Yes	No	No	No	4MT2B4	Yes	No	No	No
3B2VZT	Yes	No	No	No	4TJ6N2	Yes	No	No	No
3BKYZC	Yes	No	No	No	4XRPCX	Yes	No	No	No
3CTVYP	Yes	No	No	No	62AZA3	Yes	No	No	No
3EZBA3	Yes	No	No	No	633XHA	Yes	No	No	No
3G2J9K	Yes	No	No	No	63H94V	Yes	No	No	No
3JARJQ	Yes	No	No	No	64FJYX	Yes	No	No	No
3JHFFC	Yes	No	No	No	669EV8	Yes	No	No	No
3KC7J7	Yes	No	No	No	66BBYB	Yes	No	No	No
3RMMFK	Yes	No	No	No	66KBPP	Yes	No	No	No
3TKU6R	Yes	No	No	No	676234	Yes	No	No	No
3WHGBZ	Yes	No	No	No	6833D3	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
6D6FQQ	Yes	No	No	No	8NXJAB	Yes	No	No	No
6EEEWT	Yes	No	No	No	8PJJK	Yes	No	No	No
6EZ2JH	Yes	No	No	No	8QZLV7	Yes	No	No	No
6GZ4EK	Yes	No	No	No	8T9TXY	Yes	No	No	No
6PW269	Yes	No	No	No	8XCTZN	Yes	No	No	No
6QQT3Z	Yes	No	No	No	92YJAT	Yes	No	No	No
6YHBJU	Yes	No	No	No	98493Y	Yes	No	No	No
74Q6L6	Yes	No	No	No	98Y6XL	Yes	No	No	No
7BCPG7	Yes	No	No	No	99GW9R	Yes	No	No	No
7DEYX2	Yes	No	No	No	9E3XGH	Yes	No	No	No
7GBME9	Yes	No	No	No	9FB4PC	Yes	No	No	No
7JHPR	No	No	Yes	No	9GVRHT	Yes	No	No	No
7JM9DA	Yes	No	No	No	9QGTY3	Yes	No	No	No
7MN8Y2	Yes	No	No	No	9W6VLY	Yes	No	No	No
7RT8WJ	Yes	No	No	No	9WFQUJ	Yes	No	No	No
7YHQ9Z	Yes	No	No	No	A3MKKY	Yes	No	No	No
7ZANG7	Yes	No	No	No	A8Z43F	Yes	No	No	No
896TA8	Yes	No	No	No	AEZQRV	Yes	No	No	No
8AEVZD	Yes	No	No	No	AF9UBK	Yes	No	No	No
8CGZ6K	Yes	No	No	No	AFV699	Yes	No	No	No
8DTMUL	Yes	No	No	No	AJUHTC	Yes	No	No	No
8GRZFQ	Yes	No	No	No	ARJ9AD	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
AUPVMG	Yes	No	No	No	CL86CA	Yes	No	No	No
AW8KQV	Yes	No	No	No	CQKXEL	Yes	No	No	No
AY9NDC	Yes	No	No	No	CVGDCA	Yes	No	No	No
B2RAEX	Yes	No	No	No	CWRFWM	Yes	No	No	No
B3D32Z	Yes	No	No	No	CXLCZM	Yes	No	No	No
BFQBW7	Yes	No	No	No	CXZQFJ	Yes	No	No	No
BGYG6Z	Yes	No	Yes	No	CZFRZY	Yes	No	No	No
BR3DH4	Yes	No	No	No	D2KQLR	Yes	No	No	No
BTTV3B	Yes	No	No	No	D6GEXT	Yes	No	No	No
BTUQPN	Yes	No	No	No	D7B3GN	Yes	No	No	No
BULQPK	Yes	No	No	No	DABECN	Yes	No	No	No
BVG843	Yes	No	No	No	DEQPKQ	Yes	No	No	No
BWRARL	Yes	No	No	No	DGVK29	Yes	No	No	No
BYHDH9	Yes	No	No	No	DGXA4J	Yes	No	No	No
BYXGBE	Yes	No	No	No	DJDVJK	Yes	No	No	No
BZC224	Yes	No	No	No	DQYMDR	Yes	No	No	No
C3VF3J	Yes	No	No	No	DTTEE6	Yes	No	No	No
C6MFDZ	Yes	No	No	No	E6BMJG	Yes	No	No	No
C8PDL9	Yes	No	No	No	E6DCNE	Yes	No	No	No
CBK7JJ	Yes	No	No	No	E83MHD	Yes	No	No	No
CG2E43	Yes	No	No	No	EB7FNX	Yes	No	No	No
CHYFDZ	Yes	No	No	No	EE3V9E	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
EEMM8Q	Yes	No	No	No	H28VVT	Yes	No	No	No
EJHCT6	Yes	No	No	No	H7DL4Z	Yes	No	No	No
EKBAZB	Yes	No	No	No	H88AMW	Yes	No	No	No
EPGZB4	Yes	No	No	No	HBDLTX	Yes	No	No	No
EQEETV	Yes	No	No	No	HGD8CK	Yes	No	No	No
EQG2CU	Yes	No	No	No	HNG3M7	Yes	No	No	No
ERBRFM	Yes	No	No	No	HU8CX4	Yes	No	No	No
EUDPNV	Yes	No	No	No	HVERQ4	Yes	No	No	No
F2TT93	Yes	No	No	No	HZQVJQ	Yes	No	No	No
F2UHG7	Yes	No	No	No	J2EU99	Yes	No	No	No
F3N7Z2	Yes	No	No	No	J38HR4	Yes	No	No	No
FA2K36	Yes	No	No	No	J6D669	Yes	No	No	No
FKKT8L	Yes	No	No	No	J6GMBK	Yes	No	No	No
FPJBGY	Yes	No	No	No	J7TAYZ	Yes	No	No	No
FRJGM6	Yes	No	No	No	J92GGL	Yes	No	No	No
G98WJA	Yes	No	No	No	JBC7ZX	Yes	No	No	No
G9BGNP	Yes	No	No	No	JCHRDC	Yes	No	No	No
GAHY79	Yes	No	No	No	JJELBA	Yes			
GCBM4V	Yes	No	No	No	JNREAF	Yes	No	No	No
GD4MYL	Yes	No	No	No	JRDA3Z	Yes	No	No	No
GJL3JH	Yes	No	No	No	JVQ8FN	Yes	No	No	No
GUDCE8	Yes	No	No	No	JW3JHZ	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
JXF7ZE	Yes	No	No	No	M8U73R	Yes	No	No	No
JZMTAC	Yes	No	No	No	MGKWVY	Yes	No	No	No
K8JYQK	Yes	No	No	No	MKJ47B	Yes	No	No	No
KEFPZA	Yes	No	No	No	MLPXG2	Yes	No	No	No
KKAD7G	Yes	No	No	No	MR4AUV	Yes	No	No	No
KNBFWH	Yes	No	No	No	MR4BY2	Yes	No	No	No
KP64ED	Yes	No	No	No	MV4LTG	Yes	No	No	No
L6UVCJ	Yes	No	No	No	MX2Z3Y	Yes	No	No	No
L7NKVF	Yes	No	No	No	N2PTRZ	Yes	No	No	No
L9VQLM	Yes	No	No	No	N68Z8M	Yes	No	No	No
LB2FLB	Yes	No	No	No	N6LMLV	Yes	No	No	No
LCV2E2	Yes	No	No	No	N6NCQT	Yes	No	No	No
LE2LZG	Yes	No	No	No	NAJ2DR	Yes	No	No	No
LG3QGG	Yes	No	No	No	NG3CHF	Yes	No	No	No
LJ89L6	Yes	No	No	No	NJED77	Yes	No	No	No
LJBH8B	Yes	No	No	No	NLUFBJ	Yes	No	No	No
LLDRN8	Yes	No	No	No	NM6CQW	Yes	No	No	No
LPDR3H	Yes	No	No	No	NTDJHL	Yes	No	No	No
LUFQT3	Yes	No	No	No	NUKYRD	Yes	No	No	No
LYZ4ZG	Yes	No	No	No	NUTYWN	Yes	No	No	No
M4AETB	Yes	No	No	No	NX44FB	Yes	No	No	No
M72HJW	Yes	No	No	No	NXLZWG	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
NZFNGX	Yes	No	No	No	R9BAKZ	Yes	No	No	No
PD9WGH	Yes	No	No	No	R9PPN2	Yes	No	No	No
PDD94E	Yes	No	No	No	R9RFTX	Yes	No	No	No
PE8XMA	Yes	No	No	No	RAHE8W	Yes	No	No	No
PKUPTH	Yes	No	No	No	REUGZJ	Yes	No	No	No
PP6ZKC	Yes	No	No	No	RFQVMC	Yes	No	No	No
PYTZUU	Yes	No	No	No	RHWBZA	Yes	No	No	No
PZNH8H	Yes	No	No	No	RM8D36	Yes	Inc	Inc	Inc
Q2TGTA	Yes	No	No	No	RN8EW4	Yes	No	No	No
Q2WUMX	Yes	No	No	No	RTLXEK	Yes	No	No	No
Q7P24L	Yes	No	No	No	RV2EJJ	Yes	No	No	No
Q7UC7J	Yes	No	No	No	RYQTZ7	Yes	No	No	No
Q83JV7	Yes	No	No	No	T4C7CD	Yes	No	No	No
QA8CZP	Yes	No	No	No	T4RED2	Yes	No	No	No
QKPUKW	Yes	No	No	No	T8DA7L	Yes	No	No	No
QP2W9D	Yes	No	No	No	T9BD2H	Yes	No	No	No
QPF96W	Yes	No	No	No	TAG7E3	Yes	No	No	No
QPHX9U	Yes	No	No	No	TGGHGR	Yes	No	No	No
QUGAKL	Yes	No	No	No	TKD68U	Yes	No	No	No
QZ39RL	Yes	No	No	No	TMNTZ8	Yes	No	No	No
QZ39U8	Yes	No	No	No	TU6DYD	Yes	No	No	No
R6R7M3	Yes	No	No	No	TVJU7Y	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
TYZC8G	Yes	No	No	No	WW6MJ6	Yes	No	No	No
U3E3CB	Yes	No	No	No	XBYMU6	Yes	No	No	No
U8BYP A	Yes	No	No	No	XLLLPG	Yes	No	No	No
U8PFUA	Yes	No	No	No	XLMCXK	Yes	No	No	No
U94WXF	Yes	No	No	No	XLWLJQ	Yes	No	No	No
U9J4D6	Yes	No	No	No	XNZDJQ	Yes	No	No	No
UHRFP3	Yes	No	No	No	XPVZVU	Yes	No	No	No
ULQZJE	Yes	No	No	No	XR3BRX	Yes	No	No	No
V2EQL2	Yes	No	No	No	XRLZFK	Yes	No	No	No
VED79H	Yes	No	No	No	XV8M8C	Yes	No	No	No
VF74GP	Yes	No	No	No	XVADBA	Yes	No	No	No
VP7RB8	Yes	No	No	No	XVKBCK	Yes	No	No	No
VWMJ8Y	Yes	No	No	No	XY9R2K	Yes	No	No	No
VY89PQ	Yes	No	No	No	XYHYLZ	Yes	No	No	No
VZRQ6J	Yes	No	No	No	XY9GL	Yes	No	Inc	No
W3PWKM	Yes	No	No	No	Y2QD37	Yes	No	No	No
W4YZCD	Yes	No	No	No	Y6ZNLZ	Yes	No	No	No
W6WB8G	Yes	No	No	No	Y9KPR8	Yes	No	No	No
W9F8AD	Yes	No	No	No	YHZYQ3	Yes	No	No	No
WABW8F	Yes	No	No	No	YR2TDZ	Yes	No	No	No
WACLH4	Yes	No	No	No	YU9VJ4	Yes	No	No	No
WL7376	Yes	No	No	No	YV6G23	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
ZBMYBN	Yes	No	No	No					
ZE9HRE	Yes	No	No	No					
ZF8KH4	Yes	No	No	No					
ZGZHQB	Yes	No	No	No					
ZM4LKP	Yes	No	No	No					
ZN9BMX	Yes	No	No	No					
ZNBUTA	Yes	No	No	No					
ZTCQQG	Yes	No	No	No					
ZXNUGJ	Yes	No	No	No					
ZYVZRY	Yes	No	No	No					
ZZRP2L	Yes	No	No	No					
ZZUE3X	Yes	No	No	No					

Response Summary					Participants: 316
<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	315 (99.7%)	0 (0.0%)	2 (0.6%)	0 (0.0%)
	No	1 (0.3%)	314 (99.4%)	311 (98.4%)	314 (99.4%)
	Inc	0 (0.0%)	1 (0.3%)	2 (0.6%)	1 (0.3%)

Conclusions

TABLE 2

WebCode	Conclusions
22LPL4	Comparison microscope examinations were conducted on the evidence listed above. The findings of this examiner are the following: 1. Exhibits 1.1 and 1.2 were fired from the same 9mm caliber firearm based on sufficient agreement of class and individual characteristics observed. 2. Exhibits 1.3 and 1.5 were fired from a second 9mm caliber firearm based on sufficient agreement of class and individual characteristics observed. 3. Exhibit 1.4 was fired from a third 9mm firearm based on differences in class characteristics observed. 4. The following is an investigative lead only and not intended to exclude all other makes of firearms. Based on class characteristics of the submitted evidence, the possible firearms include 9mm caliber Taurus and Beretta pistols.
22VNB8	Results of Examinations: Item 1 through Item 5 consists of seven (7) 9mm Luger (9x19mm) cartridge cases that bear the headstamp of Federal ammunition. The Item 1 and Item 2 cartridge cases were identified as having been fired in the same firearm. The Item 3 and Item 5 cartridge cases were identified as having been fired in the same firearm, but excluded as having been fired in the same firearm as the Item 1 and Item 2 cartridge cases due to a difference in the class characteristics. Due to differences in the class characteristics, the Item 4 cartridge case was excluded as having been fired in the same firearm as the Item 1 and Item 2 cartridge cases, as well as the Item 3 and Item 5 cartridge cases.
23DNXG	The expended cartridge case designated as laboratory evidence item 1.2 was microscopically compared to test fired cartridge cases from laboratory evidence item 1.1, (Beretta, model 92FS) with the following results. Laboratory evidence item 1.2 was identified as having been fired from the submitted Beretta pistol laboratory item 1.1. The expended cartridge cases designated as laboratory evidence items 1.3, 1.4 and 1.5 were microscopically compared to test fired cartridge cases from laboratory evidence item 1.1, Beretta model 92FS with the following results. Laboratory evidence items 1.3, 1.4 and 1.5 were eliminated as having been fired from the submitted Beretta pistol, laboratory item 1.1.
23ENUB	The cartridge case in Item 2 was fired in the same gun that fired the cartridge cases in Item 1, based on agreement observed in individual characteristics. The cartridge cases in Items 3 through 5 were not fired in the gun that fired the cartridge cases in Item 1, based on differences observed in class characteristics.
29E2LD	The Item 2 cartridge case was identified as having been fired in the same firearm as the Item 1 cartridge cases, as a result of the sufficient agreement of individual characteristics exhibited by the evidence and test fired cartridge cases. The Items 3 and 5 cartridge cases were identified as having been fired in the same firearm, as a result of the sufficient agreement of individual characteristics exhibited by the cartridge cases. These cartridge cases were not fired in the same firearm as the Item 1 cartridge cases. The Item 4 cartridge case was not fired in the same firearm as the Items 1, 2, 3, and 5 cartridge cases.
2HNNBT	The questioned expended cartridge case identified as ITEM 2 recovered recovered near the main entrance of the gas station was discharged by the handgun Beretta Model 92FS seized from the suspect. The three questioned expended cartridge cases identified as ITEM 3 and ITEM 5 recovered from the parking lot, and the questioned expended cartridge case identified as ITEM 4 recovered near the counter, all of them located at the gas station, were not discharged by the handgun Beretta Model 92FS seized from the suspect.

TABLE 2

WebCode	Conclusions
2LRACC	<p>EVIDENCE SUBMITTED: Lab Item #. Agency Item #. Description 1: F2) One cardboard box containing: 1.1: F2) Three (3) testfires from one (1) Beretta model 92FS, 9mm Luger caliber pistol. 1.2: F2) One (1) fired Federal brand, 9mm Luger caliber cartridge case. 1.3: F2) One (1) fired Federal brand, 9mm Luger caliber cartridge case. 1.4: F2) One (1) fired Federal brand, 9mm Luger caliber cartridge case. 1.5: F2) One (1) fired Federal brand, 9mm Luger caliber cartridge case. CONCLUSIONS OF ANALYSIS: The fired cartridge case, item 1.2, was identified as having been fired in the Beretta pistol, item 1.1, based on the agreement of all discernable class characteristics and agreement of corresponding individual microscopic markings. The three (3) fired cartridge cases, items 1.3, 1.4, and 1.5, were each eliminated as having been fired in the Beretta pistol, item 1.1, based on a difference in class characteristics (breechface marks (arched vs parallel)). The two (2) fired cartridge cases, items 1.3 and 1.5, were identified as having been fired in the same firearm based on the agreement of all discernable class characteristics and agreement of corresponding individual microscopic markings. The two (2) fired cartridge cases, items 1.3 and 1.5, were each eliminated as having been fired in the same firearm as the fired cartridge case, item 1.4, based on a difference in class characteristics (breechface marks (fine vs. coarse breechface marks)).</p>
2VUG36	<p>Item 2 cartridge case was microscopically compared to the test fires from Item 1 and determined to have similar class characteristics and sufficient agreement of individual characteristics for an identification. Therefore, in the examiner's opinion, the Item 2 cartridge case was fired in the the Item 1 pistol. Items 3 and 5 cartridge cases were microscopically compared and determined to have similar class characteristics and sufficient agreement of individual characteristics for an identification. Therefore, in the examiner's opinion, Items 3 and 5 were fired in the same firearm, but not the Item 1 pistol. Item 4 cartridge case was compared to the Item 1 test fires and the Items 3 & 5 cartridge cases and determined to have different microscopic characteristics. Therefore, in the examiner's opinion, Item 4 was eliminated as being fired in the Item 1 or the same firearm as Items 3 & 5.</p>
36W22R	<p>On examination, I found as follows: 1. The characteristic marks on item '2' is similar with the characteristic marks on Item '1'. 2. The characteristic marks on item '3', item '4' and item '5' are not similar with the characteristic marks on Item '1'.</p>
3B2VZT	<p>Item 2 had been discharged in the same firearm as the known cartridge cases (Item 1). Items 3, 4 and 5 had been discharged in a different firearm than the known cartridge cases (Item 1).</p>
3BKYZ	<p>The below listed spent cartridge case was macroscopically and microscopically examined and compared with test fires (Lab Evidence# 001-A1) from the Beretta 9mm Luger pistol, Lab Evidence# 001-A1. It is my opinion that the below listed item was fired from this firearm (identification). Lab Evidence#. Item#. Item Description: 001-A2: 2. Spent FC 9mm Luger cartridge case. The below listed spent cartridge cases were macroscopically and microscopically examined and compared with test fires (Lab Evidence# 001-A1) from the Beretta 9mm Luger pistol, Lab Evidence# 001-A1. It is my opinion that the below listed items were not fired from this firearm (elimination). Lab Evidence#. Item#. Item Description: 001-A3: 3. Spent FC 9mm Luger cartridge case. 001-A4: 4. Spent FC 9mm Luger cartridge case. 001-A5: 5. Spent FC 9mm Luger cartridge case. The below listed spent cartridge cases were macroscopically and microscopically examined and compared with each other. It is my opinion that the below listed items were fired from the same unknown firearm (identification). Lab Evidence#. Item#. Item Description: 001-A3: 3. Spent FC 9mm Luger cartridge case. 001-A5: 5. Spent FC 9mm Luger cartridge case</p>

TABLE 2

WebCode	Conclusions
3CTVYP	Item #2 was fired in the firearm that fired the purported test shots in Item #1. Items #3 and #5 were fired in the same firearm. Items #3 and #5 were not fired in the same firearm as Item #4 or in the firearm that fired the purported test shots in Item #1. Item #4 was not fired in the firearm that fired the purported test shots in Item #1.
3EZBA3	Item 2 was identified as having been fired from the same firearm as the known expended cartridge cases (Item 1). Item 3, Item 4 and Item 5 were excluded from having been fired from the same firearm as the known expended cartridge cases (item1).
3G2J9K	Results of Examinations: Item 1 through Item 5 consist of seven 9mm Luger (9x19mm) cartridge cases that bear the headstamp of Federal ammunition. The Item 2 cartridge case was identified as having been fired in the same firearm as the Item 1 cartridge cases. The Item 3 cartridge case was identified as having been fired in the same firearm as the Item 5 cartridge case. Due to a difference in class characteristics the Item 3 and Item 5 cartridge cases were excluded as having been fired in same firearm as the Item 1 and Item 2 cartridge cases. Due to a difference in class characteristics the Item 4 cartridge case was excluded as having been fired in the same firearm as the Item 1 and Item 2 cartridge cases or in the same firearm as the Item 3 and Item 5 cartridge cases.
3JARJQ	Examined the three specimens marked #1. They are 9mm Luger caliber discharged cartridge cases (supplied test standards) headstamped FC. Examined the four specimens marked #2 through #5. They are 9mm Luger caliber discharged cartridge cases headstamped FC. The cartridge case marked #2 was compared microscopically against the cartridge cases marked #1 and identified as having been discharged in the same firearm. The two cartridge cases marked #3 and #5 were compared microscopically against each other and identified as having been discharged in the same firearm. The cartridge cases marked #1 and #2 were compared microscopically against the two cartridge cases marked #3 and #5 and eliminated as having been discharged in the same firearm. The cartridge case marked #4 was compared microscopically against the cartridge cases #1, #2, #3, and #5 and were eliminated as having been discharged in the same firearm.
3JHFFC	SUBMISSION 002: The cartridge case was identified to the submission 1 pistol. SUBMISSION 3, 4, and 5: The cartridge cases were eliminated from the submission 1 pistol.
3KC7J7	Microscopic assessment established that the four questioned cartridge cases, Items A2, A3, A4, and A5 contain discernible class characteristics and are suitable for microscopic comparison. Microscopic comparison of Item A1a (test-fired cartridge case from suspect firearm) to Item A2 revealed that they have the same class of firearm-produced marks and sufficient corresponding individual marks to conclude that Item A2 was discharged in the suspect firearm. Microscopic comparison of Item A1a (test-fired cartridge case from suspect firearm) to Item A3, Item A4, and Item A5 revealed that they have significantly different class characteristics; therefore, Item A3, Item A4, and Item A5 were not discharged in the suspect firearm. Microscopic comparison of Item A3 to Item A5 revealed that they have the same class of firearm-produced marks and sufficient corresponding individual marks to conclude that Item A3 and Item A5 were discharged in the same, unknown firearm. Microscopic comparison of Item A4 to Item A3 revealed that they have significantly different class characteristics; therefore, Item A4 was not discharged in the same, unknown firearm as Item A3 and Item A5. In summary, three firearms are represented by the questioned discharged cartridge cases. Only Item A2 was discharged in the suspect firearm. Item A3 and Item A5 were discharged an unknown firearm. Item A4 was discharged in a second, unknown firearm.

TABLE 2

WebCode	Conclusions
3RMMFK	1. Make the comparative study has been carried out of the four cartridge case found at the scene, it is determined that there are three groups, that is to say that the four cartridge case were discharge by three different firearms, as follows: a. The group number 1 consists of cartridge case item 2, which was collected near the main entrance. b. The second group is composed of cartridge case identified as items 3 and 5, which were collected in the parking lot. c. the third group is composed of cartridge case identified as item 4, which was collected near the counter. 2. Subsequently, a comparative study was made of the (04) four incriminated cartridge case with the three test fire (ITEM 1) taken of the Beretta Model 92FS pistol, determining that the vanilla identified as item 2 has characteristics of identity between them, is to say that it was or discharge by the firearm.
3TKU6R	The cartridge case marked #2 was compared microscopically against the three test cartridge cases marked #1 and was identified as having been discharge in the submitted firearm.
3WHGBZ	Item 1: Three spent cartridges unloaded from the suspect's weapon, matching their individual characteristics with the spent cartridge recovered near the main entrance corresponding to Item 2. Item 2: Its individual characteristics coincide with the three spent cartridges of the suspect weapon corresponding to Item 1. Item 3: First spent cartridge recovered from the parking lot coincides in its individual characteristics with the second spent cartridge recovered from the parking lot corresponding to Item 5. Item 4: A spent cartridge recovered near the counter, does not match any of the above Items. Item 5: Second cartridge recovered from the parking lot coincides in its individual characteristics with the first cartridge recovered from the parking lot corresponding to Item 3.
3ZKBFW	The four fired questioned cartridge cases, Items 2, 3, 4, and 5, were examined and microscopically compared to the submitted test-fired cartridge cases from the 9mm Luger caliber Beretta 92FS pistol. The test-fired cartridge cases had the same class characteristics as Item 2. Item 2, the cartridge case recovered from near the front entrance at the scene, was determined to have been fired in the Beretta pistol based on sufficient microscopic agreement of individual characteristics in the breech face and firing pin aperture marks. The remaining fired questioned cartridge cases, Items 3, 4, and 5, were not fired in the Beretta pistol based on differences in class and individual characteristics.
43LKCK	Identification - Item 2 was fired by the firearm in Item 1. Identification - Item 3 and Item 5 were fired by the same firearm. Elimination - Items 3, 4, and 5 were not fired by the known Firearm in Item 1. Item 4 is inconclusive to Items 3 and 5.
44AA3Q	CTS Item 2 cartridge case was fired by the firearm said to have created the CTS Item 1 cartridge cases. All items are not suitable for entry into the NIBIN database due to case circumstance. CTS Items 3 and 5 cartridge cases were fired by a second firearm. These items are consistent with having been fired by a 9mm Luger caliber firearm; however, available class characteristics are not specific enough to provide a list of possible firearm manufacturers/origins that may have fired these cartridge cases. Both items are not suitable for entry into the NIBIN database due to case circumstance. CTS Item 4 cartridge case was fired by a third firearm. This item is consistent with having been fired by a 9mm Luger caliber firearm; however, available class characteristics are not specific enough to provide a list of possible firearm manufacturers/origins that may have fired this cartridge case. This item is not suitable for entry into the NIBIN database due to case circumstance.
44MAMA	1) Exhibits 1 (Three 9mm Luger Cartridge Cases), 2 (One 9mm Luger Cartridge Case), 3 (One 9mm Luger Cartridge Case), 4 (One 9mm Luger Cartridge Case), and 5 (One 9mm Luger

TABLE 2

WebCode	Conclusions
	Cartridge Case) were visually examined and microscopically compared to each other. a) The Exhibit 2 cartridge case was fired from the same firearm as the Exhibit 1 cartridge cases based on an agreement of discernible class characteristics and a sufficient agreement of individual characteristics. b) The Exhibits 3, 4, and 5 cartridge cases were not fired from the same firearm as the Exhibit 1 cartridge cases based on a disagreement of discernible class characteristics. c) The Exhibits 3 and 5 cartridge cases were fired from the same firearm based on an agreement of discernible class characteristics and a sufficient agreement of individual characteristics. d) The Exhibit 4 cartridge case was not fired from the same firearm as the Exhibits 3 and 5 cartridge cases based on a sufficient disagreement of individual characteristics.
46VGV4	Item#2 was microscopically compared to firearm, Item#1 and an identification was made. Item#2 was fired in firearm, Item#1. Item#3 was microscopically compared to fired cartridge case(s), Item#5 and an identification was made. Item#3 and Item#5 were fired in the same firearm. Item#4 was eliminated from fired cartridge case(s), Item#1, 2, 3 & 5 due to differences in individual characteristics.
4F8VPP	Items 1 and 2 were microscopically compared to each other and were identified as having been fired in the same firearm based on the correspondence of all discernible class characteristics and sufficient agreement of individual characteristics. Items 3 and 5 were microscopically compared to Item 1. Items 3 and 5 were eliminated as having been fired in the same firearm that fired Item 1 due to the disagreement of discernible class characteristics. Item 4 was microscopically compared to Item 1. Item 4 was eliminated as having been fired in the same firearm that fired Item 1 due to the disagreement of discernible class characteristics. Items 3 and 5 were microscopically compared to each other and were identified as having been fired in the same unknown firearm based on the correspondence of all discernible class characteristics and sufficient agreement of individual characteristics. Item 4 was microscopically compared to Item 3. Item 4 was eliminated as having been fired in the same unknown firearm that fired Item 3 due to sufficient disagreement of individual characteristics.
4HF42V	Cartridge case (Item 2) was discharged from the same firearm as the known expended cartridge cases (Item 1).
4JDEWX	Item 2 was identified as having been fired in the Item 1 pistol based upon sufficient agreement of individual characteristics. Items 3 and 5 were identified as having been fired in the same unknown firearm based upon sufficient agreement of individual characteristics. (Unknown Firearm '1'). Item 4 retains marks of value for future comparison microscopy. (Unknown Firearm '2')
4MT2B4	The examination of the recovered cartridge cases under a comparison microscope, allows us to conclude that the expanded cartridge case of the item 2 was fired from the seized Beretta model 92FS. The examination also showed that items 3 and 5 were fired from a second firearm, and the item 4 from a third one.
4TJ6N2	Item 2 (X-1) was discharged within the Beretta 92FS (Item 1, TF-1). Items 3 (X-2), 4 (X-3), and 5 (X-4) were not discharged within the Beretta 92S. Items 3 (X-2) and 5 (X-4) were discharged within the same unknown firearm.
4XRPCX	Examinations showed Item 2 was discharged within the same firearm as Item 1. Examinations showed Items 3, 4, and 5 were not discharged within the same firearm as Item 1.
62AZA3	Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm that fired exhibit 1 (fired 9mm casings). Exhibits 3 and 5 (fired 9mm casings) were identified as

TABLE 2

WebCode	Conclusions
	having been fired in a second 9mm firearm. Exhibits 3 and 5 were not fired in the same firearm as exhibits 1 and 2 based on differences in class characteristics. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted for examination. Exhibit 4 (fired 9mm casing) was identified as having been fired in a third 9mm firearm. Exhibit 4 was not fired in either of the firearms that fired exhibits 1, 2, 3, and 5 based on differences in class characteristics. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted for examination.
633XHA	The Item 2 fired cartridge case was fired in the same firearm that fired the known Item 1 test fired cartridge cases. This identification is based on sufficient agreement of the combination of individual characteristics and all discernible class characteristics. The Items 3, 4, and 5 fired cartridge cases were not fired in the same firearm that fired the known Item 1 test fired cartridge cases. These eliminations are based on differences in class characteristics. The Items 3 and 5 fired cartridge cases were fired in the same unknown firearm. This identification is based on sufficient agreement of the combination of individual characteristics and all discernible class characteristics. The Item 4 fired cartridge case was not fired in the same unknown firearm that fired Items 3 and 5. This elimination is based on differences in class characteristics.
63H94V	1. The submitted item 2 was microscopically examined and compared to test fires recovered from the submitted item 1; they were positively identified as having been fired in the submitted firearm. 2. The submitted items 3 was microscopically examined and compared to test fires recovered from the submitted item 1; they excluded as having been fired in the same firearm. 3. The submitted items 4 was microscopically examined and compared to test fires recovered from the submitted item 1; they excluded as having been fired in the same firearm. 4. The submitted items 5 was microscopically examined and compared to test fires recovered from the submitted item 1; they excluded as having been fired in the same firearm.
64FJYX	Test shots from the submitted 9MM Luger caliber Beretta 92FS were compared microscopically to the submitted discharged 9MM Luger caliber cartridge cases marked 2 thru 4 with the following results: The submitted discharged 9MM Luger caliber cartridge casing marked #2 was discharged from the submitted Beretta semiautomatic pistol. The submitted discharged 9MM Luger caliber cartridge casings marked #3 and #5 were fired from a second firearm. The submitted discharged 9MM Luger caliber cartridge casing marked #4 was fired from a third firearm.
669EV8	1. Examination of Exhibit 1 revealed three Federal 9mm Luger caliber fired cartridge cases. Examination of Exhibits 2, 3, 4, and 5 revealed each to contain one Federal 9mm Luger caliber fired cartridge case. Exhibits 1, 2, 3, 4, and 5 were microscopically compared. 2. The cartridge cases in Exhibit 1 and Exhibit 2 were fired in the same firearm due to a sufficient agreement of individual characteristics. 3. The cartridge cases in Exhibit 3 and Exhibit 5 were fired in the same firearm due to a sufficient agreement of individual characteristics. 4. The cartridge cases in Exhibits 1 and 2 were not fired in the same firearm as the cartridge cases in Exhibits 3 and 5 due to differences in class characteristics and sufficient disagreement of individual characteristics. 5. The cartridge case in Exhibit 4 was not fired in the same firearm as the cartridge cases in Exhibits 1, 2, 3, or 5 due to differences in class characteristics and sufficient disagreement of individual characteristics. The point of contact for this report is [Name].
66BBYB	Items – Description/Visual Examination: Item 1: Three (3) fired 9mm caliber cartridge cases, reportedly recovered from a Beretta Model 92FS semi-automatic pistol. Items 2 thru 5: Four (4)

TABLE 2

WebCode	Conclusions
	fired 9mm caliber cartridge cases. Microscopic Comparison Conclusions: Identification: Based upon the reproducibility of class characteristics and microscopic individual characteristics, the following identifications were made: Item # 2, one (1) fired cartridge case fired in Item 1 (Beretta pistol). Elimination: Based upon the difference in individual characteristics, the following eliminations were made: Items # 3 & 5, two (2) fired cartridge cases were not fired in Item 1 (Beretta pistol). Based upon the difference in class characteristics, the following eliminations were made: Item #4, one (1) fired cartridge cases was not fired in Item 1 (Beretta pistol).
66KBPP	CTS 2 cartridge case was fired in the firearm said to have created CTS 1 cartridge cases. All items are suitable; however, case circumstances preclude entrance into the NIBIN database. CTS 3 and CTS 5 cartridge cases were fired in a second firearm. These items are consistent with being fired in a 9mm Luger caliber firearm; however, class characteristics are not specific enough to provide a list of firearm manufacturers/origins that may have fired the cartridge cases. Both items are suitable; however, case circumstances preclude entrance into the NIBIN database. Item 4 cartridge case was fired in a third firearm. This item is consistent with being fired in a 9mm Luger caliber firearm; however, class characteristics are not specific enough to provide a list of firearm manufacturers/origins that may have fired the cartridge case. This item is suitable; however, case circumstances preclude entrance into the NIBIN database.
676234	Item 2 was identified microscopically as having been fired in the same firearm as the test fires reportedly from Item 1 based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 - 5 were microscopically eliminated as having been fired in the same firearm as the test fires reportedly from Item 1 due to disagreement of discernible class characteristics. Items 3 and 5 were identified microscopically as having been fired in the same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Item 4 was microscopically eliminated as having been fired in the same unknown firearm as Items 3 and 5 due to disagreement of individual characteristics.
6833D3	Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm as exhibit 1. Exhibits 3 and 5 (fired 9mm casings) were identified as having been fired in a second 9mm firearm. These casings were not fired in the same firearm as exhibit 1 and 2, based on differences in class characteristics. Exhibits 3 and 5 were not fired in the same firearm as exhibit 4, based on differences in individual characteristics. The specific brand of the suspect weapon is unknown at this time Exhibit 4 (fired 9mm casing) was identified as having been fired in a third 9mm firearm. This casing was not fired in the same firearm as exhibits 1 and 2, based on differences in class characteristics. Exhibit 4 was not fired in the same firearm as exhibits 3 and 5, based on differences in individual characteristics. The specific brand of the suspect weapon is unknown at this time.
6D6FQQ	Test fired cartridge cases marked #1 were examined and microscopically compared to the discharged cartridge case marked #2 with positive (Identification) results. The test fires marked #1 and the cartridge case marked #2 were both discharged in the same firearm (Firearm #1). The discharged cartridge case marked #3 was examined and microscopically compared to the discharged cartridge case marked #5 with positive (Identification) results. The cartridge cases marked #3 and #5 were both discharged in the same unknown firearm (Firearm #2). Test fired cartridge cases marked #1 were examined and microscopically compared to the discharged cartridge case marked #3 with negative (Elimination) results. The test fires marked #1 and the case marked #3 were not discharged in the same firearm. Test fired cartridge cases marked #1 and the discharged cartridge case marked #3 were examined and

TABLE 2

WebCode	Conclusions
	microscopically compared to the discharged cartridge case marked #4 with negative (Elimination) results. The cartridge case marked #4 was discharged in a different unknown firearm from the test fires marked #1 and the discharged cartridge case marked #3 (Firearm #3).
6EEEWT	after examination it was concluded that item 2 matches with item 1 and hence they are fired from the same firearms. whereas item 3, 4, 5 doesn't match with item 1. which concludes that they are not fired from the questioned firearm.
6EZ2JH	Item #2 was identified as having been fired from the firearm in Item #1. Items #3, #4, and #5 were eliminated as having been fired from the firearm in Item #1.
6GZ4EK	Through macroscopic/microscopic examination and based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases, Laboratory Items 1 and 2, were identified as having been fired in the same firearm. Through macroscopic/microscopic examination and based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases, Laboratory Items 3 and 5, were identified as having been fired in the same firearm. Through macroscopic/microscopic examination and based on significant disagreement of class characteristics, the fired 9mm caliber cartridge cases, Laboratory Items 1 and 2, could not have been fired in the same firearm as the fired 9mm caliber cartridge case, Laboratory Item 4. Through macroscopic/microscopic examination and based on significant disagreement of individual characteristics, the fired 9mm caliber cartridge cases, Laboratory Items 1 and 2, could not have been fired in the same firearm as the fired 9mm caliber cartridge cases, Laboratory Items 3 and 5. Based on macroscopic/microscopic examination the fired 9mm caliber cartridge case, Laboratory Item 4, exhibits similar class characteristics as those displayed on the fired 9mm caliber cartridge cases, Laboratory Items 3 and 5. However, due to the lack of sufficient disagreement in individual detail, Laboratory Item 4 could not be eliminated as having been fired in the same firearm as the fired 9mm caliber cartridge cases, Laboratory Items 3 and 5. The results of these examinations are inconclusive.
6PW269	the questioned cartridge cases have been fired by 3 different weapons. ITEM 2 was fired by the weapon under study. ITEM 3 and 5 were fired by a second unknown weapon and ITEM 4 was fired by a third unknown weapon.
6QQT3Z	The fired cartridge cases in Submission #1a and Submission #1b were microscopically compared and identified as having been fired from the same unknown firearm based on sufficient agreement in individual characteristics present to conclude an identification. The fired cartridge cases in Submission #1c and Submission #1e were microscopically compared and identified as having been fired from the same unknown firearm based on sufficient agreement in individual characteristics present to conclude an identification. The fired cartridge cases in Submissions #1a and #1b were microscopically compared to the cartridge cases in Submissions #1c and #1e and were eliminated as having been fired from the same unknown firearm based on different class characteristics or sufficient difference in individual characteristics present. The fired cartridge case in Submission #1d was microscopically compared to the cartridge cases in Submissions #1a, #1b, #1c and #1e and was eliminated as having been fired from the same unknown firearm based on different class characteristics or sufficient difference in individual characteristics present
6YHBJU	IDENTIFICATION: The following items were compared and were found to show the presence of matching features. The opinion of Identification is based upon the agreement of a

TABLE 2

WebCode	Conclusions
	<p>combination of individual characteristics and all discernible class characteristics consistent with having been fired by the same firearm. Item 1 (Test Fire). Item 2. IDENTIFICATION: The following items were compared and were found to show the presence of matching features. The opinion of Identification is based upon the agreement of a combination of individual characteristics and all discernible class characteristics consistent with having been fired by the same firearm. Item 3. Item 5. ELIMINATION: The Item 4 discharged cartridge case is eliminated as having been fired by the same firearm as the Item 1 Test Fired discharged cartridge cases and eliminated as having been fired by the same firearm as the Items 3 and 5 discharged cartridge cases. The opinion of elimination is based upon differences in class and/or individual characteristics.</p>
74Q6L6	<p>By the microscopy examination of the expended cartridge obtained from the crime scene, it was determined that they were divided into three groups due to their surface property characteristics as 2 (Item 3 and Item 5), 1 (Item 4) and 1 (Item2) .</p>
7BCPG7	<p>Item 001-02 was fired in the same firearm as Item 001-01 (identification) Items 001-03, 001-04, and 001-05 were not fired in the same firearm as Item 001-01 (elimination). Items 001-03 and 001-05 were fired in the same firearm (identification). Item 001-04 was not fired in the same firearm and Items 001-03 and 001-05 (elimination).</p>
7DEYX2	<p>1 - All cartridge cases items (1,2,3,4 and 5) are 9mm. 2 - Item 2 discharged from suspect's weapon. 3 - Item 3 and Item 5 discharged from same weapon but not discharged from suspect's weapon. 4 - Item 4 discharged from different weapon and not discharged from suspect's weapon.</p>
7GBME9	<p>Item 2: Yes . Item 3: No . Item 4: No . Item 5: No. Item 3 and 5: same weapon . The three cartridge cases item 1, known from the suspect's weapon show stable recurring systematic and individual characteristics. The cartridge case item 2 from the crime scene have the same matching systematic and individual characteristics like the cartridge cases item 1. It is certain that these cartridge cases come from cartridges that were fired from the seized weapon. The cartridge case item 3 has the same matching systematic and individual characteristics like the cartridge cases item 5. It is certain that these cartridge cases come from cartridges that were fired from the seized weapon. The cartridge case item 4 has other individual characteristics as the cartridge cases item 1, 2, 3 and 5.</p>
7JHPHR	<p>item 2 & 5: 2nd firearm (with similar marks as Berretta) . item 3 : 3rd firearme</p>
7JM9DA	<p>The three fired cartridge cases (1-01) were submitted as known test fires from a Beretta model 92FS semiautomatic pistol. One of the cartridge cases (1-02) was identified as having been fired in the same firearm as the three cartridge cases reportedly fired in a Beretta pistol (1-01) due to consistent and repeatable pattern areas. Two of the fired cartridge cases (1-03 and 1-05) were identified as having been fired in the same firearm as each other due to consistent and repeatable pattern areas; however, they were eliminated as having been fired in the same firearm as one of the other fired cartridge cases (1-04) and in the same firearm as the three cartridge cases reportedly fired in a Beretta pistol (1-01) due to differences in class characteristics and individual pattern areas. One of the cartridge cases (1-04) was eliminated as having been fired in the same firearm as the three cartridge cases reportedly fired in a Beretta pistol (1-01) due to differences in class characteristics and individual pattern areas.</p>
7MN8Y2	<p>Comparison microscope examinations were conducted. Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm as exhibit 1. Exhibits 3 and 5 (fired</p>

TABLE 2

WebCode	Conclusions
	9mm casings) were identified as having been fired in a second 9mm firearm. The specific brand of the suspect weapon is unknown at this time. Exhibit 4 (fired 9mm casing) was fired in a third 9mm firearm. The specific brand of the suspect weapon is unknown at this time.
7RT8WJ	The correspondences found in the area of the base of the case strongly suggest that item 2 was fired from the same weapon as item 1.
7YHQ9Z	Item 2 was fired in suspect firearm Item 1. Item 3 and 5 were fired in a second firearm and Item 4 was fired in a third firearm.
7ZANG7	All three cartridge cases (Item 01-01) were fired in a single firearm, reportedly a Beretta Model 92FS handgun. One cartridge case (near the main entrance) (Item 01-02) was fired in the Beretta Model 92FS handgun. Three cartridge cases (Items 01-03, 01-04 and 01-05) were not fired in the Beretta Model 92FS handgun. However, two cartridge cases (from the parking lot) (Items 01-03 and 01-05) were fired in a single unknown firearm "Gun A", and the third cartridge case (near the counter) (Item 01-04) was fired in a second unknown firearm "Gun B".
896TA8	The 9mm Luger caliber cartridge case (2) was identified as being fired in the same firearm as the three 9mm Luger caliber cartridge cases (1A to 1C). The two 9mm Luger caliber cartridge cases (3, 5) are suitable for comparison to a firearm. The two 9mm Luger caliber cartridge cases (3, 5) were identified as fired in the same unknown firearm. The two 9mm Luger caliber cartridge cases (3, 5) were eliminated to the other five 9mm Luger caliber cartridge cases (1A to 1C, 2, 4). The 9mm Luger caliber cartridge case (4) is suitable for comparison to a firearm. The 9mm Luger caliber cartridge case (4) was eliminated to the other six 9mm Luger caliber cartridge cases (1A to 1C, 2, 3, 5).
8AEVZD	Item 2 was test fired in the same firearm as the item 1 test fires. Items 3 and 5 were fired in a second firearm. Item 4 was fired in a third firearm.
8CGZ6K	The cartridge cases submitted in Item 1 are indicated to be test shots fired by the firearm in question. Item 1 was identified as having fired the cartridge case in Item 2. Item 1 was eliminated as having fired the cartridge cases in Items 3, 4, and 5.
8DTMUL	The submitted fired casings, Q-2 - Q-5 were microscopically examined, inter-compared, and compared to the test fires, TF1a-c from K1. In my opinion, the fired casing, Q2 is identified as being fired from K-1. In addition, the fired casings Q3 and Q5 are identified as being fired from a second 9 mm pistol and Q4 is eliminated as being fired from K1 or the same firearm as Q3 and Q5.
8GRZFQ	Items 2 and 1 (test fired cartridge cases) were microscopically examined and compared. Based on observed agreement of class characteristics and sufficient agreement of individual characteristics, Item 2 was identified as having been fired in the same firearm that fired Item 1 (Beretta 92FS). Items 3 and 5 were microscopically examined and compared. Based on observed agreement of class characteristics and sufficient agreement of individual characteristics, the cartridge cases were identified as having been fired in the same firearm. Items 3 and 5 were microscopically examined and compared to Items 1 (test fired cartridge cases) and 2. Based on significant disagreement of individual characteristics, Items 3 and 5 were eliminated as having been fired in the same firearm that fired Items 1 and 2 (Beretta 92FS). Item 4 was microscopically examined and compared to Items 1 (test fired cartridge cases) and 2. Based on significant disagreement of individual characteristics, Item 4 was eliminated as having been fired in the same firearm as Items 1 and 2 (Beretta 92FS). Item 4 was microscopically examined and compared to Items 3 and 5. Based on significant

TABLE 2

WebCode	Conclusions
	disagreement of individual characteristics, Item 4 was eliminated as having been fired in the same firearm as Items 3 and 5.
8NXJAB	Items 1, 2, 3, 4, and 5 fired cartridge cases were microscopically examined and compared. Based upon an agreement of class characteristics and sufficient individual characteristics, Item 2 fired cartridge case was fired in the same firearm as Item 1 fired cartridge cases, firearm not received. Based upon an agreement of class characteristics and sufficient individual characteristics, Items 3 and 5 fired cartridge cases were fired in the same firearm, firearm not received. Based upon a difference in class characteristics and individual characteristics, Item 4 fired cartridge case was not fired in the firearm that fired Items 1 and 2 fired cartridge cases or the firearm that fired Items 3 and 5 fired cartridge cases, firearm not received.
8PJJWK	Item #2 was fired from item #1, the 9mm Lug. Cal. Beretta model 92FS pistol, based on the observed agreement of class and individual characteristics. Item #3 and #5 were both fired from one firearm, different than item #1 and item #4. Item #4 was fired from another firearm, different than items #1, #2, #3 and #5.
8QZLV7	The 9mm Luger caliber cartridge case (Item 2) was fired in the Beretta model 92FS pistol (represented by cartridge cases Item 1). The three 9mm Luger caliber cartridge cases (Item 3, Item 4, Item 5) were not fired in the Beretta model 92FS pistol (represented by cartridge cases Item 1). The 9mm Luger caliber cartridge case (Item 4) was eliminated being fired in the same unknown firearm as the two 9mm Luger caliber cartridge cases (Item 3, Item 5) and eliminated being fired in the same firearm as the 9mm Luger caliber cartridge case (Item 2).
8T9TXY	The submitted cartridge case, item 2, was fired in the same firearm which fired the submitted tests, item 1. The submitted cartridge cases, item 3 and item 5, were fired in the same firearm. The submitted cartridge cases, items 3 and 5, were not fired in the same firearm which fired items 1 and 2 cartridge cases. The submitted cartridge case, item 4, was not fired in the same firearm(s) which fired items 1, 2, 3, and 5 cartridge cases.
8XCTZN	The suspected firearm (Pietro Beretta, model 92FS, fired the recovered cartridge case at the scene near the main entrance, marked with item 2. The remaining cartridge cases marked with items 3, 4 and 5 were fired by others firearms.
92YJAT	1.1.1-1.1.3, 1.2 These cartridge cases were compared microscopically with each other. Based on the agreement of all discernible class characteristics and sufficient agreement of corresponding individual characteristics, these cartridge cases have been identified as having been fired in the same firearm. 1.3, 1.5 These cartridge cases were compared microscopically with each other. Based on the agreement of all discernible class characteristics and sufficient agreement of corresponding individual characteristics, these cartridge cases have been identified as having been fired in the same firearm. These cartridge cases have been eliminated as having been fired from the same firearm as 1.1.1-1.1.3, and 1.2 due to differences in class characteristics. 1.4 This cartridge case has been eliminated as having been fired from the same firearm as 1.1.1-1.1.3, 1.2, 1.3, and 1.5 due to differences in class characteristics.
98493Y	Laboratory Item #001.B (item 2) spent brass FC 9mm Luger cartridge case recovered near the main entrance is identified as being fired by the same firearm as Laboratory Item 001.A (item 1), three spent brass FC 9mm Luger cartridge case test fires from the suspect's Beretta model 92FS handgun. Laboratory Item #001.C (item 3) spent brass FC 9mm Luger cartridge case #1 recovered from the parking lot is identified as being fired by the same firearm as Laboratory Item #001.E (item 5) spent brass FC 9mm Luger cartridge case #2 recovered from the parking lot. Laboratory Items #001.C (item 3) and 001.E (item 5) two spent brass FC 9mm

TABLE 2

WebCode	Conclusions
	<p>Luger cartridge cases recovered from the parking lot are eliminated as being fired by the same firearm as Laboratory Item 001.A (item 1), three spent brass FC 9mm Luger cartridge case test fires from the suspect's Beretta model 92FS handgun. Laboratory Item #001.D (item 4) spent brass FC 9mm Luger cartridge case recovered near the counter is eliminated as being fired by the same firearm as Laboratory Item 001.A (item 1), three spent brass FC 9mm Luger cartridge case test fires from the suspect's Beretta model 92FS handgun. Laboratory Item #001.D (item 4) spent brass FC 9mm Luger cartridge case recovered near the counter is also eliminated as being fired by the same firearm as the following items: Laboratory Item #001.B (item 2) spent brass FC 9mm Luger cartridge case recovered near the main entrance, Laboratory Item #001.C (item 3) spent brass FC 9mm Luger cartridge case #1 recovered from the parking lot and; Laboratory Item #001.E (item 5) spent brass FC 9mm Luger cartridge case #2 recovered from the parking lot.</p>
98Y6XL	<p>The item 2 was discharged by the same firearm as the item 1. The items 3, 4, 5 were not discharged by the same firearm as the item 1.</p>
99GW9R	<p>Items 1 through 5 are 9mm Luger caliber fired cartridge cases; items 1 through 5 were microscopically compared to each other. Based on the agreement of discernible class characteristics and sufficient agreement of individual characteristics, item 2 was identified as having been fired by the firearm represented by the item 1 fired cartridge cases. Based on the agreement of class characteristics and sufficient agreement of individual characteristics, items 3 and 5 were identified as having been fired by the same unknown firearm. Based on significant disagreement of discernible class characteristics, items 3 and 5 were eliminated as having been fired by the firearm represented by the item 1 fired cartridge cases and the item 2 fired cartridge case. Based on significant disagreement of discernible class characteristics and individual characteristics, item 4 was eliminated as having been fired by the firearm represented by the item 1 fired cartridge cases, item 2, and by the unknown firearm used to fire items 3 and 5. In summary, there are three firearms represented among the items 1 through 5 fired cartridge cases. An identification conclusion is made when there is agreement of all discernible class characteristics and sufficient agreement of a combination of individual characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool. An elimination conclusion is made when there is significant disagreement of discernible class characteristics and/or individual characteristics. The above interpretations of the results of analysis are the opinion of this laboratory.</p>
9E3XGH	<p>Lab Item(s) 2 Item. Type: Fired Cartridge Case(s). Microscopic Findings Identification - fired by Compared to Lab Item(s) 1 Item Type Firearm Lab Item(s) 3, 4, 5 Item. Type: Fired Cartridge Case(s). Microscopic Findings Elimination-class characteristic differences Compared to Lab Item(s) 1 Item Type Firearm</p>
9FB4PC	<p>Items 1 and 2 fired by same firearm (known firearm). Items 3 and 5 fired by same firearm. Items 3 and 5 not fired by same firearm as Items 1 and 2. Item 4 not fired by same firearm as Items 1, 2, 3, or 5</p>
9GVRHT	<p>Item 2 was identified as having been fired in the same firearm as Item 1. Items 3 and 5 were identified as having been fired from the same unknown firearm. Item 4 was eliminated as having been fired from the same firearm as Items 1 and 2 or Items 3 and 5 based on differences in class characteristics.</p>

TABLE 2

WebCode	Conclusions
9QGTY3	Through the use of microscopic comparisons, it was determined that Item 2 was fired by the Beretta 92FS firearm, Items 3 and 5 were fired by an unrecovered firearm (Firearm #2), and Item 4 was fired by a second unrecovered firearm (Firearm #3).
9W6VLY	Submissions 001-4 through 001-7 (CTS items 2 through 5) fired cartridge cases were microscopically compared. Based on differences in class characteristics, submission 001-4 (CTS item 2) fired cartridge case was eliminated as having been fired in the same firearm that fired submissions 001-5 (CTS item 3), 001-6 (CTS item 4) and 001-7 (CTS item 5) fired cartridge cases. Based on differences in individual characteristics submission 001-6 fired cartridge case was eliminated as having been fired in the same firearm that fired submissions 001-5 and 001-7 fired cartridge cases. Based on agreement in similar class characteristics and sufficient agreement in individual characteristics, submissions 001-5 and 001-7 fired cartridge cases were identified as having been fired in the same firearm. Submission 001-4 fired cartridge case and 001-1 (CTS item 1) test fired cartridge case were microscopically compared. Based on similar agreement in class characteristics and sufficient agreement in individual characteristics, submission 001-4 fired cartridge case was identified as having been fired in the same firearm that fired submission 001-1 fired cartridge case produced by Collaborative Testing Service in a Beretta model 92FS.
9WFQUJ	1. The questioned cartridge case (Item 2) was discharged from the firearm Beretta 92FS (Item 1). 2. The questioned cartridge cases (Items 3, 4 and 5) were not discharged from the firearm Beretta 92FS (Item 1).
A3MKKY	Item 1 consisted of three fired 9mm Luger cartridge cases. They were reportedly fired by a Beretta 92FS pistol. The cartridge cases were microscopically intercompared and found to have sufficient reproducibility of individual detail. Item 2 was a fired 9mm Luger cartridge case marketed by Federal. It was compared to Item 1 using a comparison microscope. Corresponding class characteristics and individual detail sufficient for identification were observed. Item 2 was fired by the Beretta 92FS pistol. Item 3 was a fired 9mm Luger cartridge case marketed by Federal. It was compared to Item 1 using a comparison microscope. Disagreement of class characteristics was sufficient to conclude that Item 3 was not fired by the Beretta 92FS pistol. Item 4 was a fired 9mm Luger cartridge case marketed by Federal. It was compared to Item 1 using a comparison microscope. Disagreement of class characteristics was sufficient to conclude that Item 4 was not fired by the Beretta 92FS pistol. Item 5 was a fired 9mm Luger cartridge case marketed by Federal. It was compared to Item 1 using a comparison microscope. Disagreement of class characteristics was sufficient to conclude that Item 5 was not fired by the Beretta 92FS pistol. Items 3 and 5 were compared to each other using a comparison microscope. Corresponding class characteristics and individual detail sufficient for identification were observed. Items 3 and 5 were fired by the same firearm. Items 4 and 5 were compared to each other using a comparison microscope. Class characteristics corresponded; however, significant differences of individual detail was observed to conclude that Item 4 was not fired by the same firearm as Items 3 and 5.
A8Z43F	1-1) Three (3) discharged cartridge cases (A,B,C), head stamped "FC 9mm LUGER", discharged from the suspect's weapon (9mm Luger caliber, Beretta model 92FS, semi-automatic pistol) (known). 1-2) One (1) discharged cartridge case, head stamped "FC 9mm LUGER", recovered near the main entrance (questioned). 1-3) One (1) discharged cartridge case, head stamped "FC 9mm LUGER", recovered from the parking lot (questioned). 1-4) One (1) discharged cartridge case, head stamped "FC 9mm LUGER", recovered near the counter (questioned) 1-5) One (1) discharged cartridge case, head stamped "FC 9mm

TABLE 2

WebCode	Conclusions
	<p>LUGER", recovered from the parking lot (questioned). Compared discharged cartridge casings (test fires) from Beretta model 92FS listed in Item 1-1 to Items 1-2 through 1-5. After physical and microscopic examination of the submitted evidence against, it is my opinion that: A) The discharged cartridge casing mentioned above in Item 1-2 was fired by the Beretta, model 92FS semi-automatic pistol mentioned above in Item 1-1. "Identification". B) The discharged cartridge casings mentioned above in Items 1-3 and 1-5 were both fired by the same unknown weapon capable of firing 9mm Luger caliber ammunition, not from the seized 9mm Beretta pistol (due to a disagreement of individual markings in the areas examined). "Identification and Exclusion". C) The discharged cartridge casing mentioned above in Item 1-4 was fired by an unknown weapon capable of firing 9mm Luger caliber ammunition, but not from the seized 9mm Beretta pistol or from the unknown weapon that fired Items 1-3 and 1-5 (due to a disagreement of individual markings in the areas examined). "Exclusion".</p>
AEZQRV	<p>In my opinion the three 9mm Luger calibre test fired cartridge cases (Item 1) and the exhibit 9mm Luger calibre fired cartridge case (Item 2) displayed sufficient agreement to identify them as having been discharged in the same firearm. In my opinion the exhibit 9mm Luger calibre fired cartridge case (Item 3) and the exhibit 9mm Luger calibre fired cartridge case (Item 5) displayed sufficient agreement to identify them as having been discharged in the same firearm. In my opinion the exhibit 9mm Luger calibre fired cartridge case (Item 4) displayed sufficient disagreement to eliminate it as having been discharged from the same firearm as Item 1, Item 2 Item 3 or Item 5.</p>
AF9UBK	<p>The expended cartridge case recovered near the main entrance (item 2) was discharged from the Beretta Model 92FS handgun (Item 1). The expended cartridge cases recovered from the parking lot (item 3 and 5) were not discharged from the Beretta Model 92FS handgun (Item 1). The expended cartridge cases recovered from the parking lot were discharged by the same gun. The expended cartridge case recovered near the counter (item 4) was not discharged from the Beretta Model 92FS handgun (Item 1); and was not discharged from the gun that discharged cartridge cases recovered from the parking lot (item 3 and 5).</p>
AFV699	<p>Visual and microscopic analyses of the evidence cartridge cases (item 2 through item 5) and test fired cartridge cases from the Beretta 92FS pistol (item 1) were performed starting December 14, 2022 and the results of the comparisons and evaluations are as follows: Based on agreement of discernible class characteristics and sufficient agreement of individual characteristics, Q1 (item 2) was identified as having been fired with the Beretta 92FS pistol (item 1). Based on agreement of discernible class characteristics and sufficient agreement of individual characteristics, Q2 (item 3) and Q4 (item 5) were identified as having been fired with the same unknown firearm (unknown firearm #1). Based on significant disagreement of individual markings, Q3 (item 4) was eliminated as having been fired with the same unknown firearm as Q2 (item 3) and Q4 (item 5). Q3 (item 4) was fired with a second unknown firearm (unknown firearm #2). Q3 (item 4) is suitable for microscopic examination. Based on significant disagreement of individual and/or class characteristics, Q2 through Q4 (item 3 through item 5) were eliminated as having been fired with the Beretta 92FS pistol. Should any additional firearms be recovered, submit, and refer to above CC#.</p>
AJUHTC	<p>Item #1-2 was fired from the same firearm as Item #1-1. Items #1-3, #1-4 and #1-5 were eliminated from Item #1-1.</p>
ARJ9AD	<p>the firearm shot number 2. 3, 4 and 5 were not shot by the firearm.</p>

TABLE 2

WebCode	Conclusions
AUPVMG	The cartridge case identified as item #2 matches the known cartridge case identified as item #1. The cartridge cases identified #3, #4 and #5 not match the known cartridge cases identified as item #1. The cartridge cases identified as items #3 and #5 match each other but they do not match the known cartridge cases.
AW8KQV	Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm as exhibit 1. Exhibits 3 and 5 (fired 9mm casings) were identified as having been fired in a second 9mm firearm. These casings were not fired in the same firearm as exhibit 1, based on differences in class characteristics. Exhibits 3 and 5 were not fired in the same firearm as exhibit 4, based on differences in class characteristics. The specific brand of the suspect weapon is unknown at this time. Exhibit 4 (fired 9mm casing) was identified as having been fired in a third 9mm firearm. This casing was not fired in the same firearm as exhibits 1 and 2, based on differences in class characteristics. Exhibit 4 was not fired in the same firearm as exhibits 3 and 5, based on differences in class characteristics. The specific brand of the suspect weapon is unknown at this time.
AY9NDC	Exhibit 1 contains three (3) caliber 9mm Luger cartridge cases and Exhibits 2 through 5 each contain one (1) caliber 9mm Luger cartridge case. Exhibits 1 and 2 were identified as having been fired in the same firearm. Exhibits 3 and 5 were identified as having been fired in the same firearm. Exhibits 3 and 5 were excluded as having been fired in the same firearm as Exhibits 1 and 2. Exhibit 4 was excluded having been fired in the same firearm as Exhibits 1 and 2 and the same firearm as Exhibits 3 and 5.
B2RAEX	Item 2 was identified microscopically as having been fired in the same firearm that reportedly fired the Item 1 test fires based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 and 5 were identified microscopically as having been fired in the same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 and 5 were microscopically eliminated as having been fired in the same firearm that reportedly fired the Item 1 test fires due to disagreement of discernible class characteristics. Item 4 was microscopically eliminated as having been fired in the same firearm that reportedly fired the Item 1 test fires due to disagreement of discernible class characteristics. Item 4 was microscopically eliminated as having been fired in the same unknown firearm that reportedly fired Items 3 and 5 due to disagreement of individual characteristics.
B3D3Z2	The 9mm Luger cartridge case recovered near the main entrance (Item 2) was fired in the same firearm as the three expended cartridge cases discharged from the suspect's weapon (Item 1). The remaining three 9mm Luger cartridge cases (items 3 through 5) were not fired in the same firearm as the three expended cartridge cases discharged from the suspect's weapon (Item 1). The two 9mm Luger cartridge cases recovered from the parking lot (items 3 and 5) were fired in the same firearm, but were fired in a different firearm than the 9mm Luger cartridge case recovered near the counter (Item 4).
BFQBW7	The cartridge cases in Items #1 and #2 were fired by the same firearm. The cartridge cases in Items #3 and #5 were fired by the same firearm. The cartridge cases in Items #1 and #2 were not fired by the same firearm as Items #3, #4, or #5. The cartridge cases in Items #3 and #5 were not fired by the same firearm as Item #4. The cartridge case in Item #4 is suitable for further microscopic comparison.
BGYG6Z	The cartridge case Item 2 and 4 were fired from the same gun that fired the test fired cartridge cases Item 1, based on agreement observed in individual characteristics. The cartridge case in

TABLE 2

WebCode	Conclusions
	Item 3 and 5 was not fired from the same gun that fired the test cartridge cases in Item 1, based on differences observed in class characteristics.
BR3DH4	By means of microscopic comparison, the cartridge cases, (items 1 and 2) were identified as having been fired in the same firearm. This qualitative identification is based on the agreement of all discernible class and sufficient agreement of individual characteristics. Using comparison microscopy, a difference in individual characteristics were observed. Therefore, the cartridge cases (items 3,4 and 5) could not have been fired from the same firearm as the cartridge case (item 1).
BTTV3B	Based on the agreement of discernible class characteristics and sufficient matching individual detail, fired cartridge case Items 1(A-C) and 2 were identified as having been fired in the same firearm. Based on the agreement of discernible class characteristics and sufficient matching individual detail, fired cartridge case Items 3 and 5 were identified as having been fired in the same firearm. Based on the significant disagreement of class and/or individual characteristics, fired cartridge case Items 1(A-C) and 2 were eliminated as having been fired in the same firearm as fired cartridge case Items 3 and 5. Based on the significant disagreement of class and/or individual characteristics, fired cartridge case Item 4 was eliminated as having been fired in the same firearm as fired cartridge cases Items 1(A-C), 2, 3, and 5.
BTUQPN	[No Conclusions Reported.]
BULQPK	1. One of the recovered questioned cartridge cases (Item 2) was identified to be fired in the same firearm as the known cartridge cases (Item 1). 2. Three of the recovered questioned cartridge cases (Item 3, 4, 5) were eliminated to be fired in the same firearm as the known bullets (Item 1). 3. Two of the recovered questioned cartridge cases (Item 3, 5) were identified to be fired in the same firearm.
BVG843	The 001-01 test fired cartridge cases were examined and microscopically compared to the 001-02, 001-03, 001-04 and 001-05 fired cartridge cases with the following results: The 001-02 fired cartridge case was identified as having been fired in the same firearm as the 001-01 test fired cartridge cases. The 001-03, 001-04 and 001-05 fired cartridge cases were eliminated as having been fired in the same firearm as the 001-01 test fired cartridge cases.
BWRARL	1. The cartridges cases marked E-1 to E-3, corresponding in Item 1 and the cartridge case marked E-4, corresponding in Item 2, are 9mm Luger caliber and were fired by the same firearm (Identification). 2. The cartridge case marked E-5, corresponding in Item 3 and the cartridge case marked E-7, corresponding in Item 5, are 9mm Luger caliber and were fired by the same firearm (Identification). 3. The cartridge case marked E-6, corresponding in Item 4, is 9mm Luger caliber and was not fired by the firearm used to fire the cartridges cases marked E-1 to E-3, corresponding in Item 1 and the cartridge case marked E-4 corresponding in Item 2. 4. The cartridge case marked E-6, corresponding in Item 4, is 9mm Luger caliber and was not fired by the firearm used to fire the cartridges cases marked E-5, corresponding in Item 3 and the cartridge case marked E-7 corresponding in Item 5.
BYHDH9	Item 2 was fired by the same firearm as Item 1. Items 3, 4, and 5 were not fired by the same firearm as Items 1 or 2. Items 3 and 5 were fired by the same firearm. Item 4 could not be identified or eliminated as fired by the same firearm as Items 3 and 5.
BYXGBE	The casing of Item2 was fired by a a weapon in question (Item1). the two casings (Item3+Item5) were fired by the second and same weapon. The casing of Item 4 was fired by a

TABLE 2

WebCode	Conclusions
	third weapon.
BZC224	ITEM 3 AND ITEM 5 WERE DISCHARGED FROM THE SAME WEAPON, DIFFERENT OF PISTOL 001. 44 WAS DISCHARGED FROM A THIRD WEAPON
C3VF3J	From the general firing characteristics and fine detail within the breech face, firing pin and ejector marks we are of the opinion that the cartridge case in item 2 has been fired from the same weapon as the cartridge cases from item 1.
C6MFDZ	The cartridge case in Item 2 was fired in the same gun that fired the cartridge cases in Item 1, based on agreement observed in individual characteristics. The cartridge cases in Items 3 though 5 were not fired in the same gun that fired the cartridge cases in Item 1, based on differences observed in class characteristics.
C8PDL9	Item 2 was fired in the same firearm as the item 1 test fires. Item 3 and item 5 were fired in a second firearm. Item 4 was fired in a third firearm.
CBK7JJ	The Beretta 92FS handgun seized on the suspect fired the expended cartridge case recovered near the main entrance (Item 2). The first and the second expended cartridge cases recovered from the parking lot (Item 3 and Item 5) have been fired by a same weapon, different from the previous one. Finally, the expended cartridge case recovered near the counter (Item 4) has been fired by a third weapon, different from the other two. In conclusion, 3 weapons were involved in the scene: The Beretta 92 FS seize on the suspect fired the expended cartridge case. Item 2 -A Second weapon fired the expended cartridge cases. Item 3 and Item 5 -A third weapon fired the expended cartridge case. Item 4 Item 2 has been fired in the Beretta 92 FS handgun seized on the suspect. Item 3 and Item 5 have been fired by a same weapon, different from the first one. Item 4 has been fired by a third weapon. So 3 different weapons have been used to fire the 4 expended cases recovered from this crime scene.
CG2E43	The three fired cartridge cases, item 1-01, were identified as having been fired in the same firearm. The fired cartridge case, item 1-02, was identified as having been fired in the same firearm as item 1-01. The fired cartridge cases, items 1-03 & 1-05 were identified as having been fired in the same firearm but were eliminated from having been fired in the same firearm as items 1-01 & 1-02 based on differences in class characteristics. The fired cartridge case, item 1-04, was eliminated from having been fired in the same firearm as items 1-01, 1-02, 1-03 & 1-05 based on differences in class characteristics.
CHYFDZ	1. Examination of Exhibit 1 revealed three (3) fired 9mm Luger cartridges cases test fired from the suspect's firearm. 2. Examination of Exhibits 2 through 5 revealed each contains one (1) fired 9mm Luger cartridge case. 3. Microscopic comparison of Exhibits 1 through 5 revealed the following: a. Exhibit 2 was fired in the same firearm as Exhibit 1 due to sufficient agreement of individual characteristics. b. Exhibit 3 was fired in the same firearm as Exhibit 5 due to sufficient agreement of individual characteristics. c. Exhibit 4 was not fired in the same firearm as Exhibits 1 and 2 or Exhibits 3 and 5 due to disagreement of class characteristics. d. Exhibits 3 and 5 were not fired in the same firearm as Exhibits 1 and 2 due to disagreement of class characteristics. TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm/tool which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm/tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm/tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm/tool are not to the absolute exclusion of all

TABLE 2

WebCode	Conclusions
	other firearms/tools because it is not feasible to examine all possible firearms/tools. However, observing this amount of agreement from a different source is considered extremely remote.
CL86CA	After comparing the four expended cartridges recovered at the scene with the test fired from the suspect's weapon, we found the following result: Only item 2 was fired from the suspect firearm.
CQKXEL	Item #2 was fired in pistol item #1. Item #3 and Item #5 were identified as being fired in the same firearm, not submitted. Item #4 was eliminated from items #1 #2, #3 and #5. Due to differences in individual characteristics.
CVGDCA	Item #2 was identified as having been fired from the firearm in Item #1. Items #3, #4, and #5 were eliminated as having been fired from the firearm in Item #1.
CWRPWM	<p>Dates of Analysis: 14 December 2022 – 15 December 2022. The evidence was received into the Firearms/Toolmarks Unit of the Forensic Sciences Division where it was examined and marked for identification as listed below: Item 1 – Three (3) fired caliber 9mm Luger cartridge cases, from suspects firearm. Item 2 – One (1) fired caliber 9mm Luger cartridge case (main entrance). Item 3 – One (1) fired caliber 9mm Luger cartridge case (parking lot). Item 4 – One (1) fired caliber 9mm Luger cartridge case (counter). Item 5 – One (1) fired caliber 9mm Luger cartridge case (parking lot). The submitted specimen marked as Item 2 is a fired caliber 9mm Luger cartridge case bearing the Federal brand headstamp. Item 2 was microscopically compared to the Item 1 test fired cartridge case. As a result of microscopic examination it was concluded that Item 2 was identified as having been fired in the same firearm as Item 1. The submitted specimens marked as Item 3 and Item 5 are two (2) fired caliber 9mm Luger cartridge cases bearing the Federal brand headstamp. Item 3 and Item 5 were microscopically compared to each other. As a result of microscopic examination it was concluded that Items 3 and 5 were identified as having been fired in the same second firearm (unknown). Item 1 test fired cartridge cases were microscopically compared to Items 3 and 5. As a result of microscopic examination it was concluded that Items 3 and 5 were eliminated as having been fired in the same firearm as Item 1 based on significant disagreement of individual characteristics. The submitted specimen marked as Item 4 is a fired caliber 9mm Luger cartridge case bearing the Federal brand headstamp. Item 4 was microscopically compared to Items 1, 2, 3 and 5. As a result of microscopic examination it was concluded that Item 4 was eliminated from being fired in the same firearm as Items 1, 2, 3, and 5 based on significant disagreement of individual characteristics. Item 4 was fired from a third firearm (unknown).</p> <p>Note: Identification: Agreement of all discernible class characteristics and sufficient agreement of a combination of individual characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different firearms/tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool/firearm. Inconclusive: Agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility. Elimination: Significant disagreement of discernible class characteristics and/or individual characteristics. Unsuitable: Unsuitable for examination.</p>
CXLCZM	The Items 1, 2, 3 and 5 fired cartridge cases were microscopically compared to each other based on agreement of class characteristics. The Items 1 and 2 fired cartridge cases were identified as having been fired by the same firearm due to sufficient agreement of individual characteristics. The Items 3 and 5 fired cartridge cases were identified as having been fired by the same unknown firearm due to sufficient agreement of individual characteristics. Items 1 and 2 were eliminated as being fired by the same firearm as Items 3 and 5 due to differences in

TABLE 2

WebCode	Conclusions
	individual characteristics. Item 4 was eliminated from being fired from the same firearm as either Items 1 and 2 and/or Items 3 and 5 due to differences in class characteristics. The significance of these identifications is made to the practical, not absolute, exclusion of all other firearms.
CXZQFJ	1. Item #2 was fired from the known firearm. 2. Item #3 and #5 were fired from the same firearm, but not from the known firearm. 4. Item #4 was not fire from the known firearm, but from a different weapon.
CZFRZY	Item 2 was identified as having been fired by the same firearm as Item 1. This identification is based on the agreement of class characteristics, and individual characteristics observed in the breechface impression marks. Items 3 through 5 were eliminated as having been fired by the same firearm as Item 1. This elimination is based on the disagreement of individual characteristics observed in the breechface impression marks. Items 3 and 5 were identified as having been fired by the same unknown firearm. This identification is based on the agreement of class characteristics, and individual characteristics observed in the breechface impression marks. Item 4 was eliminated as having been fired by the same unknown firearm as Items 3 and 5. This elimination is based on the disagreement of individual characteristics observed in the breechface impression marks.
D2KQLR	Based on microscopic comparisons, in the opinion of the laboratory: Item 2-2-1 (CTS item 2) cartridge case was identified as having been fired by the same firearm that fired item 2-1-1 (CTS item 1) cartridge cases. Item 2-3-1 (CTS item 3) was identified as having been fired by the same firearm that fired item 2-5-1 (CTS item 5) cartridge case. Item 2-4-1 (CTS item 4) was eliminated as having been fired by the same firearm that fired item 2-5-1 cartridge case. Based on differences in class characteristics, the following conclusions were made: Items 2-3-1, 2-4-1, and 2-5-1 were eliminated as having been fired by the same firearm that fired item 2-1-1 cartridge cases.
D6GEXT	Test standards from the submitted Beretta model 92FS were microscopically compared to Item 2 and identified as having been discharged in the submitted firearm. Item 3 and Item 5 were microscopically compared and identified as having been discharged from the same second firearm. Item 4 was microscopically examined and identified as having been discharged from the third firearm.
D7B3GN	Items 2 though 5 are all 9mm Luger caliber discharged cartridge casings. The test fires from Item 1 were microscopically compared to Item 2 with Item 2 being Identified as being discharged in Item 1. The test fires from Item 1 were microscopically compared to Items 3, 4, and 5 with Items 3, 4, and 5 being Eliminated as being discharged in Item 1. Item 3 was microscopically compared to Item 5 and was identified as being discharged in the same weapon. Item 4 was microscopically compared to Item 5 and was eliminated as being discharged in the same weapon.
DABECN	Examined the four specimens marked #2 through #5. They are 9mm Luger caliber discharged cartridge cases, headstamped FC. The cartridge case marked #2 was microscopically compared to test standards and identified as having been discharged in the submitted firearm (#1). The three cartridge cases marked #3, #4, and #5 were microscopically compared to test standards and eliminated as having been discharged in the submitted firearm (#1). The two cartridge cases marked #3 and #5 were microscopically compared to each other and identified as having been discharged in the same firearm. The cartridge case marked #4 was microscopically compared to the two cartridge cases marked #3 and #5 and eliminated as

TABLE 2

WebCode	Conclusions
	having been discharged in the same firearm.
DEQPKQ	The results extremely strongly support that the three cartridge cases Item 1 have been fired in the same gun as the cartridge case Item 2. The results extremely strongly support that the cartridge case Item 3 and cartridge case Item 5 have been fired in the same firearm, but not the firearm that Item 1 have been fired in. No other connections have been observed.
DGVK29	Item #1 and Item #2 were identified as being fired by the same firearm. Items #3, #4 and #5 are eliminated based on class characteristics to Item #1.
DGXA4J	The 9mm Luger cartridge case (Item 2) was fired in the same firearm as the test fired cartridge cases (Item 1) from the Beretta firearm. The 9mm Luger cartridge cases (Items 3 and 5) were fired in a second firearm. The 9mm Luger cartridge case (Item 4) was fired in a third firearm.
DJDVJK	Items 1 (test fired cartridge cases) and 2 were microscopically examined and compared. Based on observed agreement of class characteristics and sufficient agreement of individual characteristics, the cartridge case was identified as having been fired in the Beretta semiautomatic pistol. Items 3 and 5 were microscopically examined and compared. Based on observed agreement of class characteristics and sufficient agreement of individual characteristics, the cartridge cases were identified as having been fired in the same firearm. Items 1 (test fired cartridge cases) and 2 were microscopically examined and compared to Items 3 and 5. Based on observed disagreement of individual characteristics, Items 3 and 5 were eliminated as having been fired in the Beretta semiautomatic pistol. Items 1 (test fired cartridge cases), 2, 3 and 5 were microscopically examined and compared to Item 4. Based on observed disagreement of individual characteristics, Item 4 was eliminated as having been fired in the same firearm as Items 3 and 5 or in the Beretta semiautomatic pistol.
DQYMDR	The Item 2 cartridge case is identified as having been fired in the same firearm as the Item 1A, 1B and 1C cartridge cases. The Item 3 and 5 cartridge cases are identified as having been fired in the same unknown firearm. The Item 3, 4 and 5 cartridge cases are eliminated as having been fired in the same firearm as the Item 1A, 1B, 1C and 2 cartridge cases. The Item 4 cartridge case is eliminated as having been fired in the same unknown firearm that fired the Item 3 and 5 cartridge cases.
DTTEE6	Item #2 was fired by the same firearm as Item #1. Items #3 and #5 were fired by the same firearm. Items #3 and #5 were not fired by the same firearm as Items #1 and #2. Item #4 was not fired by the same firearm as Items #1, #2, #3 and #5.
E6BMJG	Item 2 is one (1) fired 9mm Luger caliber cartridge case, Federal brand. Based on the agreement of class characteristics, this cartridge case was microscopically compared to test fired cartridge cases from the Item 1 firearm. Item 2 was identified as having been fired in the Item 1 firearm based on the sufficient agreement of individual characteristics. Items 3 and 5 are two (2) fired 9mm Luger caliber cartridge cases, Federal brand. Based on the agreement of class characteristics, these cartridge cases were microscopically compared. Items 3 and 5 were identified as having been fired in the same unknown firearm based on the sufficient agreement of individual characteristics. Based on the agreement of caliber, Item 3 was microscopically compared to test fired cartridge cases from the Item 1 firearm. Item 3 could not have been fired in the Item 1 firearm based on the significant disagreement of class characteristics. Item 4 is one (1) fired 9mm Luger caliber cartridge case, Federal brand. Based on the agreement of caliber, this cartridge case was microscopically compared to test fired cartridge cases from the Item 1 firearm. Item 4 could not have been fired in the Item 1 firearm based on the significant disagreement of class characteristics. Based on agreement of class characteristics, Item 4 was

TABLE 2

WebCode	Conclusions
	microscopically compared to Item 3. Item 4 could not have been fired in the same unknown firearm as Item 3 based on the significant disagreement of individual characteristics.
E6DCNE	The questioned expended cartridge case, recovered near the main entrance, identified as item 2, was discharge from the same firearm as the know expended cartridge cases (item 1). The three questioned expended cartridge case, recovered from the parking lot (identified as item 3 and item 5) and recovered near the counter (identified as item 4), were not discharge from the same firearm as the know expended cartridge cases (item 1).
E83MHD	Item 1-1 Firearm - Identification: fired Item 1-2, Fired Cartridge Case. Item 1-3, Fired Cartridge Case Identification: Item 1-5, Fired Cartridge Case. Item 1-1, Firearm - Elimination: Item 1-3 and Item 1-5, Fired Cartridge Case. Item 1-1, Firearm - Elimination: Item 1-4, Fired Cartridge Case. Item 1-4, Fired Cartridge Case Elimination: Item 1-3 and Item 1-5, Fired Cartridge Case
EB7FNX	ITEM 002: The cartridge case was identified to the item 001 cartridge cases. ITEM 003, 004, and 005: The cartridge cases were eliminated from the item 001 cartridge cases. ITEM 004: The cartridge case was also eliminated from the item 003 and 005 cartridge cases. ITEM 003 and 005: The cartridge cases were identified to an unsubmitted firearm.
EE3V9E	Item 2 was fired by the same firearm as Item 1. Item 1 is known test shots from a Beretta Model 92FS firearm. Items 3, 4 and 5 were eliminated from Items 1 and 2.
EEMM8Q	The Item 2 cartridge case was identified, within the limits of practical certainty ¹ , as having been fired by the same firearm the generated the Item 1 test fired cartridge cases. The Item 3, 4 and 5 cartridge cases were not fired by the same firearm that generated the Item 1 test fired cartridge cases. The Item 3 and 5 cartridge cases were identified, within the limits of practical certainty ¹ , as having been fired by the same firearm. The Item 4 cartridge case was not fired by the same firearm that fired the Item 3 and 5 cartridge cases
EJHCT6	The fired cartridge case in Item #2 was fired by the same firearm as the fired cartridge cases in Item #1. The fired cartridge cases in Item #3, Item #4 and Item #5 were not fired by the same firearm as the fired cartridge cases in Item #1. The fired cartridge cases in Item #3 and Item #5 were fired by the same firearm. The fired cartridge case in Item #4 was not fired by the same firearm as the fired cartridge cases in Item #3 and Item #5.
EKBAZB	Item #2 was fired by Item #1. Items #3, #4, and #5 were not fired by Item #1. Items #3 and #5 were fired by the same firearm. Items #3 and #5 inconclusive to Item #4.
EPGZB4	Visual and microscopic analyses of the evidence cartridge cases Q1 through Q4 (Items 2 through 5) and test fired cartridge cases from K1 TF1 through TF3 (Item 1) were initiated on 10/25/2022 and the results of the comparisons and evaluations are as follow: Based on agreement of discernible class characteristics and sufficient agreement of individual characteristics Q1 (Item 2) is identified as having been fired with K1 suspect firearm (Item 1). Q2 (Item 3) is identified as having been fired with the same unknown firearm as Q4 (Item 5). Q3 (Item 4) is eliminated as having been fired with the same same firearm as Q2 (Item 3), Q4 (Item 5) or with K1 suspect firearm (Item 1)/Q1 (Item 2) due to differences in individual characteristics present.
EQEETV	The fired cartridge cases, Items 1a, 1b, 1c, and 2, were identified as having been fired in one firearm. The fired cartridge cases, Items 3 and 5, were identified as having been fired in a second firearm. The fired cartridge case, Item 4, was fired in a third firearm.

TABLE 2

WebCode	Conclusions
EQG2CU	The Item 2 cartridge case was Identified to the Item 1 cartridge cases. The Item 3 and 5 cartridge cases were Identified to each other and Eliminated from the Item 1 and 2 cartridge cases. The Item 4 cartridge case was Eliminated from the Item 1 and 2 cartridge cases and Eliminated from the Item 3 and 5 cartridge cases.
ERBRFM	RESULTS AND CONCLUSIONS: The following results and conclusions are based upon direct analysis, measurements, and examination by the reporting scientist and reviewed by the scientist performing the technical and administrative review. Cartridge Case Analysis: Methodology: Physical (Visual Examination). Microscopy (Comparison Microscope). Items 2, the cartridge case, was fired in Item 1, the Beretta pistol, based upon corresponding class and individual microscopic characteristics. Items 3 and 5, the cartridge cases, were not fired in Item 1, the Beretta pistol, based upon different class and individual microscopic characteristics. Item 4, the cartridge case, was not fired in Item 1, the Beretta pistol, based upon different class characteristics. Items 3 and 5, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. A reference from this group will be entered into NIBIN. Items 3 and 5, the cartridge cases, were not fired in the same firearm as Item 4 based upon different class and individual microscopic characteristics. NIBIN: Item 4, the cartridge case, will be entered into NIBIN. A test fired cartridge case from Item 1, the Beretta pistol, will be entered into NIBIN. The results of NIBIN entries and searches will be the subject of a separate report. Digital photographs/digital video imaging of identifications and/or exclusions of comparisons can be made available upon request for judicial proceedings. Evidence in this case will be returned to the investigative agency.
EUDPNV	The submitted cartridge cases in Items 1, 2, 3, 4, and 5 were microscopically examined and compared. It was determined that Items 1 (known) and 2 (questioned) were fired from the same recovered firearm. The fired cartridge cases in Items 3 (questioned) and 5 (questioned) were fired from the same unknown firearm capable of chambering and firing 9mm Luger caliber ammunition, and not the recovered firearm. The fired cartridge case in Item 4 (questioned) was fired from another unknown firearm capable of chambering and firing 9mm Luger caliber ammunition, and not from the recovered firearm or the firearm that cartridge cases 3 and 5 were fired from.
F2TT93	Item #2 was discharge from Beretta model 92S. Item #3 and item #5 discharge from the same pistol (C1). Item #4 pistol (C2). pistol C1 different from C2.
F2UHG7	Exhibit 1 consists of three (3), test fired, Federal brand, 9mm Luger caliber cartridge cases, reportedly from a "Beretta Model 92FS handgun". Exhibits 2 through 5 were examined and determined to be fired, Federal brand, 9mm Luger caliber cartridge cases. Exhibits 1 through 5 were compared to each other with the following results: Exhibits 1 and 2 were identified as having been fired in the same firearm. Exhibits 3 and 5 were identified as having been fired in the same firearm. Exhibits 3, 4, and 5 were excluded as having been fired in the same firearm as Exhibits 1 and 2. Exhibit 4 was excluded as having been fired from the same firearm as Exhibits 3 and 5.
F3N7Z2	Findings: 2-Fired Cartridge Case(s): Identification - fired by 1-1 Firearm. 3, 4, 5-Fired Cartridge Case(s): Elimination-individual characteristic differences 1 Firearm. 3-Fired Cartridge Case(s): Identification - fired by the same firearm 5 Fired Cartridge Case(s). 3, 5-Fired Cartridge Case(s): Elimination-individual characteristic differences 4 Fired Cartridge Case(s).
FA2K36	THE THREE VANILLAS OF ITEM 1 WERE SHOCKED BY THE FIREARM THAT STRUCK THE VANILLAS OF ITEM No 2.

TABLE 2

WebCode	Conclusions
FKKT8L	Item 2 was identified as having been fired from the Item 1 pistol. Item 3 and Item 5 were identified as having been fired from the same unknown firearm. Item 4 was eliminated as having been fired in the Item 1 pistol and the unknown firearm responsible for firing Item 3 and Item 5.
FPJBGY	Item #2 was fired by Item #1. Item #3, Item #4 and Item #5 were not fired by Item #1. Item #3 and Item #5 were fired by the same firearm. Item #4 was eliminated with individual characteristic differences from Item #3 and Item #5. Item #4 is suitable for further microscopic comparison.
FRJGM6	Item 2 was fired in the firearm in Item 1. Items 3 and 5 were fired in the same firearm. Items 3, 4, and 5 were not fired in the firearm in Item 1. Items 3 and 5 were inconclusive to Item 4.
G98WJA	[No Conclusions Reported.]
G9BGNP	Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm as exhibit 1. Exhibit 3 and exhibit 5 (fired 9mm casings) were identified as having been fired in a second 9mm firearm. These casings were not fired in the same firearm as exhibit 1, based on differences in class characteristics. Exhibits 3 and 5 were not fired in the same firearm as exhibit 4, based on differences in individual characteristics. The specific brand of the suspect weapon is unknown at this time. Exhibit 4 (fired 9mm casing) was fired in a third 9mm firearm. This casing was not fired in the same firearm as exhibits 1 and 2, based on differences in class characteristics. Exhibit 4 was not fired in the same firearm as exhibits 3 and 5, based on differences in individual characteristics. The specific brand of the suspect weapon is unknown at this time.
GAHY79	Microscopic examination and comparison of the cartridge case, Item 2, reveals it was discharged in the same firearm as the cartridge cases, Item 1, based on agreement of class and individual characteristics. Microscopic examination and comparison reveal that the cartridge cases, Items 3, 4 and 5, were not discharged in the same firearm as the cartridge cases, Item 1, based on differences of class and individual characteristics.
GCBM4V	1. Exhibit 1 consists of three (3) fired cartridge cases and Exhibits 2, 3, 4, and 5 each consist of one (1) fired cartridge case; all the Exhibits mentioned before are 9mm Luger caliber and marketed by Federal. 2. Exhibits 1 through 5 were microscopically compared: a. Exhibits 1 and 2 were fired from the same firearm due to agreement of class and sufficient agreement of individual characteristics. b. Exhibits 3 and 5 were fired from the same firearm due to agreement of class and sufficient agreement of individual characteristics. c. Exhibit 4 were not fired by the firearm that fired Exhibits 1 and 2, neither Exhibits 3 and 5 due to disagreement of class characteristics. d. Exhibits 3 and 5 were not fired by the firearm that fired Exhibits 1 and 2 due to disagreement of class characteristics.
GD4MYL	Examinations showed that Item 2 was discharged within the same firearm that Item 1 was discharged within. Examinations showed that Item 3 was not discharged within the same firearm that Item 1 was discharged within. Examinations showed that Item 4 was not discharged within the same firearm that Item 1 was discharged within. Examinations showed that Item 5 was not discharged within the same firearm that Item 1 was discharged within.
GJL3JH	The fired cartridge cases (Items 1 and 2) were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Item 2 is identified as having been fired in the Beretta pistol. The fired

TABLE 2

WebCode	Conclusions
	cartridge cases (Items 3 and 5) were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, they are identified as having been fired in the same firearm. The fired cartridge cases (Items 4 and 5) were microscopically examined and compared. There is observed agreement of class characteristics. Based on observed disagreement of individual characteristics they are eliminated as having been fired in the same firearm. Based on the observed disagreement of class characteristics between Items 3-5 and Item 1, Items 3-5 are eliminated as having been fired in the Beretta pistol.
GUDCE8	Item #2 was fired by Item #1. Items #3, #4, and #5 were not fired by Item #1 Items #3 and #5 were fired by the same firearm Item #4 was not fired by the same firearm as Items #3 and #5
H28WT	The cartridge case in Submission 2 was fired in the gun that produced the testfires in Submission 1, based on agreement observed in individual characteristics. The cartridge cases in Submissions 3, 4 and 5 were not fired in the gun that produced the testfires in Submission 1, based on disagreement in class characteristics. The cartridge cases in Submissions 3 and 5 were fired in the same gun, based on agreement observed in individual characteristics.
H7DL4Z	1. The fired cartridge case in Item 2 was fired by the firearm in Item 1. 2. The fired cartridge cases in Items 3 and 5 were fired by the same firearm. 3. The fired cartridge case in Item 4 could not be identified or eliminated as having been fired in the same firearm as the fired cartridge cases in Items 3 and 5. 4. The fired cartridge cases in Items 3, 4, and 5 were not fired by the firearm in Item 1.
H88AMW	Sufficient agreement of class and individual characteristics confirmed the item 2 expended cartridge case was fired in the same firearm as the item 1 expended cartridge cases. Disagreement of class characteristics and individual characteristics confirmed the items 3, 4, and 5 expended cartridge cases were not fired in the same firearm as the item 1 expended cartridge cases. Analysis performed by physical examination and microscopy.
HBDLTX	The submitted fired cartridge case (Item 2) was identified as having been fired in the Beretta pistol. The submitted fired cartridge case (Item 2) was eliminated as having been fired in the same unknown firearms as the submitted fired cartridge cases (Items 3, 4, and 5) based on differences in class characteristics. The submitted fired cartridge cases (Items 3 and 5) were identified as having been fired in a single unknown firearm. The submitted fired cartridge cases (Items 3 and 5) were eliminated as having been fired in the Beretta pistol. The submitted fired cartridge cases (Items 3 and 5) were eliminated as having been fired in the same unknown firearm as the submitted fired cartridge case (Item 4) based on differences in class characteristics. The submitted fired cartridge cases (Items 3 and 5) were fired in a firearm capable of chambering and firing a 9mm Luger caliber cartridge. Due to commonly-seen class characteristics, a possible firearm manufacturer was not determined. The submitted fired cartridge case (Item 4) was eliminated as having been fired in the Beretta pistol. The submitted fired cartridge case (Item 4) was fired in a firearm capable of chambering and firing a 9mm Luger caliber cartridge. Due to commonly-seen class characteristics, a possible firearm manufacturer was not determined.
HGD8CK	The hypothesis that expended cartridge cases item 1 and item 2 were discharged from the same firearm is very strongly supported.
HNG3M7	Physical and microscopic examinations and comparisons were conducted of all the submitted evidence. Based upon those examinations and comparisons, it is my opinion that: a. The item

TABLE 2

WebCode	Conclusions
	1-2 discharged cartridge casing was fired from the suspect's weapon (9mm Luger Beretta model 92FS). "Identification" b. The items 1-3 and 1-5 discharged cartridge casings were fired from the same unknown weapon capable of chambering and firing 9mm Luger ammunition. "Identification" c. The item 1-4 discharged cartridge casing was fired from an unknown weapon capable of chambering and firing 9mm Luger ammunition to exclude the unknown weapon that fired the items 1-3 and 1-5 discharged cartridge casings. d. The items 1-3, 1-4, and 1-5 discharged cartridge casings were not fired from the suspect's weapon (9mm Luger Beretta Model 92FS). "Exclusion"
HU8CX4	The Exhibit 1A through 1C purported test fires and the Exhibit 2, 3, 4, and 5 fired cartridge cases were intercompared with the following results: Exhibit 2 was identified as having been fired in the same firearm as Exhibits 1A through 1C. Exhibits 3, 4, and 5 were excluded as having been fired in the same firearm as Exhibits 1A through 1C. Exhibits 3 and 5 were identified as having been fired in the same unknown firearm. Exhibit 4 was excluded as having been fired in the same unknown firearm as Exhibits 3 and 5.
HVERQ4	Item 1, corresponds to reference material; the Items 2, 3, 4 and 5 correspond to vanillas were compared microscopically. The Item 2, were percussed with the same firearm corresponding to Item 1. The Item 3 and 5 were fired from a second firearm. Item 4 was fired from a third firearm, different from the previous ones.
HZQVJQ	Results of Examinations: Item 1 is reported to be a 9mm Luger (9x19mm) Beretta pistol, Model 92FS. A pattern examination identified the Item 2 cartridge case as having been fired in the Item 1 pistol. The Item 3 through 5 cartridge cases were eliminated as having been fired in the Item 1 pistol due to a difference in class characteristics. A pattern examination identified the Item 3 and 5 cartridge cases as having been fired in the same firearm. The Item 4 cartridge case was eliminated as having been fired in the Item 1 pistol and the firearm that fired the Item 3 and 5 cartridge cases due to a difference in class characteristics.
J2EU99	I microscopically compared Items 1A, 1B, and 1C to each other. I identified Items 1A, 1B, and 1C as being fired in the same firearm based on sufficient agreement of individual characteristics within the breech face marks and firing pin impression. I microscopically compared Item 2 to Items 1A, 1B, and 1C. I identified Item 2 and Items 1A, 1B, and 1C as being fired in the same firearm based on sufficient agreement of individual characteristics within the breech face marks and firing pin impression. I microscopically compared Items 3, 4, and 5 to Items 1A, 1B, and 1C. Items 3, 4, and 5 can be eliminated from being fired in the same firearm as Items 1A, 1B, and 1C based on different class characteristics. I microscopically compared Items 3 and 5 to each other. I identified Items 3 and 5 as being fired in a second firearm based on sufficient agreement of individual characteristics within the breech face marks and firing pin impression. Item 4 was fired in a third firearm.
J38HR4	Items 1-1 and 1-2 were fired in the same firearm. Items 1-3 and 1-5 were fired in the same firearm. Items 1-3, 1-4 and 1-5 were not fired in the same firearm as 1-1 and 1-2. Item 1-4 was not fired in the same firearm as Items 1-3 and 1-5.
J6D669	The four individually packaged cartridge cases, identified above as items 2, 3, 4, and 5, were microscopically compared to one another and to the test fired cartridge cases in item 1. Item 2 was identified as having been fired from the firearm used to produce the test fired cases in item 1, based on the agreement of all discernable class characteristics and individual detail agreement. Items 3, 4, and 5 were eliminated as having been fired from this firearm based on some class characteristics variation and the overall lack of individual detail. An

TABLE 2

WebCode	Conclusions
	intercomparison of items 3, 4, and 5 identified items 3 and 5 as having been fired from a second unknown firearm and item 4 from a third unknown firearm.
J6GMBK	Items 1-1A, 1-1B, 1-1C, and 1-2, were microscopically compared to each other and found to have areas of corresponding individual characteristics. The four (4) cartridge cases were identified as having been fired in the same firearm. Items 1-3 and 1-5, were microscopically compared to each other and found to have areas of corresponding individual characteristics. The two (2) cartridge cases were identified as having been fired in the same firearm. Items 1-1A, 1-1B, 1-1C, and 1-2 (first firearm) were microscopically compared to items 1-3 and 1-5 (second firearm), and to item #1-4 (third firearm) and found to have some different class characteristics and a disagreement of individual characteristics. The three (3) groups of cartridge cases were eliminated as having been fired in the same firearm. [Forensic Scientist] 11/9/2022 Date Approved. DISPOSITION OF EVIDENCE: Evidence will be released to the submitting/investigating agency following the standard operating procedures of the laboratory unless otherwise noted in this report.
J7TAYZ	The vanilla corresponding to item 2 is from a cartridge fired from a 9mm caliber pistol class firearm, mara Pietro Berreta, model 92FS.
J92GGL	Exhibit 2 (fired 9mm casing) was identified as having been fired in the same 9mm firearm as exhibit 1. Exhibits 3 and 5 (fired 9mm casings) were identified as having been fired in a second 9mm firearm. These casings were not fired in the same firearm as exhibit 1 or exhibit 4, based on differences in individual characteristics. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis. Exhibit 4 (fired 9mm casing) was identified as having been fired in a third 9mm firearm. This casing was not fired in the same firearm as exhibits 1, 2, 3 or 5, based on differences in individual characteristics. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis.
JBC7ZX	Item 2 was fired in the same firearm as Item 1. Items 3, 4, and 5 were not fired in the same firearm as Item 1.
JCHRDC	Evidence cartridge case Item 2 is identified as having been fired in the evidence firearm seized from the suspect. Evidence cartridge cases Item 3, 4, 5 have not been fired in the evidence firearm seized from the suspect. Evidence cartridge cases Item 3 & 5 were fired in the same unknown firearm.
JJELBA	Evidence 2 matched known hives. (item 1 = item 2) It was shot with 3 different weapons 2-1-1 in the form of . (2(item3 and item5) - 1(item4) - 1 (item2)) (four used cartridge cases at the crime scene.)
JNREAF	The firing mark findings are as expected if the suspect-related pistol (item 1 samples) fired the scene-recovered cartridge case of item 2. These findings are much less probable if this cartridge case had been fired in some other gun. In my opinion, the findings provide very strong support for the proposition that cartridge case '2' was fired in the pistol '1' rather than in some other gun. In expressing this level of support, I have referred to the following verbal scale: None, Limited, Moderate, Moderately strong, Strong, Very strong, Extremely strong. In my opinion based on a comparison of the firing marks, none of the cartridge cases of items 3, 4 and 5 was fired in the suspect-related pistol 1.
JRDA3Z	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 5 were fired in a second firearm. Item 4 was fired in a third firearm.

TABLE 2

WebCode	Conclusions
JVQ8FN	Item 1 consists of three (3) 9mm Luger cartridge cases identified as being test fires from a Beretta pistol, which bear the headstamp of Federal ammunition. Items 2 through 5 consists of four (4) 9mm Luger cartridge cases bearing the headstamp of Federal ammunition. The Item 2 cartridge case was identified as having been fired in the same firearm as the Item 1 cartridge cases. Due to a difference in class characteristics (breechface characteristics), the Item 3, Item 4, and Item 5 cartridge cases were eliminated as having been fired in the same firearm as the Item 1 cartridge cases. The Item 3 and Item 5 cartridge cases were identified as having been fired in the same firearm. Due to a difference in class characteristics (aperture size), the Item 4 cartridge case was eliminated as having been fired in the same firearm as the Item 3 and Item 5 cartridge cases.
JW3JHZ	Item 2 was fired by the firearm Item 1. Items 3, 4 and 5 were not fired by the firearm in Item 1. Items 3 and 5 were fired by the same firearm. Item 4 was not fired by the same firearm as Items 3 and 5. Item 4 is suitable for microscopic comparisons.
JXF7ZE	ITEM #2 WAS FIRED IN PISTOL, ITEM#1. ITEM #3 & #5 WERE IDENTIFIED AS BEING FIRED IN THE SAME FIREARM, NOT SUBMITTED. ITEM #4 WAS ELIMINATED FROM ITEMS #1, 2, 3 & 5 DUE TO DIFFERENCES IN INDIVIDUAL CHARACTERISTICS.
JZMTAC	The questioned expended cartridge case labeled "Item 2" was discharged from the same firearm as the known expended cartridge cases (Item 1). The questioned expended cartridge cases labeled "Item 3", "Item 4" and "Item 5" were Not discharged from the same firearm as the known expended cartridge cases (Item 1).
K8JYQK	Item 1 consists of three (3) fired 9mm Luger caliber cartridge cases, Federal brand, that were microscopically compared for reproducibility, and they were identified as having been fired in the same known firearm. Items 2, 3, 4 and 5 are four (4) fired 9mm Luger caliber cartridge cases, Federal brand, that were microscopically compared to each other and to the Item 1 cartridge cases. Item 2 was identified as having been fired in the same known firearm as the Item 1 cartridge cases. Items 3 and 5 were identified as having been fired in the same unknown firearm as each other. Items 3 and 5 were eliminated from being fired in the same known firearm as Items 1 and 2 due to significant disagreement of class and individual characteristics. Item 4 was eliminated from being fired in the same known firearm as Items 1 and 2 due to significant disagreement of class and individual characteristics. Item 4 was eliminated from being fired in the same firearm as Items 3 and 5 due to significant disagreement of individual characteristics. Therefore, Item 4 was fired in a second unknown firearm.
KEFPZA	1. THE EXPENDED CARTRIDGE CALIBER 9 MM LUGER WITH THE IDENTIFICATION OF "ITEM 2" PRESENT POSITIVE BALLISTIC CORRELATION WITH THREE EXPENDED CARTRIDGE CALIBRE 9 MM LUGER (KNOWN) WITH THE IDENTIFICATION OF " ITEM 1". 2. TWO EXPENDED CARTRIDGE CALIBER 9 MM LUGER WITH THE IDENTIFICATION OF "ITEM 3" AND "ITEM 5" WERE FIRED BY THE SAME FIREARM AND DOES NOT PRESENT CORRELATION WITH THREE EXPENDED CARTRIDGE CALIBRE 9 MM LUGER (KNOWN) WITH THE IDENTIFICATION OF " ITEM 1". 3. THE EXPENDED CARTRIDGE CALIBER 9 MM LUGER WITH THE IDENTIFICATION OF "ITEM 4" DOES NOT PRESENT CORRELATION WITH THREE EXPENDED CARTRIDGE CALIBRE 9 MM LUGER (KNOWN) WITH THE IDENTIFICATION OF " ITEM 1".
KKAD7G	The fired cartridge case of item #2 was microscopically identified as having been fired in the Beretta pistol that fired item #1. The fired cartridge cases of items #3 and #5 were

TABLE 2

WebCode	Conclusions
	microscopically identified as having been fired in the same unknown 9mm Luger caliber firearm. The fired cartridge case of item #4 was found to have been fired in a second unknown 9mm Luger caliber firearm.
KNBFWH	Based on microscopic comparisons, in the opinion of the laboratory: Item 1-2-1 was identified as having been fired by the firearm that fired item 1-1-1 cartridge cases. Items 1-3-1 and 1-5-1 were identified as having been fired by the same unknown firearm. Item 1-4-1 was eliminated as having been fired by the same unknown firearm that fired items 1-3-1 and 1-5-1 cartridge cases. Based on differences in class characteristics, items 1-3-1, 1-4-1, and 1-5-1 cartridge cases were eliminated as having been fired by firearm that fired item 1-1-1 cartridge cases.
KP64ED	Fcc-1 (item#2) was microscopically compared to firearm, Pistol P-1 and an identification was made. Fcc-1 was fired in firearm, Pistol P-1. Fcc-2 (item#3) & Fcc-4 (item#5) were microscopically compared to each other and were identified as having been fired in the same firearm and eliminated as having been fired in firearm, Pistol P-1 due to difference in individual characteristics. Fcc-3 (item#4) was eliminated as having been fired in firearm, Pistol P-1 and fired cartridge cases Fcc-1, Fcc-2 & Fcc-4 due to differences in class characteristics.
L6UVCJ	The item 1-2 cartridge case is identified as having been fired in the same pistol as the item 1-1 cartridge cases. The item 1-3 and 1-5 cartridge cases are identified as having been fired in the same unknown firearm and are eliminated as having been fired in the same pistol as the item 1-1 cartridge cases. The item 1-4 cartridge case is eliminated as having been fired in either the same pistol as the item 1-1 cartridge cases or the item 1-3 and 1-5 cartridge cases.
L7NKVF	The test fired cartridge cases, Item 1, were microscopically examined and compared with the recovered fired cartridge case, Item 2. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Item 2 is identified as having been fired in the same firearm as Item 1. The test fired cartridge cases, Item 1, were microscopically examined and compared with the recovered fired cartridge cases, Items 3, 4 and 5. Based on the observed disagreement of some class characteristics and patterns of individual characteristics, Items 3, 4 and 5 are eliminated as having been fired in the same firearm as Item 1.
L9VQLM	Item 2 (fired cartridge case): Microscopic comparison of this fired cartridge case and a test-fired cartridge case from the Beretta pistol revealed that they have the same class of firearm-produced marks and sufficient corresponding individual marks to conclude that this cartridge case, items 2, was discharged in the Beretta pistol. Items 3 and 5 (fired cartridge cases): Microscopic comparison of these fired cartridge cases and a test-fired cartridge case from the Beretta pistol revealed that they have similar class of firearm-produced marks, but significant disagreement in individual marks. These cartridge cases were not discharged in this Beretta pistol. Microscopic comparison of items 3 and 5 revealed that they have the same class of firearm-produced marks and sufficient corresponding individual marks to conclude that they were discharged in the same unknown firearm. Item 4 (fired cartridge case): Microscopic comparison of this cartridge case to the cartridge cases in items 1, 2, 3, and 5, revealed significant differences in class of firearm-produced marks. This cartridge case, item 4, was discharged in a different unknown firearm.
LB2FLB	Item #2 was microscopically examined and compared to Item #1 (test fire). Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Item #2 is identified as having been fired in the same firearm as Item #1 (test

TABLE 2

WebCode	Conclusions
	<p>fire). Items #3, #4, and #5 were microscopically examined and compared to Item #1 (test fire). Based on the observed disagreement of class and individual characteristics, Items #3, #4, and #5 are eliminated as having been fired in the same firearm as Item #1 (test fire). Items #3 and #5 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items #3 and #5 are identified as having been fired in the same firearm. Item #4 was microscopically examined and compared to Items #3 and #5. Based on the observed disagreement of individual characteristics, Item #4 is eliminated as having been fired in the same firearm as Items #3 and #5.</p>
LCV2E2	<p>The fired cartridge case Item 2 was identified as having been fired by the same firearm as the test fired cartridge cases of Item 1. The fired cartridge cases Items 3, 4, and 5 could not have been fired by the same firearm as the test fired cartridge cases of Item 1 due to significant differences in class characteristics.</p>
LE2LZG	<p>Item 2 was discharged from the same firearm as the known expended cartridge cases.</p>
LG3QGG	<p>The microcomparison to the mentioned items reached the following conclusions: 1.FROM THE MICROCOMPARISON STUDY OF THE CARTRIDGE CASE ITEM 2 IN COMPARISON WITH THE CONTROL ELEMENTS ITEM 1, IT IS CONCLUDED THAT THERE IS A SIGNIFICANT AGREEMENT, SO IT IS CONSIDERED THAT THE CARTRIDGE CASES WERE FIRED BY THE SAME FIREARM. 2.FROM THE MICROCOMPARISON STUDY OF THE CARTRIDGE CASES ITEM 3, ITEM 4 AND ITEM 5 IN COMPARISON WITH THE CONTROL ELEMENTS ITEM 1, IT IS CONCLUDED THAT THERE IS NO SIGNIFICANT AGREEMENT, SO IT IS CONSIDERED THAT THE CARTRIDGE CASES WERE NOT FIRED BY THE SAME FIREARM. 3.FROM MICROCOMPARISON STUDY OF THE CARTRIDGE CASES, ITEM 3 AND ITEM 5 IN COMPARISON WITH EACH OTHER, IT IS CONCLUDED THAT THERE IS A SIGNIFICANT AGREEMENT, SO IT IS CONSIDERED THAT THE CARTRIDGE CASES WERE FIRED BY THE SAME FIREARM.</p>
LJ89L6	<p>The evidence in items 1, 2, 3, 4, and 5 was analyzed by physical and microscopic examination. The fired 9mm cartridge case in item 2 was determined to have been fired in the same weapon as the three (3) fired 9mm cartridge cases in item 1. The three (3) fired 9mm cartridge cases in items 3, 4, and 5 were determined not to have been fired in the same weapon as the three (3) fired 9mm cartridge cases in item 1. The two (2) fired 9mm cartridge cases in items 3 and 5 were fired in one weapon. The fired 9mm cartridge case in item 4 was fired in a different weapon than the two (2) fired 9mm cartridge cases in items 3 and 5. Further analysis of the three (3) fired 9mm cartridge cases in items 3, 4, and 5 is pending submission of two (2) more weapons for additional comparisons. Item 1 was used for comparison.</p>
LJBH8B	<p>Items #1 and #2 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items #1 and #2 are identified as having been fired from the same firearm. Items #3 and #5 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items #3 and #5 are identified as having been fired from the same firearm. Item #1 was microscopically examined and compared to Items #3 and #5. Based on the observed disagreement of individual characteristics, Item #1 is eliminated as having been fired from the same firearm as Items #3 and #5. Item #4 and was microscopically examined and compared to items #1, #2, #3 and #5. Based on the observed disagreement of individual</p>

TABLE 2

WebCode	Conclusions
	characteristics, Item #4 is eliminated as having been fired from the same firearms as items #1, #2, #3 and #5.
LLDRN8	Fired cartridge case item 2 has significant matching microscopic detail as compared to the reproducible detail seen on all three test fires from item 1. The amount of microscopic agreement is considered sufficient to support the AFTE conclusion of identification. Fired cartridge cases #3 and #5 originated from a different firearm than #1 and exhibit significant matching microscopic detail to support the AFTE conclusion of identification to each other. These two fired cartridge cases represent a second, different firearm as item 1. Fired cartridge case #4 does not exhibit significant matching microscopic detail to any of the other submitted fired cartridge cases and represents a third, different firearm that is not either firearm described above.
LPDR3H	The item 2 that was recovered nearly the main entrance of the gas station was discharged for the Beretta 92FS pistol property of the suspect. items 3 and 5 recovered in the parking were discharged for another firearm. item 4 recovered from the counter was discharged for another firearm too. So in conclusion there were used three firearms at the crime scene but only item 2 matches with the suspects firearm.
LUFQT3	A) Item 1-2 Discharged cartridge casing was fired from the suspect's weapon (9mm Luger Beretta model 92FS). "Identification". B) Item 1-2 Discharged cartridge casing was fired from the suspect's weapon (9mm Luger Beretta model 92FS). "Identification". C) Items 1-3 and 1-5 discharged cartridge casings were fired from the same unknown weapon capable of chambering and firing 9mm Luger ammunition. "Identification". D) Item 1-4 (Discharged cartridge casing) was fired from an unknown weapon capable of chambering and firing 9mm Luger ammunition and was NOT fired by the same unknown weapon that was used to fire Items 1-3 and 1-5 (Discharged cartridge casings). "Exclusion". E) Items 1-3, 1-4, and 1-5 (Discharged cartridge casings) were NOT fired from the suspect's weapon (9mm Luger Beretta Model 92FS). "Exclusion"
LYZ4ZG	The discharged cartridge case marked #2 was compared microscopically against test cartridge cases was identified as having been discharged in the suspects firearm. The three discharged cartridge cases marked #3, #4, and #5 were compared microscopically against test cartridge cases and were eliminated from having been discharged in the suspects firearm.
M4AETB	1. The cartridge cases described in Items 1 and 2, are 9mm Luger caliber, and were fired by the same firearm (Identification). 2. The cartridge cases described in Items 3 and 5, are 9mm Luger caliber, and were fired by the same firearm (Identification). 3. The cartridge case described in Items 4, is 9mm Luger caliber, and was fired by firearm. 4. The cartridge case described in Item 4, is a 9mm luger caliber, and was not fired from the firearms used to fire the cartridge cases described in items 1,2, 3 and 5.
M72HJW	Item 1 consists of (3) fired cartridge cases said to be from a known firearm. Item 2 was fired by the known firearm in Item 1. Items 3, 4, 5 were not fired by the known firearm in Item 1. Items 3 and 5 were fired by the same firearm. Items 3 and 5 were not fired by the same firearm as Item 4. Item 4 is suitable for further microscopic comparison.
M8U73R	3 firearms on the scene. Item 1 matches Item 2 (1st firearm). Item 3 matches Item 5 (2nd firearm). Item 4 from the 3rd firearm.
MGKWVY	After physical and microscopic examination of Items 1-1, 1-2, 1-3, 1-4 and 1-5 it is my opinion that: A) IDENTIFICATION: The discharged cartridge casing mentioned in Item 1-2 was

TABLE 2

WebCode	Conclusions
	<p>fired by the suspect weapon that was used to produce the test firings mentioned in Item 1-1. B) EXCLUSION: The discharged cartridge casings mentioned in Items 1-3 and 1-5 were not fired by the suspect weapon however they were fired by the same unknown weapon capable of chambering and discharging 9mm Luger caliber ammunition. C) EXCLUSION: The discharged cartridge casing mentioned in Item 1-4 was not fired by the suspect weapon used to test fire the discharged cartridge casings mentioned in Item 1-1 or the unknown weapon that fired Items 1-3 and 1-5. Item 1-4 was fired by a second unknown weapon capable of chambering and discharging 9mm Luger caliber ammunition.</p>
MKJ47B	<p>The Laboratory was requested to microscopically compare Items 2 through 5, the four questioned cartridge cases, to Item 1, the test-fired cartridge cases. Items 2 through 5, the fired 9mm Luger caliber cartridge cases, were examined and microscopically compared to the test-fired cartridge cases. For Item 2, the class characteristics were similar; based on sufficient agreement of individual characteristics in the breech face marks and the firing pin impressions, Item 2 was identified as having been fired from the same firearm as the test-fired cartridge cases (Item 1). Based on the disagreement of class characteristics in the breech face marks, Items 3 through 5 were excluded as having been fired from the same firearm as the test-fired cartridge cases (Item 1).</p>
MLPXG2	<p>Taking the physical analysis as a reference and based on the class characteristics printed on the 9 mm caliber cartridge case items, which are indicated as 1, 2, 3, 4 and 5, a micro-comparison analysis is carried out between the themselves, determining the following: 1. Item 3 (questioned) presents agreement of individual characteristics with item 5 (questioned), for which an identification between them is carried out, but elimination with item 1 (known). 2. Item 4 (questioned) does not present agreement of individual characteristics with any of the items sent for analysis, therefore an elimination is carried out. 3. Item 2 (questioned) presents agreement of individual characteristics with the items indicated as item 1 (known), for which an identification is carried out. Based on the foregoing, it is concluded that between item 1 and item 2 there is a sufficient agreement of individual characteristics and, according to the analysis carried out, they were fired by the same firearm.</p>
MR4AUV	<p>Similarities have been observed between the marks in item 2 and item 1. The class characteristics in the items 3, 4 and 5 differ from those in item 1. Due to this difference these items cannot have been fired by the same firearm as the test fired cartridge cases item 1. Items 1 and 2: Because of the similarities between item 1 and 2 an additional examination has been done. Using the Bayesian approach in casework we view our findings under two hypotheses. In this test we used the following two hypotheses: H1: The questioned cartridge case is fired by the submitted firearm. H2: The questioned cartridge case is fired by another firearm of the same caliber and with the same class characteristics as the submitted firearm. The likelihood ratio (LR) of the findings is expressed in the following verbal scale: Approximately equally probable (LR = 1-2). Slightly more probable (LR = 2-10). More probable (LR = 10-100). Much more probable (LR = 100-10,000). Very much more probable (LR = 10,000-1,000,000). Extremely more probable (LR = >1,000,000). The findings are extremely more probable when H1 is true than when H2 is true. Items 3 and 5: Similarities have been observed between the marks in items 3 and 5. This observation lead to an additional examination between the marks. The findings of this examination were viewed under the following two hypotheses: H1: The questioned items are fired by one firearm H2: The questioned items are fired by two or more firearms of the same caliber and with the same class characteristics. The findings are extremely more probable when H1 is true than when H2 is true.</p>

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WebCode	Conclusions
MR4BY2	<p>1-1) Test-Fires; Three (3) (A,B,C) expended cartridge casings discharged from the suspect's weapon, (9mm Luger caliber, Beretta, model 92FS, semi-auto pistol) all h/s: "FC 9mm LUGER" (known). 1-2) Discharged Cartridge Casing; One (1) expended cartridge casing recovered near the main entrance, head-stamped: "FC 9mm LUGER" (questioned). 1-3) Discharged Cartridge Casing; One (1) expended cartridge casing recovered from the parking lot, head-stamped: "FC 9mm LUGER" (questioned). 1-4) Discharged Cartridge Casing; One (1) expended cartridge casing recovered near the counter, head-stamped: "FC 9mm LUGER" (questioned). 1-5) Discharged Cartridge Casing; One (1) expended cartridge casing recovered from the parking lot, head-stamped: "FC 9mm LUGER" (questioned). Compared the test-fires of the seized Beretta pistol (Items 1-1 A,B,C) to Items 1-2 through 1-5. As a result of physical and microscopic examination of the submitted evidence, against the test-fired specimens, it is my opinion that: A) The discharged cartridge casing mentioned above in Item 1-2 was fired by the suspect's weapon described as a Beretta, model 92FS, semi-automatic pistol. "Identification" B) The discharged cartridge casings mentioned above in Items 1-3 and 1-5 were both fired by the same unknown weapon capable of firing 9mm Luger caliber ammunition, not from the seized Beretta pistol, due to a disagreement of individual markings in the areas examined. "Identification and Exclusion" C) The discharged cartridge casing mentioned above in Item 1-4 was fired by an unknown weapon capable of firing 9mm Luger caliber ammunition, not from either the seized Beretta pistol or from the unknown weapon that fired Items 1-3 and 1-5, due to a disagreement of individual markings in the areas examined. "Exclusion"</p>
MV4LTG	<p>The Item 1 and 2 fired ammunition components were identified, within the limits of practical certainty 1, as having been fired by the same firearm. The Item 1 fired ammunition components were eliminated as having been fired by the same firearm that fired Items 3, 4 and 5. The Item 3 and 5 fired ammunition components were identified, within the limits of practical certainty 1, as having been fired by the same firearm. The Item 4 fired ammunition component was eliminated as having been fired by the same firearm that fired Item 5. Three (3) firearms are represented by the submitted fired ammunition components.</p>
MX2Z3Y	<p>COMPARING THE EVIDENCE, TEST 2 CORRESPONDS TO THE REFERENCE VANILLAS COLLECTED.</p>
N2PTRZ	<p>The four cartridge cases (Items 2, 3, 4, and 5) were microscopically compared to test fired cartridge cases from Item 1 (handgun). Based on agreement of discernable class characteristics and sufficient corresponding individual markings observed, the cartridge case (Item 2) was identified as having been fired from Item 1 (handgun). Because of differences observed in class characteristics, the three cartridge cases (Items 3, 4, and 5) were eliminated as having been fired from Item 1 (handgun).</p>
N68Z8M	<p>Item 2 was fired in the same firearm as Item 1. Items 3 - 5 were not fired in the same firearm as Item 1. Items 3 and 5 were fired in the same firearm. Item 4 was not fired in the same firearm as Items 3 and 5.</p>
N6LMLV	<p>Item 2 was fired in the same firearm as the item 1 test fires. Item 3 and 5 were fired in a second firearm. Item 4 was fired in a third firearm.</p>
N6NCQT	<p>Item #2 was fired in the same firearm as Item #1. Items #3 and #5 were fired in the same firearm. Items #3 and #5 were not fired in the same firearm as Item #1 or Item #4. Item #4 was not fired in the same firearm as Item #1.</p>

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WebCode	Conclusions
NAJ2DR	Item #2 was fired by the same firearm as Item #1. Items #3 and #5 were not fired by the same firearm as Item #1. Items #3 and #5 were fired by the same firearm. Items #3 and #5 could not be identified or eliminated as having been fired by the same firearm as Item #4. Item #4 was not fired by the same firearm as Item #1.
NG3CHF	EXAMINATIONS SHOWED ITEM 2 (B-1) WAS DISCHARGED WITHIN ITEM 1, BERETTA MODEL 92FS. EXAMINATIONS SHOWED ITEM 3 (B-2), ITEM 4 (B-3) AND ITEM 5 (B-4) WERE NOT DISCHARGED WITHIN ITEM 1, BERETTA MODEL 92FS. EXAMINATIONS SHOWED ITEMS 3 (B-2) AND 5 (B-4) WERE DISCHARGED FROM THE SAME UNKNOWN FIREARM.
NJED77	It was shot with 3 different weapons (2(item3 ve item5) + 1(item2) + 1(item4)): 2: item3 ve item5 . 1: item2. 1: item4.
NLUFBJ	Item 2 was identified microscopically as having been fired in the same firearm that reportedly fired the Item 1 test fires based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 and 5 were identified microscopically as having been fired in the same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 and 5 were microscopically eliminated as having been fired in the same firearm that reportedly fired the Item 1 test fires due to disagreement of discernible class characteristics. Items 3 & 5 were microscopically eliminated as having been fired in the same unknown firearm as Item 4 due to disagreement of individual characteristics. Item 4 was microscopically eliminated as having been fired in the same firearm that reportedly fired the Item 1 test fires due to disagreement of discernible class characteristics. Test fires are being retained by the Firearms Identification Laboratory; all other evidence items are being returned.
NM6CQW	Lab Item(s)/ Designator(s): 2. Item Type: Fired cartridge case(s). Microscopic Findings: Identification - fired by the same firearm. Compared to Lab Item(s)/ Designator(s): 1. Item Type: Fired cartridge case(s). Lab Item(s)/ Designator(s): 3, 4, 5. Item Type: Fired cartridge case(s). Microscopic Findings: Elimination-class characteristic differences. Compared to Lab Item(s)/ Designator(s): 1. Item Type: Fired cartridge case(s)
NTDJHL	Item 2 was identified microscopically as having been fired in the same firearm that fired the test fires, Item 1, based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 3 - 5 were microscopically eliminated as having been fired in the same firearm that fired the test fires, Item 1, due to disagreement of discernible class characteristics. Items 3 and 5 were identified microscopically as having been fired in the same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Item 4 was microscopically eliminated as having been fired in the same unknown firearm as Items 3 and 5 due to disagreement of individual characteristics. Items 3, 4, and the test fires, Item 1, were imaged into the Integrated Ballistics Identification System (IBIS) / BrassTRAX database and any future identification made from these entries will result in a notification. Test fires are being retained by the Firearms Identification Laboratory; all other items of evidence are being returned.
NUKYRD	Examinations showed Item 2 was discharged within the same firearm as Item 1. Examinations showed Items 3, 4 and 5 were not discharged within the same firearm as Item 1.
NUTYWN	1) Examination of Exhibits 1 through 5 reveal each to contain brass, Federal brand, fired 9x19mm cartridge case(s). 2) Exhibit 1 contains three cartridge cases fired from suspect's

TABLE 2

WebCode	Conclusions
	<p>weapons (knowns). 3) Exhibits 2 through 5 each contain one fired cartridge case (unknowns). 4) Microscopic comparison of Exhibit 1 through 5 revealed the following: a. Exhibits 1 and 2 were fired from the same firearm due to a sufficient agreement of individual characteristics. b. Exhibits 3 and 5 were fired from the same firearm due to a sufficient agreement of individual characteristics. c. Exhibits 1 and 2 were not fired from the same firearm as Exhibits 3 and 5 due to a disagreement of class characteristics. d. Exhibits 1 and 2 were not fired from the same firearm as Exhibit 4 due to a disagreement of class characteristics. e. Exhibits 3 and 5 were not fired from the same firearm as Exhibit 4 due to a disagreement of class characteristics.</p>
NX44FB	<p>Item 2 was identified as having been fired in the same firearm as Item 1. Item 3 and Item 5 were identified as having been fired in the same firearm (not submitted). Item 4 was eliminated from having been fired in the same firearms as Items 1, 2, 3, and 5 due to differences in individual characteristics.</p>
NXLZWG	<p>Within the limits of practical certainty, the questioned fired cartridge case "item 2" was identified as having been discharged from the same firearm as the known test fired cartridge cases of "item 1". Questioned fired cartridge case "item 3", "item 4" and "item 5" were all eliminated as having been discharged from the same firearm as the known test fired cartridge cases of "item 1".</p>
NZFNGX	<p>Exhibit 1 consists of three (3) reported test fires from a Beretta, model 92FS, 9mm Luger caliber pistol. Exhibits 2 through 5 each consist of one (1) fired 9mm Luger caliber cartridge case. The Exhibit 2 cartridge case was identified as having been fired in the same firearm as the Exhibit 1 test fires. Exhibits 3, 4, and 5 were excluded as having been fired in the same firearm as the Exhibit 1 test fires. The Exhibit 3 cartridge case was identified as having been fired in the same unknown firearm as the Exhibit 5 cartridge case. Exhibit 4 was excluded as having been fired in the same unknown firearm as the Exhibit 3 and 5 cartridge cases.</p>
PD9WGH	<p>In my opinion the recovered Berettas 92FS (item 1) fired item 2. In my opinion items 3, 4, 5 were not fired in item 1.</p>
PDD94E	<p>Comparative examination of Item 2 (9mm Luger caliber cartridge case) against test fired cartridge cases from Item 1 (said to be from a Beretta, model 92FS, 9mm Luger caliber pistol) showed the presence of corresponding features. This means that Item 1 and Item 2 are consistent with having been fired in the same firearm. Comparative examination of Item 3 and Item 5 (two 9mm Luger caliber cartridge cases) showed the presence of corresponding features. This means that the cartridge cases from Item 3 & Item 5 are consistent with having been fired in the same firearm; a different firearm than Item 1. Item 4 (a 9mm Luger caliber cartridge case) was compared with Item 1 (and 2), and Items 3 (and 5) and, can be eliminated as having been fired in Item 1 (and 2) or from the firearm which fired Item 3 (and 5). *Source identification is reached when the discernible class and individual characteristics have corresponding detail and the examiner would not expect to see the same arrangement of details repeated in another source.</p>
PE8XMA	<p>The three expended cartridge cases (test fired with the suspect's weapon) were compared among each other to evaluate the intravariability of the visible marks. The four seized cartridge cases were compared among each other to understand if they were fired from the same firearm. With this examination we could determine marks with fine individual details which support very strongly the hypothesis, that those four cartridge cases were fired with three different firearms, where item 3 and 5 were fired from the same gun. After we compared the the three expended cartridge cases with the four seized cartridge cases, taking into account the</p>

TABLE 2

WebCode	Conclusions
	results of the first two steps of examination (intravariability of the test shots and the examination of the seized cartridge cases coming). The results of this last comparison step showed a very high support for the hypothesis, that the item 2 seized cartridge cases was fired by the same firearm as those three cartridge cases fired with the suspect's firearm, but the items 3 to 5 were fired from another weapon.
PKUPTH	In my opinion, item 2 was fired in the same gun as the cartridge cases from item 1. in my opinion, items 3,4 and 5 were not fired in the same gun as the cartridge case from item 1.
PP6ZKC	Examined the three specimens marked #1. They are 9mm Luger caliber discharged cartridge cases (supplied test standards) headstamped FC. Examined the four specimens marked #2 through #5. They are 9mm Luger caliber discharged cartridge cases headstamped FC. The cartridge case marked #2 was compared microscopically against the cartridge cases marked #1 and identified as having been discharged in the same firearm. The two cartridge cases marked #3 and #5 were compared microscopically against each other and identified as having been discharged in the same firearm. The cartridge cases marked #1 and #2 were compared microscopically against the two cartridge cases marked #3 and #5 and eliminated as having been discharged in the same firearm. The cartridge case marked #4 was compared microscopically against the cartridge cases marked #1, #2, #3 and #5 and eliminated as having been discharged in the same firearms.
PYTZUU	The test fired cartridge cases in Item 1 were microscopically examined in conjunction with the cartridge cases in Items 2-5 (4 total). Based on these comparative examinations and observed class and individual characteristics, it was determined that: A) The cartridge case in Item 2 had been fired in the same firearm as the test fired cartridge cases in Item 1. B) The cartridge cases in Items 3 and 5 had both been fired in the same unknown firearm. C) The cartridge case in Item 4 bears no marks to link it to the same firearm as the test fired cartridge cases in Item 1 or to the same unknown firearm as Items 3 and 5. Therefore, Item 4 had been fired in a second unknown firearm.
PZNH8H	Items 1C, F2-2 The cartridge cases were microscopically identified as having been fired in the same firearm. Item F2-3, F2-5 The cartridge cases were microscopically identified as having been fired in the same firearm but a different firearm than the firearm that fired Items F2-2 and 1C. Item F2-4 The cartridge case was fired in a different firearm than the firearm that fired Items F2-2 and 1C and a different firearm than the firearm that fired Items F2-3 and F2-5.
Q2TGTA	The cartridge cases Items 1 and 2 were Identified as having been fired in the same firearm. The cartridge cases Items 3 and 5 were Identified as having been fired in the same firearm and Eliminated from the cartridge cases Items 1 and 2 based on a difference in class characteristics. The cartridge case Item 4 was Eliminated from the cartridge cases Items 1 and 2 based on a difference in class characteristics and Items 3 and 5.
Q2WUMX	Findings are produced in a table format. In proper grammatical style, the wording would be as follows: Item 2 was fired in the same firearm as Item 1. Items 3, 4, and 5 were not fired in the same firearm as Item 1.
Q7P24L	Items 1 - 5 were examined and analyzed using microscopy. Item 2 was identified as having been fired in the same firearm as the Item 1 cartridge cases based on corresponding class and individual characteristics. Items 3, 4, and 5 were eliminated as having been fired in the same firearm as the Item 1 cartridge cases due to differences in class characteristics. Items 3 and 5 were identified as having been fired in the same firearm based on corresponding class and individual characteristics. Item 4 was eliminated as having been fired in the same firearm as

TABLE 2

WebCode	Conclusions
	Items 3 and 5 due to differences in individual characteristics.
Q7UC7J	Item 001-1 consists of three Federal brand 9mm Luger caliber fired cartridge cases reportedly test fired from the suspect's firearm, a Beretta 92FS pistol. Items 001-2 through 001-5 are four Federal brand 9mm Luger caliber fired cartridge cases reportedly recovered from the scene. I microscopically compared these items to a cartridge case reportedly test fired from the suspect's firearm, a Beretta 92FS pistol. I observed agreement of all discernable class characteristics with sufficient agreement of individual characteristics to conclude Item 001-2 was fired by the suspect's firearm; however, I observed significant disagreement of class characteristics and concluded Items 001-3 through 001-5 were not fired by the suspect's firearm. I microscopically compared Items 001-3 through 001-5 to each other and observed agreement of all discernable class characteristics with sufficient agreement of individual characteristics to conclude Items 001-3 and 001-5 were fired by a second firearm. I observed significant disagreement of class characteristics with respect to Item 001-4 and concluded it was fired by a third firearm.
Q83JV7	Item 2 to 5 are all fired cartridge cases in 9x19mm calibre. Microscopic examination between Item (1) and Item (2) showed that they were fired in the same firearm. Microscopic examination between Item (1) and Item (3) showed that they were fired in different firearms. Microscopic examination between Item (1) and Item (4) showed that they were fired in different firearms. Microscopic examination between Item (1) and Item (5) showed that they were fired in different firearms.
QA8CZP	The fired cartridge case in Item #2 was fired by the firearm in Item #1. The fired cartridge cases in Items #3, #4 and #5 were not fired by the firearm in Item #1. The fired cartridge cases in Items #3 and #5 were fired by the same firearm. The fired cartridge cases in Items #3 and #5 were not fired by the same firearm as the fired cartridge case in Item #4
QKPUKW	Item 1 test shots and Item 2 were fired in the same firearm. Item 3 and Item 5 were fired in the same firearm. Items 3, 4, and 5 were eliminated as having been fired in the same firearm that fired Item 1 test shots based on class characteristics. Items 3 and 5 were eliminated as having been fired in the same firearm that fired Item 4 based on a difference in class characteristics.
QP2W9D	1. The expended cartridge case identify as Item 2 belong to a 9x19 mm and was discharged from the same firearm as the known expended cartridge cases identify as Item 1 that correspond to a handgun, Beretta, model 92FS caliber 9 mm Luger. 2. The expended cartridge cases identify as Item 3 and Item 5 belong to a caliber 9x19 mm and were discharged by a same handgun different than the one that discharged the cartridge cases identify as Item 1. 3. The expended cartridge case identify as Item 4 belong to a caliber 9x19 mm and was discharged by a different handgun that discharged the cartridge cases identify as Item 1 and the other handgun that discharged Items 3 y 5.
QPF96W	Item 2 was percussed with a firearm, according to Item 1 patterns. Item 3 and item 5 were struck by the same firearm. Item 4 was struck by a single firearm.
QPHX9U	The one expended cartridge case recovered near the main entrance(Item2) is matching with the three expended cartridge cases discharged from the suspects weapon (Item1) .
QUGAKL	1. Examination of Exhibit 1 revealed it to be three fired 9mm Luger caliber cartridge cases. 2. Examination of Exhibits 2 through 5 revealed them each to be one fired 9mm Luger caliber cartridge case. 3. Microscopic examination of Exhibits 1 through 5 revealed: a. Exhibits 1 and 2 were fired in the same firearm due to sufficient agreement of individual characteristics. b.

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WebCode	Conclusions
	Exhibits 3 and 5 were fired in the same firearm due to sufficient agreement of individual characteristics. Exhibits 3 & 5 were not fired in the same firearm as Exhibits 1 & 2 due to sufficient disagreement of individual characteristics. c. Exhibit 4 was not fired in the same firearm as Exhibits 1 & 2 or Exhibits 3 & 5 due to sufficient disagreement of individual characteristics.
QZ39RL	The Item 1 through 5 Federal caliber 9mm Luger cartridge cases were examined microscopically. Item 2 was identified as having been fired in the firearm represented by the Item 1 cartridge cases based on corresponding class and individual characteristics. Items 3, 4, and 5 were eliminated as having been fired in the firearm represented by the Item 1 cartridge cases based on a difference in class characteristics. Items 3 and 5 were identified as having been fired in the same firearm based on corresponding class and individual characteristics. Item 4 was eliminated as having been fired in the same firearm as Items 3 and 5 based on sufficient differences in individual characteristics.
QZ39U8	The Item 1 (known) cartridge cases were microscopically compared to the Item 2 (questioned) cartridge case, finding class and individual distinguishing characteristic correspondence. It was concluded that Items 1 and 2 were fired by the same firearm (firearm not submitted). The Item 1 (known) cartridge cases were microscopically compared to the Item 3, 4 and 5 (questioned) cartridge cases, finding class and/or individual characteristic differences. It was concluded that Items 3, 4 and 5 were not fired by the source firearm that produced the Item 1 cartridge cases.
R6R7M3	1. Three known expended cartridge caliber 9mm with the identification of Item 1 present ballistic correlation with the expended cartridge caliber 9mm with the identification of Item 2. 2. Two expended cartridge 9mm caliber with the identification of Item 3 and Item 5 present ballistics correlation with each other but does not present ballistics correlation with the three known expended cartridge caliber 9mm with the identification of Item 1. 3. The expended cartridge caliber 9mm with the identification of Item 4 does not present ballistics correlation with the three known expended cartridge caliber 9mm with the identification of Item 1.
R9BAKZ	Item #2 was fired by the firearm in Item #1. Items #3, #4, and #5 were not fired by the firearm in Item #1.
R9PPN2	Item 2 is not equal with Item 1. Item 3 and Item 5 are same. But Item 1 is not equal. Item 4 is not same with Item 1.
R9RFTX	An examination had been conducted with the comparison microscope, and we found a high level of correspondence between Item 1 and Item 2 in class characteristics. Further, Item 1 and Item 2 had the same individual characteristics. Item 2 was identified as having been fired from the same firearm as Item 1. Item 3, 4, 5 are different from Item 1 in class characteristics. Otherwise, we also found the same individual characteristics in Item 3 and item 5. Therefore, we had a conclusion that the Item 2 was fired from the suspect's handgun. Item 3, 4, 5 are not fired from suspect's handgun, and Item 3 and Item 5 are fired from same handgun.
RAHE8W	Results of Examinations: Item 1 consists of three 9mm Luger cartridge cases reported to be test fires from a Beretta pistol, Model 92FS. Items 2 through 5 are 9mm Luger cartridge cases which bear the headstamp of Federal ammunition. The Item 2 cartridge case was identified as having been fired from the same firearm as the Item 1 cartridge cases and was eliminated from having been fired from the same firearm as the Item 3, 4, and 5 cartridge cases, due to a difference in class characteristics. The Item 3 and 5 cartridge cases were identified as having been fired from the same firearm and were eliminated from having been fired in the same firearm as the Item 4 cartridge case, due to difference in class characteristics.

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WebCode	Conclusions
REUGZJ	Cartridge case Item 2 was discharged from the same firearm as the known expended cartridge cases Item 1. Cartridge cases Items 3, 4, 5 weren't discharged from the same firearm as the known expended cartridge cases Item 1, but from another firearms.
RFQVMC	The Item 2 and Item 1 test fired cartridge cases were microscopically compared and determined to have similar class characteristics and sufficient agreement of individual characteristics for an identification. In the opinion of the examiner Item 2 was fired in the same firearm which fired the Item 1 test fired cartridge cases. The Item 3 and Item 5 cartridge cases were microscopically compared and determined to have similar class characteristics and sufficient agreement of individual characteristics for an identification. In the opinion of the examiner Item 3 and Item 5 were fired in the same firearm. The Item 3 and Item 5 cartridge cases were microscopically compared with the Item 1 test fired cartridge cases and determined to have disagreement of individual characteristics. In the opinion of the examiner Item 5 and Item 5 were not fired in the same firearm which fired the Item 1 cartridge cases. The Item 4 cartridge case was microscopically compared with Items 1 through 3, and Item 5 and determined to have disagreement of class characteristics. In the opinion of the examiner Item 4 was not fired in the same firearms which fired Items 1 through 3 and Item 5.
RHWBZA	#2: This cartridge case was compared microscopically to the test fired cartridge cases from Item #1. Based on the agreement of all discernible class characteristics and sufficient agreement of corresponding individual characteristics, Item #2 has been identified as having been fired in the same firearm as Item #1 tests. #3 & #5: These fired cartridge cases were compared microscopically to each other. Based on the agreement of all discernible class characteristics and sufficient agreement of corresponding individual characteristics, they have been identified as having been fired in the same firearm. Based on differences in class characteristics, these cartridge cases are eliminated as having been fired in the same firearm as Item #1 tests. #4: Based on differences in class characteristics, this cartridge case is eliminated as having been fired in the same firearm as tests from Item #1 and as Items #3 & #5.
RM8D36	Item 2 was all compared microscopically and macroscopically to the test fired shell casings (Item 1). Based on the agreement of individual and all discernible class characteristics, it was determined that all four shell casings were fired from the Beretta pistol.(Identification). Item 3 was all compared microscopically and macroscopically to the Item 5. Based on the agreement of individual and all discernible class characteristics, it was determined that all four shell casings were fired from the same firearm.(Identification). Item 4 was all compared microscopically and macroscopically to Item 2, Item 3, and Item 5. Although the shell casings have similar class characteristics; it was not possible to identify or eliminate these shell casings as having been fired from the same firearm.(Inconclusive). Item 3, Item4, and Item 5 were all compared microscopically and macroscopically to test fired shell casings (Item 1). Although the shell casings have similar class characteristics; it was not possible to identify or eliminate these shell casings as having been fired from the Beretta pistol.(Inconclusive).
RN8EW4	The three (3) test fired cartridge cases marked #1 were examined and microscopically compared to the cartridge case marked #2 with positive (identification) results. The cartridge case marked #2 was discharged in the test fired firearm. (Known Firearm #1). The test fired cartridge cases marked #1 were examined and microscopically compared to the three(3) cartridge cases marked #3, #4 and #5 with negative results. The cartridge case marked #3 was examined and microscopically compared to the cartridge case marked #5 with positive (identification) results. The two cartridge cases marked #3 and #5 were discharged in the same unknown firearm. (unknown firearm #2). The cartridge case marked #3 was examined

TABLE 2

WebCode	Conclusions
	and microscopically compared to the cartridge cases marked #4 with negative results. The cartridge case marked #4 was discharged in an unknown firearm (unknown firearm #3)
RTLXEK	Item 2 was identified, based on corresponding class and individual characteristics, as having been fired in the firearm represented by Item 1. Items 3 and 5 were identified, based on corresponding class and individual characteristics, as having been fired in the same firearm. Due to differences in class characteristics, Items 3, 4 and 5 were eliminated as having been fired in the firearm represented by Item 1. Due to differences in class characteristics, Items 3 and 5 were eliminated as having been fired in the same firearm as Item 4. The above listed items were microscopically examined and represent three (3) caliber 9mm Luger firearms. Items 3, 4 and 5 exhibit marks that may be suitable for identification with the firearms in which they were fired.
RV2EJJ	Item-2, a 9mm caliber, was percussed by the firearm that percussed the casings of item-1. The casings item-3 and 4, are 9 mm caliber, were percussion by the same firearm of the same caliber different from the firearm that percussion the item-2. Item-4 is 9 mm caliber and was fired by a third 9 mm caliber firearm.
RYQTZ7	Item 1.1 consists of three fired Federal brand 9mm Luger cartridge cases stated to have been fired by a Beretta brand 9mm Luger pistol, model 92FS. Items 1.2, 1.3, 1.4 and 1.5 are four fired Federal brand 9mm Luger cartridge cases. They were microscopically compared to each other and to the cartridge cases from Item 1.1 and the results are as follows: Based on agreement of all discernible class characteristics and corresponding individual detail in the breech face marks, Item 1.2 was identified as having been fired by the same firearm that fired Item 1.1. Based on disagreement in class characteristics, Items 1.3, 1.4 and 1.5 were eliminated as having been fired by the same firearm that fired Items 1.1 and 1.2. Based on agreement of all discernible class characteristics and corresponding individual detail in the breech face marks, Item 1.3 was identified as having been fired by the same firearm that fired Item 1.5. Based on agreement of all discernible class characteristics but disagreement in individual detail, Item 1.4 was eliminated as having been fired by the same firearm that fired Items 1.3 and 1.5.
T4C7CD	The Item 01-01A through 01-01C fired cartridge cases were identified as having been fired in the same firearm, reportedly a Beretta model 92FS pistol with an unknown serial number. The Item 01-02 fired cartridge case was identified as being fired in the same firearm as Items 01-01A through 01-01C. The Item 01-01A through 01-01C, and 01-02 fired cartridge cases were eliminated as having been fired in the same firearm as Items 01-03, 01-04, or 01-05. The Item 01-03 fired cartridge cases was identified as being fired in the same firearm as Item 01-05. The Item 01-03 and 01-05 fired cartridge cases were eliminated as having been fired in the same firearm as Item 01-04.
T4RED2	1- Cartridge case identified as Item 2, has been fired by the same gun that fired cartridge cases identified as Item 1. 2- Cartridge cases identified as Item 3, Item 4 and Item 5, have not been fired by the same gun that fired cartridge cases identified as Item 1.
T8DA7L	Items – Description/Visual Examination: Item 1: Three (3) fired 9mm caliber cartridge cases, reportedly known standards from the suspect firearm. Items 2 thru 5: Four (4) fired 9mm caliber cartridge cases. Microscopic Comparison Conclusions: Identification: Based upon the reproducibility of class characteristics and microscopic individual characteristics, the following identifications were made: Lab Item #. Evidence Type. Conclusion: 2 (1) fired cartridge case Fired in the same firearm as Item 1. 3 & 5: (2) fired cartridge cases Fired in the same firearm.

TABLE 2

WebCode	Conclusions
	Elimination: Based upon the difference in class characteristics, the following eliminations were made: Lab Item #. Evidence Type. Conclusion: 4 (1) fired cartridge case. Not fired in the same firearm as Items 1 &2, or 3 & 5.
T9BD2H	1. Examination of Exhibit 1 disclosed it to be three fired 9mm Luger caliber cartridge cases of the Federal brand. 2. Examination of Exhibits 2 through 5 disclosed them to be four fired 9mm Luger caliber cartridge cases of the Federal brand. Each exhibit displays individual characteristics sufficient for microscopic comparison. 3. Exhibits 1 through 5 were microscopically compared to one another. As a result of microscopic comparison, the following was determined: a. Due to a sufficient agreement of individual characteristics, Exhibit 2 was determined to have been fired in the same firearm as Exhibit 1. b. Due to a sufficient agreement of individual characteristics, Exhibits 3 and 5 were determined to have been fired in the same firearm; however, due to a sufficient disagreement of individual characteristics they were eliminated from having been fired in the same firearm as Exhibit 1. c. Due to a sufficient disagreement of individual characteristics, Exhibit 4 was eliminated as having been fired in the same firearm as Exhibits 1 and 2, or Exhibits 3 and 5.
TAG7E3	1. A) Items identified as NC2 and NC4 "Evidence" cartridge cases, were fired by the same firearm. B) Items identified as NC1 and NC3 "Evidence" cartridge cases, were not fired by the same firearm. 2. A) Item identified as NC1 "Evidence" cartridge case, was fired by the Beretta Model 92FS Pistol, based on the agreement of class and individual characteristics with the test fires from this Pistol (Items NCT1A, NCT1B and NCT1C). B) Items identified as NC2, NC3 and NC4 "Evidence" cartridge cases, were not fired by the Beretta Model 92FS Pistol, based on the disagreement of individual characteristics with the test fires from this Pistol (Items NCT1A, NCT1B, NCT1C).
TGGHGR	Item #2 was fired by the firearm represented in Item #1. Items #3, #4, and #5 were not fired by the firearm represented in Item #1. Items #3 and #5 were fired by the same firearm. Items #3 and #5 were not fired by the same firearm as Item #4.
TKD68U	Item 1-2: Fired Cartridge Case: Identification - fired by Item 1-1 Firearm. Items 1-3, 1-5: Fired Cartridge Case: Elimination- individual characteristic differences Item 1-1 Firearm. Items 1-3, 1-5: Fired Cartridge Case: Identification - fired by same firearm. Item 1-4: Fired Cartridge Case: Elimination - individual characteristic differences Item 1-1 Firearm. Item 1-4: Fired Cartridge Case: Elimination - individual characteristic differences Items 1-3, 1-5 Fired Cartridge Cases.
TMNTZ8	The Exhibit 1 and 2 cartridge cases were identified as having been fired in the same firearm. The Exhibit 3 and 5 cartridge cases were identified as having been fired in the same firearm. The Exhibit 4 cartridge case was excluded as having been fired in the same firearms as Exhibits 1, 2, 3 and 5. The Exhibit 1 and 2 cartridge cases were excluded as having been fired in the same firearm as Exhibits 3 and 5.
TU6DYD	Item 2 was identified as having been fired in the firearm that fired item 1. Items 3, 4 and 5 were eliminated as having been fired in the firearm that fired item 1.
TVJU7Y	The cartridge case identified as item #2 matches the known cartridge case identified as item #1. The cartridge cases identified as items #3 and #5 match each other but they do not match the known cartridge cases. The cartridge case identified as item #4 does not match any of the cartridge cases and it does not match the known cartridge cases either.

TABLE 2

WebCode	Conclusions
TYZC8G	The fired cartridge case recovered near the main entrance (item E1_2) was fired from the suspect's firearm (item E1_1). The fired cartridge cases (items E1_3, E1_4, E1_5) were not fired from the suspect's firearm (item E1_1). The fired cartridge cases recovered from the parking lot (items E1_3 and E1_5) were fired in the same firearm. The fired cartridge case recovered near the counter (item E1_4) was not fired in the same firearm as the fired cartridge cases recovered from the parking lot (items E1_3 and E1_5).
U3E3CB	Items 1 and 2 are identified as having been fired in the same firearm. Items 3 and 5 are identified as having been fired in a 2nd firearm. Item 4 is identified as having been fired in a 3rd firearm.
U8BYPA	Cartridge Case Analysis: Methodology: Physical (Visual Examination). Microscopy (Comparison Microscope). Items 1A, 1B, 1C, and 2, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3 and 5, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3, 4, and 5, the cartridge cases, were not fired in the same firearm as Items 1A, 1B, 1C, and 2 based upon different class characteristics. Item 4, the cartridge case, was not fired in the same firearm as Items 3 and 5, the cartridge cases, based upon different individual microscopic characteristics.
U8PFUA	The Item 2 fired cartridge case was microscopically examined and identified as having been fired in the same firearm as the Item 1 known specimens based on agreement of individual characteristics and all discernible class characteristics. The Items 3 and 5 fired cartridge cases were microscopically examined and identified as having been fired in the same unknown firearm based on the agreement of individual characteristics and all discernible class characteristics. However, Items 3 and 5 were eliminated as having been fired in the same firearm as the Item 1 specimens and Item 2 cartridge case due to differences in class characteristics. Item 4 was microscopically examined and eliminated as having been fired in the same firearm as the Item 1 known specimens and Item 2 cartridge case as well as from the same unknown firearm as the Item 3 and 5 fired cartridge cases due to differences in class characteristics.
U94WXF	Item 001-02 was fired in the same firearm as Item 001-01 (identification). This is also the opinion of Firearms Examiner (NAME). Items 001-03 and 001-05 were fired in the same firearm (identification). This is also the opinion of Firearms Examiner (NAME). Items 001-03, 001-04, and 001-05 were not fired in the same firearm as Item 001-01 (elimination). This is also the opinion of Firearms Examiner (NAME). Item 001-04 was not fired in the same firearm as Items 001-03 and 001-05 (elimination). This is also the opinion of Firearms Examiner (NAME).
U9J4D6	FCC-1 (Item#2) was microscopically compared to firearm, Pistol, P-1 (Item#1) and an identification was made. FCC-1 (Item#2) was fired in firearm, Pistol, P-1 (Item#1). FCC-2 (Item#3) was microscopically compared to fired cartridge case(s), FCC-4 (Item#5) and an identification was made. FCC-2 (Item#3) and FCC-4 (Item#5) were fired in the same firearm – however not P-1 due to a difference in individual characteristics. FCC-3 (Item#4) was eliminated as having been fired in firearm, P-1 (Item#1) and from fired cartridge cases(s) FCC-1 (Item#2), FCC-2 (Item#3), and FCC-4 (Item#5) due to differences in class characteristics. (firing pin)
UHRFP3	The firearm which discharged known cartridge cases labeled as Item 1, was the same which discharged questioned cartridge case labeled as Item 2. The firearm which discharged known

TABLE 2

WebCode	Conclusions
	cartridge cases labeled as Item1, was not the same wick discharged questioned cartridge cases labeled as Item3, Item4 and Item5.
ULQZJE	The cartridge cases, Items 2-5, were compared to the cartridge cases in Item 1 using a comparison microscope. Based on the examination, it is my opinion that there was agreement of discernable class characteristics and sufficient agreement of individual characteristics to conclude that Item 2 was fired in the same firearm as Item 1. Based on the examination, it is my opinion that there were significant disagreement of discernible class characteristics and/or individual characteristics to conclude that Items 3, 4, and 5 were not fired from the same firearm as Item 1.
V2EQL2	The expended cartridge case (Item2) was discharged from the same firearm as known expended cartridge cases (Item1). And the expended cartridge cases (Item3 & Item5) were discharged from the same another firearm.
VED79H	1. Exhibit 1 is three 9mm Luger cartridge cases. 2. Exhibits 2, 3, 4 and 5 are each one 9mm Luger cartridge cases. a. Comparison reveals Exhibits 1 and 2 were fired in the same firearm based on sufficient agreement of class and individual characteristics. b. Comparison reveals Exhibits 3 and 5 were fired in the same firearm based on sufficient agreement of class and individual characteristics. c. Comparison reveals Exhibits 1 and 2 were not fired in the same firearm as Exhibits 3 and 5 based on disagreement of class characteristics. d. Comparison reveals Exhibit 4 was not fired in the same firearms as Exhibits 1 and 2, or 3 and 5 based on disagreement of class characteristics.
VF74GP	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 5 were fired in a second firearm. Item 4 was fired in a third firearm.
VP7RB8	Cartridge Case Analysis: Methodology: Physical (Visual Examination). Microscopy (Comparison Microscope). Item 2, the cartridge case, was fired in the Beretta model 92FS pistol based upon corresponding class and individual microscopic characteristics. Items 3 and 5, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. A reference from this group will be entered into NIBIN. Item 4, the cartridge case, was not fired in the same firearm as Items 3 and 5, the cartridge cases, based upon different class and individual microscopic characteristics. Items 3, 4 and 5, the cartridge cases, were not fired in the Beretta model 92FS pistol based upon different class characteristics.
VWMJ8Y	El arma identificada internamente como 2022-4538 (Item 1) tipo pistola, marca Beretta, modelo 92FS, NO PERCUTIÓ los casquillos identificado internamente como 3 ("Item 3" - "parking lot"), 4 ("Item 4" - "near the counter") y 5 ("Item 5" - "parking lot"). (*). El arma identificada internamente como 2022-4538 (Item 1) tipo pistola, marca Beretta, modelo 92FS, SÍ PERCUTIÓ el casquillo identificado internamente como 2. ("Item 2" - "near the main entrance") (*). The questioned cartridge case "Item 2" were discharged from the same firearm as the known expended cartridge cases (Item 1). The questioned cartridge cases "Item 3", "Item 4" and "Item 5" were not discharged from the same firearm as the known expended cartridge cases (Item 1).
VY89PQ	Item 1-2 was fired by the firearm in Item Known 1-1. Items 1-3 and 1-5 were fired by the same firearm. Items 1-3, 1-4, and 1-5 were not fired by the firearm in Item Known 1-1. Item 1-4 was not fired by the same firearm as Items 1-3 and 1-5.

TABLE 2

WebCode	Conclusions
VZRQ6J	Test fired cartridge cases from Exhibit 1 and evidence cartridge case Exhibit 2 were fired with the same firearm based on sufficient agreement of individual characteristics present. Evidence Exhibit 3 and exhibit 5 were fired with the same second unknown firearm based on sufficient agreement of individual characteristics present. Evidence Exhibit 4 were fired with a third unknown firearm based on sufficient agreement of individual characteristics present.
W3PWKM	According to the analysis of the case, it is established that three firearms were used as follows: The seized BERETTA pistol model 92FS firearm discharged the vanilla recovered near the main entrance with item 2. Vanillas with item 3 and item 5 recovered in the parking lot were discharged by the same firearm. Vanilla with item 4 recovered near the counter was discharged by another firearm
W4YZCD	1. The three bullets casings identified as item 1, together with the bullet casings identified as item 2, have the same class and identity characteristics; which allows us to concluded that they correspond to the caliber 9x19mm, and they were strucks by a first firearm. 2. The bullet casings identified as item 3, together with the bullet casings identified as item 5, have the same class and identity characteristics; so it is concluded that they correspond to the caliber 9x19mm, and they were strucks by a second firearm. 3. The bullet casings as item 4, presents identity characteristics that are different from these observed in the bullet casings described above; which allows us to conclude that it was struck by a third firearm.
W6WB8G	Item 1/K1 Three (03) 9mm expended test fired casings, fired from a Beretta 92FS pistol, found on a suspect. Item 2/Q1 was examined microscopically and identified as having been fired from firearm K1. Item 3/Q2 was examined microscopically and eliminated as having been fired from firearm K1. Item 4/Q3 was examined microscopically and eliminated as having been fired from firearm K1. Item 5/Q4 was examined microscopically and eliminated as having been fired from firearm K1.
W9F8AD	Item 001-1 are three Federal brand 9mm Luger caliber fired cartridge cases. I arbitrarily designated them as Items 001-1A through 001-1C. These three fired cartridge cases are reported as being test fired cartridge cases from a Beretta brand, model 92FS pistol recovered from the suspect. I microscopically compared Item 001-2 to one of the test fired cartridge cases in Item 001-1. I observed agreement of all discernible class characteristics and sufficient agreement of individual characteristics to conclude that Item 001-2 was fired in the Beretta pistol that produced the test fires in Item 001-1. I microscopically compared Items 001-3, 001-4, and 001-5 to one of the test fired cartridge cases in Item 001-1. I observed significant disagreement of some class characteristics to conclude that Items 001-3 through 001-5 were not fired in the Beretta pistol that produced the test fires in Item 001-1. I microscopically compared Item 001-3 to both Items 001-4 and 001-5. For the comparison of Item 001-3 to Item 001-4, I observed agreement of all discernible class characteristics but significant disagreement of individual characteristics to conclude that these two items were fired in different firearms. For the comparison of Item 001-3 to Item 001-5, I observed agreement of all discernible class characteristics and sufficient agreement of individual characteristics to conclude that these two items were fired in a single firearm.
WABW8F	The fired cartridge case, item 1.2, was identified as having been fired in the Beretta pistol, item 1.1, based on the agreement of all discernible class characteristics and agreement of corresponding individual microscopic markings. The three (3) fired cartridge cases, items 1.3, 1.4, and 1.5, were each eliminated as having been fired in the Beretta pistol, item 1.1, based on a difference in class characteristics (breechface marks (irregular vs parallel)). The two (2) fired cartridge cases, items 1.3 and 1.5, was identified as having been fired in the same

TABLE 2

WebCode	Conclusions
	firearm, based on the agreement of all discernable class characteristics and agreement of corresponding individual microscopic markings. The two (2) fired cartridge cases, items 1.3, and 1.5, were each eliminated as having been fired in the same firearm as the one (1) fired cartridge case, item 1.4, based on a difference in class characteristics (breechface marks (fine vs coarse)).
WACLH4	The fired cartridge cases in items 1 and 2 were each fired from the same firearm. Fired cartridge cases in items 3 and 5 were both fired from the same firearm, however, a different firearm than the source of items 1 and 2. The fired cartridge case in item 4 was not fired in either source firearm for items 1 and 2 or 3 and 5. Identification is the strongest level of positive association.
WL7376	Cartridge Case Analysis: Methodology: Physical (Visual Examination). Microscopy (Comparison Microscope). Items 1A, 1B, 1C, and 2, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3 and 5, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3, 4, and 5, the cartridge cases, were not fired in the same firearm as Items 1A, 1B, 1C, and 2 based upon different class characteristics. Items 3 and 5, the cartridge cases, were not fired in the same firearm as Items 4 based upon different class and individual microscopic characteristics.
WW6MJ6	Items 2 through 5 (1.2-1.5) have been examined and compared microscopically with the test fired cartridge cases, Item 1 (1.1). Based on the observed agreement of their class characteristics and sufficient agreement of individual characteristics, Item 2 (1.2) is identified as having been fired in the same firearm as the tests, Item 1 (1.1). Based on a difference of class characteristics Items 3 (1.3), 4 (1.4) and 5 (1.5) were not fired in the same firearm as the tests, Item 1 (1.1). However, based on the observed agreement of their class characteristics and sufficient agreement of individual characteristics, Items 3 (1.3) and 5 (1.5) are identified as having been fired in the same firearm but not the same as Item 1 (1.1) or Item 4 (1.4).
XBYMU6	1. Examinations showed Item 2 was discharged within the same firearm as Item 1. 2. Examinations showed Items 3, 4 and 5 were not discharged within the same firearm as Item 1.
XLLPG	Items A1-1, A1-2, A1-3, A1-4, and A1-5 cartridge cases are all consistent in class characteristics with each other. Items A1-1 and A1-2, 9mm Luger Federal cartridge cases, were identified as having been fired in the same firearm. No firearm was submitted. An Identification conclusion is based on an examiner's determination that all discernible class and individual characteristics agree such that the extent of agreement exceeds that which has been demonstrated by toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been made by the same tool. Items A1-1, A1-3, A1-4, and A1-5 cartridge cases exhibit similar class characteristics; however, microscopic examination revealed sufficient differences in individual characteristics to eliminate the items A1-3, A1-4, and A1-5 as having been fired in the same firearm as the cartridge cases from item A1-1. No firearm was submitted.
XLMCXK	The fired cartridge case in Item #2 was fired by the known firearm in Item #1. The fired cartridge cases in Items #3 and #5 were fired by the same unknown firearm. The fired cartridge cases in Items #3, #4, #5 were not fired by the known firearm in Item #1. The fired cartridge case in Item #4 was not fired by the same unknown firearm as the fired cartridge cases in Items #3 and #5.

TABLE 2

WebCode	Conclusions
XLWLJQ	Item 2 was found to have been fired in the firearm in Item 1. Items 3 and 5 were found to have been fired by the same firearm. Items 3, 4 and 5 were eliminated as being fired from the firearm in Item 1 based on differences in class characteristics. Item 4 could not be identified nor eliminated as being fired in the same firearm as Items 3 and 5.
XNZDJQ	Through microscopic examination and comparison, it was determined that there are three (3) firearms represented by the evidence cartridge cases: [Lab] Items 1 and 2 were fired in the same firearm. [Lab] Items 3 and 5 were fired in a second firearm. [Lab] Item 4 was fired by a third firearm.
XPVZVU	Item 2 was fired in Item 1 the Beretta firearm. Items 3 and 5 were fired in the same unknown firearm, a second firearm. Item 4 was fired in a third unknown firearm.
XR3BRX	Items (#2~#5) were microscopically examined to each other. Based on these comparative examinations and observed class and individual characteristics. It was determined that; Item #3 , #4 and #5 were not discharged from the same firearm as the known expended cartridge cases (Items #1).
XRLZFK	Microscopic comparison examinations were conducted between QC-1, QC-2, QC-3, QC-4 and test cartridges fired in K-1 resulting in the following conclusions: QC-1 was fired in K-1 based on an agreement of all discernable class characteristics and sufficient agreement of individual characteristics. QC-2 and QC-4 were fired in the same unknown firearm. This conclusion was based on an agreement of all discernable class characteristics and sufficient agreement of individual characteristics. QC-2 and QC-4 were not fired in K-1 based on a difference in class characteristics. QC-3 was fired in a second unknown firearm. QC-3 was not fired in K-1 based on a difference in class characteristics. QC-3 was not fired in the same unknown firearm that fired QC-2 and QC-4 based on a sufficient disagreement of individual characteristics.
XV8M8C	Item 2 was identified as having been fired by the same firearm as that which test fired the cartridge cases received with item 1 based on the significant agreement of class and individual characteristics. Item 3, item 4, and item 5 were eliminated as having been fired by the same firearm as that which test fired the cartridge cases received with item 1 based on the significant disagreement of individual characteristics. Item 3 and item 5 were identified as having been fired by the same unknown firearm based on the significant agreement of class and individual characteristics.
XVADBA	Item 2 was microscopically identified as having been fired in the same firearm as the Item 1 test fires. Items 3 and 5 were microscopically identified as having been fired in a second unknown firearm. Item 4 was fired in a third unknown firearm.
XVKBCK	Item1, Test fired cartridge cases From a Beretta 92 pistol were microscopically compared to items 2, 3, 4, and 5. Item1 was matched to item 2. Items 3, 4 and 5 did not match item 1. Items 3 and 5 matched each other and were fired in a different gun. Item 4 did not match any other cartridge case, it was fired in a pistol with a "tipping" type locking action. in Conclusion, item 2 was fired in the recovered Beretta 92, the other cartridges were fired in an additional two different unknown guns.
XY9R2K	The firearm that fired the test shots in Item #1 fired the cartridge case in Item #2. The firearm that fired the test shots in Item #1 did not fire the cartridge cases in Items #3 through #5. The cartridge cases in Items #3 and #5 were fired by the same firearm. The cartridge cases in Items #3 and #5 were not fired by the same firearm that fired the cartridge case in Item #4.

TABLE 2

WebCode	Conclusions
XYHYLZ	The cartridge case from the Item 2 bears similar characteristics as the 3 expended cartridge cases discharged from the suspect weapon. So the cartridge case from Item 2 was fired in the seized firearm. On the other hand, the 3 cartridge cases from the Items 3, 4 and 5 bear different characteristics than those from the suspect weapon. So they weren't fired in the seized firearm. However we can see that the cartridge cases from Item 3 and Item 5 bears similar characteristics. They were fired in a same firearm. In conclusion : Cartridge case from Item 2 was fired in the seized firearm, as the cases from Item 1. Cartridge cases from Item 3 and Item 5 were fired in a second one. Cartridge case from Item 4 was fired in a third firearm.
XY9GL	Item #2 was fired by the firearm in Item #1. Items #3 and #5 were fired by the same firearm. Items #3 and #5 were not fired by the firearm in Item #1. Item #4 could not be identified or eliminated as having been fired by the firearm in Item #1. Item #4 could not be identified or eliminated as having been fired by the same firearm as Items #3 and #5.
Y2QD37	Item 1 consists of three (3) fired 9mm Luger cartridge cases, Federal brand that were marked as Items 1A, 1B and 1C for differentiation. The Item 1 cartridge cases were microscopically compared to each other and identified as having been fired in the same (known) firearm. Of the three (3) fired cartridge cases, Item 1A was utilized as the representative cartridge case for comparison purposes. Items 2, 3, 4, and 5 are four (4) fired 9mm Luger cartridge cases, Federal brand. Items 1A (known), 2, 3, 4 and 5 were microscopically compared to each other, and Item 2 was identified as having been fired in the Item 1 (known) firearm. Item 3 and Item 5 were identified as having been fired in the same unknown firearm as each other. They were eliminated as having been fired in the Item 1 (known) firearm due to a significant disagreement of class and individual characteristics. Items 3 and 5 were also eliminated as being fired in the same firearm as Item 4 due to a significant disagreement of individual characteristics. Item 4 was eliminated as having been fired in the Item 1 (known) firearm due to a significant disagreement of class and individual characteristics.
Y6ZNLZ	1. AL REALIZAR EL ESTUDIO MICRO COMPARATIVO ENTRE LOS CASQUILLOS "TESTIGO" IDENTIFICADOS COMO "ITEM 1" Y EL CASQUILLO "PROBLEMA", IDENTIFICADO COMO "ITEM 2", SE DETERMINA QUE FUERON PERCUTIDOS POR LA MISMA ARMA DE FUEGO. 2. AL REALIZAR EL ESTUDIO MICRO COMPARATIVO ENTRE LOS CASQUILLOS "TESTIGO", IDENTIFICADOS COMO "ITEM 1" Y EL CASQUILLO "PROBLEMA", IDENTIFICADO COMO "ITEM 3", SE DETERMINA QUE NO FUERON PERCUTIDOS POR LA MISMA ARMA DE FUEGO. 3. AL REALIZAR EL ESTUDIO MICRO COMPARATIVO ENTRE LOS CASQUILLOS "TESTIGO", IDENTIFICADOS COMO "ITEM 1" Y EL CASQUILLO "PROBLEMA", IDENTIFICADO COMO "ITEM 4", SE DETERMINA QUE NO FUERON PERCUTIDOS POR LA MISMA ARMA DE FUEGO. 4. AL REALIZAR EL ESTUDIO MICRO COMPARATIVO ENTRE LOS CASQUILLOS "TESTIGO", IDENTIFICADOS COMO "ITEM 1" Y EL CASQUILLO "PROBLEMA", IDENTIFICADO COMO "ITEM 5", SE DETERMINA QUE NO FUERON PERCUTIDOS POR LA MISMA ARMA DE FUEGO. [English translation of comments was not obtained by the time of report publication].
Y9KPR8	The recovered questioned expended cartridge case, Item 2, has been discharged from the firearm as the known expended cartridge cases (Item 1). The recovered questioned expended cartridge cases, Items 3 and 5, have been discharged from the same firearm (second firearm). The recovered questioned expended cartridge case, Item 4, had been discharged from another firearm (third firearm).
YHZYQ3	Item 1 - Three (3) fired 9mm Luger caliber cartridge cases bearing the Federal Cartridge Co.

TABLE 2

WebCode	Conclusions
	<p>headstamp (discharged from the suspect's weapon) (1): Item 2 - One (1) fired cartridge case (2). Item 3 - One (1) fired cartridge case (3). Item 4 - One (1) fired cartridge case (4). Item 5 - One (1) fired cartridge case (5). The submitted specimens marked as Items 2 through 5 were examined and identified as four (4) fired 9mm Luger caliber cartridge cases bearing the Federal Cartridge Co. headstamp. Items 1 through 5 were microscopically intercompared. As a result of microscopic comparison, it was concluded that Item 2 is identified as having been fired in the same firearm that fired Item 1. Items 3 and 5 are identified as having been fired in the same unknown firearm. Item 4 is eliminated as having been fired in the same firearm that fired Items 3 and 5 due to significant disagreement of individual characteristics. Items 3 through 5 are eliminated as having been fired in the same firearm that fired Items 1 and 2 due to significant disagreement of discernible class characteristics.</p>
YR2TDZ	<p>Upon request, a test fired cartridge case from Item 1 was microscopically examined and compared with a recovered fired cartridge case, Item 2. Based on the observed agreement of their class characteristics, and sufficient agreement of their individual characteristics, Item 2 is identified as having been fired in the same firearm as Item 1. Upon request, test fired cartridge cases from Item 1 were microscopically examined and compared with recovered fired cartridge cases, Items 3, 4 and 5. Based on the observed disagreement of some of their class characteristics, and differences observed in patterns of their individual characteristics, Items 3, 4 and 5 are eliminated as having been fired in the same firearm as Item 1.</p>
YU9VJ4	<p>The shell marked #2 was compared microscopically against test shells and identified as having been discharged in the same firearm. The three shells marked #3 thru #5 were compared microscopically against test shells and eliminated as having been discharged in the same firearm. The two shells marked #3 and #5 were compared microscopically and identified as having been discharged in the same firearm.</p>
YV6G23	<p>Examinations showed the cartridge case listed as Item 2 (F-1) was discharged within the same firearm as the cartridge cases listed as Item 1 (TF-1, TF-2, and TF-3). Examinations showed the cartridge cases listed as Item 3 (F-2) and Item 5 (F-4) were discharged within the same unknown firearm. Examinations showed the cartridge case listed as Item 4 (F-3) was discharged within a second unknown firearm.</p>
ZBMYBN	<p>Item 2, the fired cartridge case, was fired in the same firearm as Item 1, the known fired cartridge cases, based on agreement of corresponding class characteristics and sufficient agreement of individual microscopic characteristics. Items 3 and 5, the fired cartridge cases, were fired in the same unknown firearm, based on agreement of corresponding class characteristics and sufficient agreement of individual microscopic characteristics. Item 4, the fired cartridge case, was not fired in the same firearm as Items 3 and 5, the fired cartridge cases, based on different individual microscopic characteristics. Items 3, 4, and 5, the fired cartridge case, were not fired in the same firearm as Item 1, the known fired cartridge cases, based on different individual microscopic characteristics.</p>
ZE9HRE	<p>Item 1 from the suspect's firearm and item 2 are fired with the same firearm. Items 3 and 5 are fired with the same firearm.</p>
ZF8KH4	<p>Cartridge Case Analysis: Methodology: Physical (Visual Examination). Microscopy (Comparison Microscope). Item 2, the cartridge case, was fired in the same firearm as Item 1, the cartridge cases, based upon corresponding class and individual microscopic characteristics. Item 3, the cartridge case, was fired in the same firearm as Item 5, the cartridge case, based upon corresponding class and individual microscopic characteristics. Item 4, the cartridge case, was</p>

TABLE 2

WebCode	Conclusions
	not fired in the same firearm as Items 3 and 5, the cartridge cases, based upon different class and individual microscopic characteristics. Item 4, the cartridge case, was not fired in the same firearm as Items 1 and 2, the cartridge cases, based upon different class and individual microscopic characteristics. Items 3 and 5, the cartridge cases, were not fired in the same firearm as Items 1 and 2, the cartridge cases, based upon different class and individual microscopic characteristics.
ZGZHQB	Item 2 was fired in the same firearm as Item 1 (identification). This is also the opinion of Firearms Examiner (Name). Items 3 - 5 were not fired in the same firearm as Item 1 (elimination). This is also the opinion of Firearms Examiner (Name). Items 3 and 5 were fired in the same firearm (identification). This is also the opinion of Firearms Examiner (Name). Item 4 was not fired in the same firearm as Items 3 and 5 (elimination). This is also the opinion of Firearms Examiner (Name).
ZM4LKP	The casings of item 1 and item 2 were struck by the same firearm. The item 3, item 4 and item 5 casings were percussed by different firearms.
ZN9BMX	The spent case from Item 2 was fired in the firearm seized from the crime scene (Item 1). The spent cases from Item 3 and 5 were fired in another firearm, possibly of the same make and model as Item 1. The spent case from Item 4 was fired in a third firearm.
ZNBUTA	Item 2 was identified as having been fired from Item 1. Items 3, 4, and 5 were eliminated as having been fired from Item 1. Items 3 and 5 were identified as having been fired in the same unknown firearm. Item 4 was eliminated as having been fired in the same unknown firearm that fired Items 3 and 5.
ZTCQQG	The Items 01-01 and 01-02 cartridge cases were identified as having been fired in the same firearm, which is reportedly a Beretta pistol, Model 92FS. The Items 01-03 and 01-05 cartridge cases were identified as having been fired in the same unknown firearm capable of chambering and firing a 9mm Luger caliber cartridge. The Items 01-03 and 01-05 cartridge cases were eliminated as having been fired in the same firearm as the Items 01-01 and 01-02 cartridge cases. The Item 01-04 cartridge case was eliminated as having been fired in the same firearm(s) as the Items 01-01, 01-02, 01-03, or 01-05 cartridge cases. The Item 01-04 cartridge case was fired in an unknown firearm capable of chambering and firing a 9mm Luger caliber cartridge.
ZXNUGJ	Item 2 was fired in the same firearm as the item 1 testfires. Items 3 and 5 were fired in a second firearm. Item 4 was fired in a third firearm.
ZYVZRY	(1)Based on microscopic comparison,item 2 expended cartridge case was fired in the same firearm as the test fired cases from item 1. (2)Item 3,4,5 expended cartridge case were fired in different firearms from item 1.
ZZRP2L	2: Fired Cartridge Case(s): Identification - fired by the same firearm. 1-3: Fired Cartridge Case(s). 3, 5: Fired Cartridge Case(s). Identification - fired by the same firearm. Not applicable, Not applicable. 4: Fired Cartridge Case(s). Elimination-individual characteristic differences. 3, 5: Fired Cartridge Case(s). 4: Fired Cartridge Case(s). Elimination-individual characteristic differences. 1-3, 2: Fired Cartridge Case(s). 3, 5: Fired Cartridge Case(s). Elimination-individual characteristic differences. 1-3, 2: Fired Cartridge Case(s). 4: Fired Cartridge Case(s). Suitable, Not applicable, Not applicable
ZZUE3X	Item 1 - "Three expended cartridge cases discharged from the suspect's weapon (known)" (1):

TABLE 2

WebCode	Conclusions
	<p>Item 2 - One (1) fired cartridge case (2). Item 3 - One (1) fired cartridge case (3). Item 4 - One (1) fired cartridge case (4). Item 5 - One (1) fired cartridge case (5). The submitted specimens marked as Items 2-5 were examined and identified as four (4) fired 9mm Luger caliber cartridge cases bearing the Federal headstamp. Items 2-5 were microscopically inter-compared and compared to Item 1 known cartridge cases. As a result of microscopic comparison, it was concluded that Item 2 was identified as having been fired in the same firearm that fired Item 1 known cartridge cases. Items 3 and 5 were identified as having been fired in the same unknown firearm. Items 3 and 5 were eliminated as having been fired in the same firearm that fired Item 1 known cartridge cases and Item 2 due to significant disagreement of discernible class characteristics. Item 4 was eliminated as having been fired in the same firearm that fired Item 1 known cartridge cases and Item 2 due to significant disagreement of discernible class characteristics. Item 4 was eliminated as having been fired in the same unknown firearm that fired Items 3 and 5 due to significant disagreement of individual characteristics.</p>

Additional Comments

TABLE 3

WebCode	Additional Comments
22VFN8	<p>Methods: Pattern Examination: Toolmarks, whether they are present on evidence items or secondary evidence created in the Laboratory, undergo two stages of comparison. First, the class characteristics are reviewed and compared. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source. This conclusion is an Examiner's opinion that the observed difference(s) in class characteristics provides extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same source. A source exclusion based on a minor difference in measured class characteristics requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two toolmarks originated from the same source. This conclusion is an Examiner's opinion that all observed class characteristics are in agreement and the quality and quantity of corresponding individual characteristics is such that the Examiner would not expect to find that same combination of individual characteristics repeated in another source. The basis for a source identification conclusion is an Examiner's opinion that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification requires a verification and is the Examiner's opinion that the probability that the two toolmarks were made by different sources is so small that it is negligible. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and/or quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two toolmarks as having originated from the same source. This conclusion is an Examiner's opinion that there is an insufficient quality and/or quantity of individual characteristics to identify or exclude. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification, or a lack of any observed microscopic similarity. Limitations: Pattern Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to variation in substrate, changes in tool working surfaces from wear, corrosion, and damage, or the employment of unusual tool/work piece orientations, it may not be possible for an Examiner to reach a source conclusion. Additionally, some tool manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value. Damaged, corroded, or fragmented items may be of little or no value for comparison purposes.</p>
23DNXG	<p>The expended cartridge cases contained in laboratory evidence items 1.3 and 1.5 were microscopically compared to each other with the following results. Laboratory evidence items 1.3 and 1.5 were all identified as having been fired from the same firearm, different from the firearms that fired laboratory evidence item 1.2 and 1.4.</p>
23ENUB	<p>The cartridge cases in Items 3 and 5 were fired in the same gun, based on agreement observed in individual characteristics.</p>
2HNNBT	<p>There are at least, three firearms involved in the incident at the gas station, the handgun</p>

TABLE 3

WebCode	Additional Comments
	Beretta Model 92FS seized from the suspect that discharged the expended cartridge case identified as ITEM 2 recovered recovered near the main entrance. The gun that discharged the two expended cartridges cases identified as ITEM 3 and ITEM 5 recovered from the parking lot and another firearm that discharged the expended cartridge case identified as ITEM 4 recovered near the counter.
3B2VZT	The quality of the samples was good. The difficulty of the test was appropriate.
3EZBA3	Item 3 and Item 5 were fired from the same firearm but not the same firearm as the known expended cartridge cases (item1).
3G2J9K	<p>Methods: Pattern Examination: Toolmarks, whether they are present on evidence items or secondary evidence created in the Laboratory, undergo two stages of comparison. First, the class characteristics are reviewed and compared. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source. This conclusion is an Examiner's opinion that the observed difference(s) in class characteristics provides extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same source. A source exclusion based on a minor difference in measured class characteristics requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two toolmarks originated from the same source. This conclusion is an Examiner's opinion that all observed class characteristics are in agreement and the quality and quantity of corresponding individual characteristics is such that the Examiner would not expect to find that same combination of individual characteristics repeated in another source. The basis for a source identification conclusion is an Examiner's opinion that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification requires a verification and is the Examiner's opinion that the probability that the two toolmarks were made by different sources is so small that it is negligible. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and/or quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two toolmarks as having originated from the same source. This conclusion is an Examiner's opinion that there is an insufficient quality and/or quantity of individual characteristics to identify or exclude. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification, or a lack of any observed microscopic similarity. Limitations: Pattern Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to variation in substrate, changes in tool working surfaces from wear, corrosion, and damage, or the employment of unusual tool/work piece orientations, it may not be possible for an Examiner to reach a source conclusion. Additionally, some tool manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value. Damaged, corroded, or fragmented items may be of little or no value for comparison purposes.</p>

TABLE 3

WebCode	Additional Comments
3RMMFK	three firearms were used in the criminal act
3TKU6R	Examined the three specimens marked #1. They are 9mm Luger caliber discharged cartridge cases, headstamped FC (Test standards). Examined the four specimens marked #2 through #5. They are 9mm Luger caliber discharged cartridge cases, headstamped FC. The two cartridge cases marked #3 and #5 were compared microscopically against each other and identified as having been discharged in the same firearm. The three cartridge cases marked #3 through #5 were compared microscopically against the test cartridge cases marked #1 and were eliminated as having been discharged in the submitted firearm. The cartridge case marked #4 was compared microscopically against the two cartridge cases marked #3 and #5 and eliminated as having been discharged in the same firearm.
3WHGBZ	Three different firearms participated in this scenario.
44MAMA	TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm or tool, which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm or tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm or tool surfaces. These random imperfections or irregularities can be either produced incidental to manufacture or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm or tool are not to the absolute exclusion of all other firearms or tools, because it is not feasible to examine all firearms or tools in the world. However, observing this amount of agreement between different sources is considered extremely remote.
4HF42V	Cartridge case (Item 3) and cartridge case (Item 5) were discharged from the same firearm.
63H94V	Note: 1. The submitted items 2 and 5 were microscopically examined and compared to each other; they were positively identified as having been fired in same firearm.
669EV8	TECHNICAL NOTES: Class characteristics are defined as measureable features of a firearm/tool which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm/tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm/tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm/tool are not to the absolute exclusion of all other firearms/tools because it is not feasible to examine all possible firearms/tools. However, observing this amount of agreement from a different source is considered extremely remote.
8CGZ6K	The cartridge cases in Item 3 and Item 5 were identified as having been fired by the same unknown firearm. There are three firearms involved.
8XCTZN	The cartridge cases marked with items 3 and 5 were fired from the same firearm, and the cartridge case marked with item 4 was fired from a different gun.
9FB4PC	Eliminations would have been verified by another examiner
9WFQUJ	The questioned cartridge cases (Items 3 and 5) were discharged from the same firearm.
AFV699	SUFFICIENT AGREEMENT: Sufficient agreement exists between two toolmarks means that the agreement is of a quantity and quality that the likelihood another tool could have made the

TABLE 3

WebCode	Additional Comments
	mark is so remote as to be considered a practical impossibility. Sufficient agreement is related to the significant duplication of random toolmarks as evidenced by a pattern or combination of patterns of surface contours.
AUPVMG	It is concluded that three different firearms were involved.
B3D32Z	The four questioned 9mm Luger cartridge cases (items 2 through 5) were compared microscopically to each other and to the three expended 9mm Luger cartridge cases discharged from the suspect's weapon (Item 1). The 9mm Luger cartridge case recovered near the main entrance (Item 2) were identified as being fired in the same firearm as the three expended cartridge cases discharged from the suspect's weapon (Item 1) based on agreement of class characteristics and sufficient corresponding individual detail observed in breechface marks and firing pin impressions. The remaining three 9mm Luger cartridge cases (items 3 through 5) were eliminated as being fired in same firearm as the three expended cartridge cases discharged from the suspect's weapon (Item 1) based on class characteristic differences observed in firing pin aperture marks, firing pin impressions, breechface marks, ejector marks, and extractor marks. The two 9mm Luger cartridge cases recovered from the parking lot (items 3 and 5) were identified as being fired in the same firearm based on agreement of class characteristics and sufficient corresponding individual detail observed in breechface marks. Items 3 and 5 were eliminated from being fired the same firearm as the 9mm Luger cartridge case recovered near the counter (Item 4) based on class characteristic differences observed in breechface marks, ejector marks, and extractor marks.
BGYG6Z	Test is good
BWRARL	1. Identification: Based on the agreement of the individual characteristics observed through the microscopic comparison test.
BYXGBE	we have three weapons in this shootings.
C6MFDZ	The cartridge cases in Items 3 and 5 were fired in the same gun, based on agreement observed in individual characteristics.
CL86CA	Items 3 and 5 were fired from the same firearm but different from the suspect's firearm. item 4 does not present identity with any of the other samples. Therefore, in this case at least three firearms participated.
DGVK29	Items #3 and #5 are eliminated based on individual characteristics to Item #4.
E6DCNE	The questioned expended cartridge case, recovered from the parking lot (identified as item 3 and item 5), were discharge by the same firearm.
E83MHD	Item 1 denoted as 1-1 (1-1A, 1-1B, 1-1C). Item 2 denoted as 1-2. Item 3 denoted as 1-3. Item 4 denoted as 1-4. Item 5 denoted as 1-5
EE3V9E	Item 3 was fired by the same firearm as Item 5. Items 3 and 5 were eliminated from Item 4.
EEMM8Q	LIMITATIONS: 1) Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. Firearms/Toolmark Identification is an

TABLE 3

WebCode	Additional Comments
EPGZB4	empirical science that relies on objective observations and a subjective interpretation of microscopic marks of value.
EPGZB4	Should any additional firearms be recovered please submit in reference to the above CC#. Sufficient agreement is related to the significant duplication of random toolmarks as evidenced by a pattern or combination of patterns of surface contours. "Sufficient agreement" exists between two toolmarks means that agreement is of a quantity and quality that the likelihood another tool could have made the mark is so remote as to be considered a practical impossibility. This report contains conclusions based on the interpretations/opinions of the below signed author(s). The results contained herein only relate to those items tested.
EQG2CU	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included physical examination and microscopic comparison. Elimination results that are reported as based on a difference in class characteristics include only physical examination. Identified: Agreement of all discernible class characteristics and sufficient agreement of individual characteristics where the extent of agreement leads to the conclusion that the items were fired in/from the same firearm. Inconclusive (+): Agreement of all discernible class characteristics and some agreement of individual characteristics but insufficient for an identification. Inconclusive: Agreement of all discernible class characteristics without significant agreement or disagreement of individual characteristics; therefore, the items could neither be identified nor eliminated as having been fired in/from the same firearm. Inconclusive (-): Agreement of all discernible class characteristics and some disagreement of individual characteristics, but insufficient for an elimination. Eliminated: Significant disagreement of discernible class characteristics and/or individual characteristics leading to the conclusion that the items were not fired in/from the same firearm.
FA2K36	The three vainillas of item 1 yielded negative results for the vainillas of items 3, 4 and 5. The vainilla of item 3 and 5 were percussed by a different firearm from that of item No 1. The vainilla of item No 4 was Percussed by a firearm different from the previous ones.
GCBM4V	TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm/tool which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm/tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm/tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm/tool are not to the absolute exclusion of all other firearms/tools because it is not feasible to examine all possible firearms/tools. However, observing this amount of agreement from a different source is considered extremely remote.
HGD8CK	The hypothesis that expended cartridge cases item 3, item 5 were discharged from the same firearm is very strongly supported. The hypothesis that expended cartridge case item 4 was discharged from an other firearm is very strongly supported.
HZQVJQ	Methods: Pattern Examination: Toolmarks, whether they are present on evidence items or secondary evidence created in the Laboratory, undergo two stages of comparison. First, the class characteristics are reviewed and compared. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Source

TABLE 3

WebCode	Additional Comments
	<p>Exclusion: Source exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source. This conclusion is an Examiner's opinion that the observed difference(s) in class characteristics provides extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same source. A source exclusion based on a minor difference in measured class characteristics requires a verification. 2) Source Identification Source identification is an Examiner's conclusion that two toolmarks originated from the same source. This conclusion is an Examiner's opinion that all observed class characteristics are in agreement and the quality and quantity of corresponding individual characteristics is such that the Examiner would not expect to find that same combination of individual characteristics repeated in another source. The basis for a source identification conclusion is an Examiner's opinion that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification requires a verification and is the Examiner's opinion that the probability that the two toolmarks were made by different sources is so small that it is negligible. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and/or quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two toolmarks as having originated from the same source. This conclusion is an Examiner's opinion that there is an insufficient quality and/or quantity of individual characteristics to identify or exclude. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification, or a lack of any observed microscopic similarity. Limitations: Pattern Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to variation in substrate, changes in tool working surfaces from wear, corrosion, and damage, or the employment of unusual tool/work piece orientations, it may not be possible for an Examiner to reach a source conclusion. Additionally, some tool manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value. Damaged, corroded, or fragmented items may be of little or no value for comparison purposes. Virtual Comparison Microscopy: Virtual comparison microscopy (VCM) is restricted to the surface that a three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item but may not be reproduced during a scan. This may be due to interference from lacquer/sealant, environmental damage, debris, or measuring limits for an instrument. Furthermore, physical characteristics that are not measurable, such as the metallic qualities of an item, may not be available for evaluation in the digital reproduction.</p>
J7TAYZ	The vanillas corresponding to items 3-5, despite being the same caliber, correspond to different weapons.
J92GGL	Items 3 and 5 were identified as having been fired in the same firearm.
JBC7ZX	Items 3 and 5 were fired in the same firearm. Item 4 was not fired in the same firearm as Items 3 and 5.
JCHRDC	Intelligence given to the police: Except from the weapon seized from the suspect there are also other two unknown different weapons used. So our lab will advice the police to bring in other weapons seized during the investigation consistent with 9mm.

TABLE 3

WebCode	Additional Comments
JVQ8FN	<p>Methods: Pattern Examination: Toolmarks, whether they are present on evidence items or secondary evidence created in the Laboratory, undergo two stages of comparison. First, the class characteristics are reviewed and compared. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Source Exclusion Source exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source. This conclusion is an Examiner's opinion that the observed difference(s) in class characteristics provides extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same source. A source exclusion based on a minor difference in measured class characteristics requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two toolmarks originated from the same source. This conclusion is an Examiner's opinion that all observed class characteristics are in agreement and the quality and quantity of corresponding individual characteristics is such that the Examiner would not expect to find that same combination of individual characteristics repeated in another source. The basis for a source identification conclusion is an Examiner's opinion that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification requires a verification and is the Examiner's opinion that the probability that the two toolmarks were made by different sources is so small that it is negligible. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and/or quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two toolmarks as having originated from the same source. This conclusion is an Examiner's opinion that there is an insufficient quality and/or quantity of individual characteristics to identify or exclude. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification, or a lack of any observed microscopic similarity. Limitations: Pattern Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to variation in substrate, changes in tool working surfaces from wear, corrosion, and damage, or the employment of unusual tool/work piece orientations, it may not be possible for an Examiner to reach a source conclusion. Additionally, some tool manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value. Damaged, corroded, or fragmented items may be of little or no value for comparison purposes.</p>
JZMTAC	The questioned expended cartridge cases labeled "Item 3" and "Item 5" was discharged from the same firearm.
KP64ED	Test fires from Pistol P-1 submitted as item#1.
LE2LZG	Item 3, Item 4, and Item 5 were not discharged from the same firearm as the known expended cartridge cases.
LPDR3H	additional to the suspect's firearm, there were used two more firearms on the shooting.
LYZ4ZG	The two discharged cartridge cases marked #3 and #5 were compared microscopically and

TABLE 3

WebCode	Additional Comments
	identified as having been discharged in the same firearm. The discharged cartridge case marked #4 was compared microscopically against the two discharged cartridge cases marked #3 and #5 and was eliminated from having been discharged in the same firearm.
MV4LTG	LIMITATIONS: 1) Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. Firearms/Toolmark Identification is an empirical science that relies on objective observations and a subjective interpretation of microscopic marks of value. NOTES: This report contains interpretations and opinions based on scientific data. Some samples may have been altered or consumed during testing or may deteriorate with time. To obtain information about sample availability for re-testing or additional testing please contact the writer of this report. ATTRIBUTION: Attribution of items to an individual or location is based on information provided to the [Laboratory]. The Item 1 fired ammunition components are attributed as having been test fired from a 9 mm Luger calibre Beretta Model 92FS semi-automatic pistol seized by Police.
N2PTRZ	The three cartridge cases (Items 3, 4, and 5) were microscopically compared to each other. Based on agreement of discernable class characteristics and sufficient corresponding individual markings observed, two of the cartridge cases (Items 3 and 5) were identified as having been fired from the same unknown firearm. Any suspect firearm should be submitted for comparison. Because of differences observed in class characteristics, the cartridge case (Item 4) was eliminated as having been fired from the same unknown firearm as Items 3 and 5. Any suspect firearm should be submitted for comparison
NUTYWN	TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm/tool which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm/tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm/tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm/tool are not to the absolute exclusion of all other firearms/tools because it is not feasible to examine all possible firearms/tools. However, observing this amount of agreement from a different source is considered extremely remote.
NXLZWG	Within the limits of practical certainty, the questioned fired cartridge cases "item 3" and "item 5" were identified as having been discharged from the same firearm. Questioned fired cartridge case "item 4" was eliminated as having been discharged from the same firearm as the questioned fired cartridge cases "item 3" and "item 5".
PD9WGH	In my opinion, items 3 and 5 were fired in the same gun, gun two. In my opinion item 4 was fired in a third gun.
PKUPTH	In my opinion, items 3 and 5 were fired in the same gun.
Q2WUMX	Items 3, 4, and 5 were eliminated from Item 1 (and subsequently Item 2) on individual characteristics, although some class characteristics were distinctly different as well.
Q83JV7	Microscopic examination between Item (3) and Item (5) showed that they were fired in the same firearm.

TABLE 3

WebCode	Additional Comments
QPF96W	In general, there are three (03) firearms, linked to the investigation.
QZ39U8	Items 3 and 5 were microscopically intercompared, finding class and individual distinguishing characteristic correspondence. It was concluded that Items 3 and 5 were fired by the same firearm (firearm not submitted). Item 4 was microscopically compared with Items 3 and 5, finding class and individual characteristic differences. It was concluded that Item 4 was fired by a different firearm (not submitted) than the source of the Item 3 and 5 cartridge cases.
R9BAKZ	Items #3 and #5 were fired by the same firearm. Item #4 was not fired by the same firearm as Items #3 and #5.
RAHE8W	<p>Methods: Pattern Examination: Toolmarks, whether they are present on evidence items or secondary evidence created in the Laboratory, undergo two stages of comparison. First, the class characteristics are reviewed and compared. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two toolmarks did not originate from the same source. This conclusion is an Examiner's opinion that the observed difference(s) in class characteristics provides extremely strong support for the proposition that the two toolmarks came from different sources and extremely weak or no support for the proposition that the two toolmarks came from the same source. A source exclusion based on a minor difference in measured class characteristics requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two toolmarks originated from the same source. This conclusion is an Examiner's opinion that all observed class characteristics are in agreement and the quality and quantity of corresponding individual characteristics is such that the Examiner would not expect to find that same combination of individual characteristics repeated in another source. The basis for a source identification conclusion is an Examiner's opinion that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks originated from the same source and extremely weak support for the proposition that the two toolmarks originated from different sources. A source identification requires a verification and is the Examiner's opinion that the probability that the two toolmarks were made by different sources is so small that it is negligible. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and/or quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two toolmarks as having originated from the same source. This conclusion is an Examiner's opinion that there is an insufficient quality and/or quantity of individual characteristics to identify or exclude. Reasons for an inconclusive conclusion include the presence of microscopic similarity that is insufficient to form the conclusion of source identification, or a lack of any observed microscopic similarity. Limitations: Pattern Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to variation in substrate, changes in tool working surfaces from wear, corrosion, and damage, or the employment of unusual tool/work piece orientations, it may not be possible for an Examiner to reach a source conclusion. Additionally, some tool manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value. Damaged, corroded, or fragmented items may be of little or no value for comparison purposes.</p>

TABLE 3

WebCode	Additional Comments
REUGZJ	Cartridge cases Item 3 and Item 5 were discharged from the same firearm.
RM8D36	I found it to be inconclusive because there were some similarities on the primer area, but not enough to eliminate or identify that it was fired out of the same firearm or Item 1 firearm.
T4C7CD	Laboratory Item numbers were used for reporting. The item numbers are as follows: Items 01-01A through 01-01C = Agency Item 1. Item 01-02 = Agency Item 2. Item 01-03 = Agency Item 3. Item 01-04 = Agency Item 4. Item 01-05 = Agency Item 5
T9BD2H	Technical Notes: Class characteristics are defined as measureable features of a firearm/tool which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm/tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm/tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm/tool are not to the absolute exclusion of all other firearms/tools because it is not feasible to examine all possible firearms/tools. However, observing this amount of agreement from a different source is considered extremely remote.
TKD68U	In Notes: Item 1-1 is the firearm. Items 1-1A, 1-1b, 1-1C are the test shots. Items 1-2, 1-3, 1-4, and 1-5 are the unknowns (Items 2, 3, 4, and 5)
TU6DYD	Items 3 and 5 were identified as having been fired in a second unknown firearm. Items 3 and 4 are eliminated as having been fired in the same firearm.
TVJU7Y	It is concluded that three different firearms were involved.
VED79H	TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm or tool, which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm or tool. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm or tool surfaces. These random imperfections or irregularities can be either produced incidental to manufacture or caused by use, corrosion, or damage, and are unique to that specific tool. Any conclusions indicating that a toolmark was made by a specific firearm or tool are not to the absolute exclusion of all other firearms or tools, because it is not feasible to examine all firearms or tools in the world. However, observing this amount of agreement between different sources is considered extremely remote.
VP7RB8	NIBIN: Items 1A and 4, the cartridge cases, will each be entered into NIBIN. The results of NIBIN entries and searches will be the subject of a separate report.
VWMJ8Y	Item 3 + item 5
W3PWKM	In conclusion three firearms were used in the case.
W6WB8G	Identification: Agreement of a combination of individual characteristics and all discernible class characteristics where the extent of agreement exceeds that which can occur in the comparison of striations made by different firearms and is consistent with the agreement demonstrated by striations known to have been produced by the same firearm. Elimination: Significant disagreement of discernible class characteristics and/or individual characteristics.
XLWLJQ	Eliminations of Items 3, 4 and 5 from Item 1 were based on the difference of breech face

TABLE 3

WebCode	Additional Comments
	marks. Item 1 has granular/arcs type marks, where Items 3, 4 and 5 all have parallel marks.
XVADBA	The box that was received was sealed, but there were no markings across the seal. Usually, proficiency tests are marked "CTS" across the seal, and that was not the case with this box. This was documented accordingly in my notes.
XYY9GL	Item #4 could not be identified or eliminated as having been fired by the firearm in Item #1. Some differences were observed, especially the patterns running in multiple directions on Item #1; however, with limited sample size of only Item #4 in a group no identification or elimination could be made.
Y6ZNLZ	EL RESULTADO DEL PRESENTE ESTUDIO MICRO COMPARATIVO, ES LA INTERPRETACIÓN DE LA CONCORDANCIA DE CARACTERÍSTICAS DE CLASE E INDIVIDUALES ENTRE LOS ELEMENTOS COTEJADOS, CON BASE EN LA COMPETENCIA DEL EXAMINADOR. [English translation of comments was not obtained by the time of report publication].
ZYVZRY	Based on microscopic comparison, item 3 expended cartridge case was fired in the same firearm as the test fired cases from item 5.

-End of Report-
(Appendix may follow)

Test No. 22-5262: Firearms Examination

DATA MUST BE SUBMITTED BY **Dec. 19, 2022, 11:59 p.m. EST** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: H8A3CG

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:

Police are investigating a shooting that occurred at a gas station. Investigators recovered four expended cartridge cases at the scene; one near the main entrance, one near the counter, and two from the parking lot. A suspect was apprehended a few hours later and police seized a Beretta Model 92FS handgun from his possession. Three rounds of Federal American Eagle 9mm Luger 124 grain FMJ ammunition (consistent with the cartridge cases found at the scene) were test fired with the suspect's firearm and the cartridge cases collected. Investigators are asking you to compare the recovered cartridge cases from the scene with those test fired from the suspect's weapon and report your findings.

Please note the following:

-Each Item is in a small labeled 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 marked with its item number.

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 near the main entrance (questioned).

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

Item 4: One expended cartridge case recovered near the counter (questioned).

Item 5: Second expended cartridge case recovered from the parking lot (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)?

<i>Item 2</i>	Yes <input type="radio"/>	No <input type="radio"/>	Inconclusive* <input type="radio"/>
<i>Item 3</i>	Yes <input type="radio"/>	No <input type="radio"/>	Inconclusive* <input type="radio"/>
<i>Item 4</i>	Yes <input type="radio"/>	No <input type="radio"/>	Inconclusive* <input type="radio"/>
<i>Item 5</i>	Yes <input type="radio"/>	No <input type="radio"/>	Inconclusive* <input type="radio"/>

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

Please note: Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.

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

3.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. 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, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
- This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory.

ANAB Certificate No.
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety.

Authorized Contact Person and Title

Laboratory Name

Location (City/State)