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FORENSIC TESTING PROGRAM

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Firearms Examination
Test No. 19-526 Summary Report

Each sample set consisted of three known expended cartridge cases (Item 1) test-fired from a suspect weapon and four questioned expended cartridge cases (Items 2-5). Participants were requested to examine these items and report their findings. Data were returned from 308 participants and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set contained five items: Item 1 consisted of three cartridge cases fired in the suspect's firearm. Items 2, 3, 4 and 5 each consisted of one cartridge case recovered from the scene. Remington® Arms Company 9mm Luger 115 grain Full Metal Jacket (FMJ) was used for Items 1,2 and 5 and Remington® UMC® 9mm Luger 115 grain FMJ centerfire ammunition was used for Items 3 and 4. 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 Item 1 and 2 were fired in a SCCY CPX-2 9mm handgun (Serial Number 167214). Items 3 and 4 were fired in a SCCY CPX-2 9mm handgun (Serial Number 169979). Item 5 was fired in a Smith & Wesson M&P 9mm handgun (Serial Number HMZ4399)

ITEMS 1, 2 (IDENTIFICATION): Multiple magazines were loaded with Remington® Arms Company 9mm ammunition for firing with the SCCY CPX-2 9mm 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 was selected and inscribed with a "1" (three cartridge cases) or "2" (one cartridge case), then sealed into their respective boxes.

ITEMS 3, 4 (ELIMINATION): Multiple magazines were loaded with Remington® UMC® 9mm ammunition for firing with the SCCY CPX-2 9mm handgun, different from what was used to fire Items 1 & 2. 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 inscribed with a "3" (one cartridge case) or "4" (one cartridge case), then sealed into their respective boxes.

ITEM 5 (ELIMINATION): Multiple magazines were loaded with Remington® Arms Company 9mm ammunition for firing with the Smith & Wesson M&P Shield 9mm 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 inscribed with a "5" (one cartridge case) then sealed into their respective boxes.

SAMPLE SET ASSEMBLY: For each sample set, Items 3 and 4 of the same elimination batch, an Item 5, along with Items 1 and 2 of the same association batch 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 4 questioned expended cartridge cases (Items 2-5), which they were requested to compare with 3 known expended cartridge cases (Item 1) that were fired in the suspect's weapon, a SCCY CPX-2 handgun. Item 1 contained three Remington® Arms Company 9mm Luger 115 grain FMJ cartridge cases. Items 2 and 5 were Remington® Arms Company 9mm Luger 115 grain FMJ cartridge cases. Items 3 and 4 were Remington® UMC® 9mm Luger 115 grain FMJ cartridge cases. For each sample set, the Item 2 cartridge case was fired in the same firearm as the Item 1 known cartridge cases. The Item 5 cartridge case was fired in a different firearm from that which discharged the Item 1 and Item 2 cartridge cases. Item 3 and Item 4 cartridge cases were fired in a third firearm, different from the one that discharged the Item 1 and Item 2 cartridge cases and the firearm that discharged the Item 5 cartridge case. (Refer to Manufacturer's Information for preparation details.)

In Table 1 Response Summary, 304 of 308 responding participants (99%) identified Item 2 and either eliminated or were inconclusive for Items 3, 4 and 5 as having been fired from the same firearm as the Item 1 cartridge cases. Three participants identified Items 2, 3, 4 and 5 and as having been fired from the same firearm as the Item 1 cartridge cases, and one participant eliminated Items 2, 3, 4 and 5 as having been fired in the same firearm as the Item 1 test-fired cartridges.

Many participants noted that they were inconclusive for Items 3 and 4 due to the difference in primer material between Items 3 and 4 (brass primers) and the Item 1 known test fires (nickel primers). Most of these participants further stated that their laboratory policy calls for like material to be compared when examining fired cartridge casings.

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
26982E	Yes	No	No	No	37XVYZ	Yes	No	No	No
27DUKK	Yes	No	No	No	388WV8	Yes	No	No	No
2A4ETG	Yes	No	No	No	3AX8WL	Yes	No	No	No
2DKYDB	Yes	No	No	No	3B8Y4G	Yes	Inc	Inc	No
2EVLCP	Yes	No	No	No	3CN7BK	Yes	No	No	No
2M8AYJ	Yes	No	No	No	3EWTZ3	Yes	Inc	Inc	No
2MAWDC	Yes	No	No	No	3GVA4K	Yes	No	No	No
2NGEC8	Yes	No	No	No	3HCVVU	Yes	No	No	No
2PDRXE	Yes	No	No	No	3JPVYW	Yes	No	No	No
2R2PH6	Yes	No	No	No	3TBV27	Yes	No	No	No
2UTFGC	Yes	Inc	Inc	No	3VFRYA	Yes	No	No	No
2XNKF3	Yes	No	No	No	4C3MUW	Yes	No	No	No
2Y7YYT	Yes	No	No	No	4E8KCY	Yes	Inc	Inc	No
32N6MY	Yes	No	No	No	4GYJTJ	Yes	No	No	No
34PQFK	Yes	No	No	No	4H8V9Y	Yes	Inc	Inc	No
36FYG9	Yes	No	No	No	4HTAWC	Yes	No	No	No
36KU6R	Yes	No	No	No	4KG94Z	Yes	No	No	No
36NUD3	Yes	No	No	No					

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
4RE3V8	Yes	No	No	No	7FVXU9	Yes	No	No	No
4T4YCT	Yes	No	No	No	7KM6CG	Yes	No	No	No
4VDPZC	Yes	No	No	No	7P2PDB	Yes	Inc	Inc	No
4W2GFM	Yes	No	No	No	7QRVMA	Yes	No	No	No
4YBXUQ	Yes	Inc	Inc	No	7VNXU2	Yes	Inc	Inc	No
4YV9MR	Yes	No	No	No	7W2YPV	Yes	No	No	No
66JJMU	Yes	Inc	Inc	No	7YMGP8	Yes	No	No	No
6D84D8	Yes	Inc	Inc	No	82PZAF	Yes	No	No	No
6G7KP2	Yes	No	No	No	84CFJT	Yes	Inc	Inc	No
6G8MNY	Yes	No	No	No	87LTGH	Yes	No	No	No
6N7XEJ	Yes	No	No	No	899ZPX	Yes	No	No	No
6R8U7Y	Yes	No	No	No	8KGK87	Yes	No	No	No
6ZMFF3	Yes	No	No	No	8KLZLR	Yes	No	No	No
72T794	Yes	No	No	No	8M8LCU	Yes	Inc	Inc	No
73L6FA	Yes	No	No	No	8WDLRM	Yes	No	No	No
74DAQ9	Yes	No	No	Inc	8Y3MHP	Yes	No	No	No
778G7K	Yes	No	No	No	8ZEY6E	Yes	No	No	No
7D8YKW	Yes	No	No	No	9JNJUA	Yes	No	No	No
7D948F	Yes	No	No	No	9KG48D	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
9MM2R2	Yes	No	No	No	CPFRDB	Yes	No	No	No
9RGREZ	Yes	No	No	No	CUPHPC	Yes	No	No	No
9X92NY	Yes	No	No	No	CUWTYH	Yes	No	No	No
A49ZCU	Yes	No	No	No	CVAKTK	Yes	No	No	No
A9HN4V	Yes	No	No	No	CWYHUJ	Yes	No	No	No
AP8QLJ	Yes	No	No	No	CXCWHT	Yes	No	No	No
AXHEGZ	Yes	Yes	Yes	Yes	D33E4N	Yes	No	No	No
AXYJ46	Yes	No	No	Inc	D66RTV	Yes	No	No	No
AYFVLB	Yes	No	No	No	DBVAHL	Yes	No	No	No
BB3GCX	Yes	No	No	No	DJCFA7	Yes	No	No	No
BFVL3N	Yes	No	No	No	DRKD6G	Yes	No	No	No
BJFGYL	Yes	No	No	No	DU3DNP	Yes	No	No	No
BJH766	Yes	Inc	Inc	No	DVXHCB	Yes	No	No	No
BWPW6Q	Yes	No	No	No	DY67A9	Yes	No	No	No
BXZ9RF	Yes	No	No	No	E3F46F	Yes	No	No	No
BY7ERG	Yes	No	No	No	E6KBCT	Yes	No	No	No
CHJR3P	Yes	Inc	Inc	No	E7FP4R	Yes	No	No	No
CLJD22	Yes	No	No	No	E7GNXZ	Yes	No	No	No
CPCTYN	Yes	No	No	No	E7VDYR	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
E88C9L	Yes	Inc	Inc	No	GG9J2Q	Yes	Inc	Inc	No
E89T8Y	Yes	No	No	No	GJYL8E	Yes	No	No	No
EB9VFA	Yes	No	No	No	GN9YND	Yes	No	No	No
EBVE82	Yes	Inc	Inc	No	GR9QJQ	Yes	No	No	No
EBWKXP	Yes	No	No	No	GRB89B	Yes	No	No	No
ECP3NC	Yes	No	No	No	GV6XYY	Yes	No	No	No
EDY4HX	Yes	No	No	No	H2EE9N	Yes	Inc	Inc	No
EDYAQ6	Yes	No	No	No	H4JCQQ	Yes	No	No	No
EREM9J	Yes	No	No	No	H4L2YU	Yes	Inc	Inc	No
F93PFU	Yes	No	No	No	H4V84H	Yes	No	No	No
FDUHLM	Yes	No	No	No	H7A27H	Yes	No	No	No
FM6R7U	Yes	No	No	No	HBFC3X	Yes	Inc	Inc	No
FQJLMR	Yes	No	No	No	HCPDWJ	Yes	No	No	No
FW3DTE	Yes	Inc	Inc	No	HHYEBZ	Yes	Inc	Inc	No
FYDQFT	Yes	Inc	Inc	No	HVK7HG	Yes	Yes	Yes	Yes
G46NXC	Yes	No	No	No	HZG2MG	Yes	No	No	No
GE4N4N	Yes	No	No	No	J348GC	Yes	Inc	Inc	No
GE6BP9	Yes	No	No	No	JA4W9W	Yes	No	No	No
GEHKK8	Yes	No	No	No	JBGWG6	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
JBV2JV	Yes	Inc	Inc	No	KGG8Z3	Yes	No	No	No
JD6VQG	Yes	No	No	No	KH8F2Q	Yes	Inc	Inc	No
JHW39P	Yes	No	No	No	KKZP9R	Yes	No	No	No
JJ9EVD	Yes	No	No	No	KLQKG2	Yes	No	No	No
JJA43W	Yes	No	No	No	KNEWHR	Yes	No	No	No
JJT7QJ	Yes	No	No	No	KPQWD2	Yes	No	No	No
JLF9HK	Yes	No	No	No	KX3HDA	Yes	No	No	No
JM9HPL	Yes	Inc	Inc	No	L8ACAM	Yes	No	No	No
JPYCDW	Yes	No	No	No	L9ZEEB	Yes	No	No	No
JWTG7X	Yes	No	No	No	LAE8Q6	Yes	No	No	No
JXN6KM	Yes	No	No	No	LB678P	Yes	No	No	No
JYLEE6	Yes	Inc	Inc	No	LMLGQV	Yes	No	No	No
JZCMFT	Yes	No	No	No	LPT4EE	Yes	No	No	No
K2LDF2	Yes	No	No	No	LVTTM7	Yes	No	No	No
K8CBZ7	Yes	No	No	No	LX3TRD	Yes	No	No	No
KAFHA3	Yes	No	No	No	LXGRY3	Yes	No	No	No
KC2NQ9	Yes	Inc	Inc	No	LXKR4P	Yes	Inc	Inc	No
KCKPGG	No	No	No	No	M2G6BU	Yes	Inc	Inc	No
KEK3U9	Yes	No	No	No	M39ALT	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
M3NMAP	Yes	No	No	No	NXW3WE	Yes	Inc	Inc	No
M47Y8F	Yes	No	No	No	NXWTVP	Yes	No	No	No
M4KZUW	Yes	No	No	No	P33BGF	Yes	No	No	No
M6CLET	Yes	No	No	No	P6MV26	Yes	No	No	No
MD9Z6F	Yes	No	No	No	P6Q3ZT	Yes	No	No	No
MH4JVD	Yes	No	No	No	PAFNHE	Yes	No	No	No
MKLYQD	Yes	No	No	No	PHRRK8	Yes	No	No	No
MT3H3Q	Yes	No	No	No	PNKXCF	Yes	No	No	No
N4FU32	Yes	No	No	No	PPCG78	Yes	No	No	No
N79PYB	Yes	No	No	No	PQ34LB	Yes	No	No	No
N9TBBB	Yes	No	No	No	PQAURE	Yes	No	No	No
NBYUHJ	Yes	No	No	No	PRY6H8	Yes	No	No	No
NGKNEG	Yes	Inc	Inc	No	PUKB2X	Yes	No	No	No
NGR42D	Yes	No	No	No	PY63L2	Yes	No	No	No
NJVYJU	Yes	No	No	No	Q2HYAU	Yes	No	No	No
NLKADU	Yes	Inc	Inc	No	Q3D7C2	Yes	No	No	No
NN6ERJ	Yes	No	No	No	Q4CK67	Yes	No	No	No
NPHCD9	Yes	No	No	No	Q7V9BK	Yes	No	No	No
NXFGDJ	Yes	No	No	No	QBQ2NM	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
QEUAY6	Yes	No	No	No	TTZ6B4	Yes	No	No	No
QH9HTH	Yes	No	No	No	TWKKVQ	Yes	No	No	No
QVHB23	Yes	No	No	No	TWNNC2	Yes	No	No	No
R49WAT	Yes	No	No	No	TYR3TM	Yes	No	No	No
R96C4A	Yes	Inc	Inc	No	U2U7XU	Yes	No	No	No
R9YUPP	Yes	No	No	No	U3KEYJ	Yes	No	No	No
RDZ74W	Yes	No	No	No	U8KJYH	Yes	No	No	No
REQ2BH	Yes	No	No	No	UH4X3K	Yes	No	No	No
RFHZNG	Yes	Inc	Inc	No	ULJWKL	Yes	No	No	No
RGN7LW	Yes	No	No	No	UVLDU4	Yes	Inc	Inc	No
RKXXCQ	Yes	Inc	Inc	No	UYNC6W	Yes	No	No	No
RQJXJQ	Yes	Inc	Inc	No	V7KW4Q	Yes	No	No	No
RQXJVD	Yes	No	No	No	V97FP2	Yes	No	No	No
RU36RQ	Yes	No	No	No	VBHTUX	Yes	No	No	No
TBLQXF	Yes	No	No	No	VD4ZBT	Yes	No	No	No
TEHGXY	Yes	Inc	Inc	No	VGG6HL	Yes	No	No	No
TL7ZH3	Yes	No	No	No	VKJFLU	Yes	No	No	No
TP772E	Yes	Inc	Inc	No	VPWJRJ	Yes	No	No	No
TRC4L3	Yes	Inc	Inc	No	VUPFY3	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
VXP2XE	Yes	No	No	No	XPMMXX	Yes	No	No	No
W7Y879	Yes	No	No	No	XYEY9H	Yes	No	No	No
WGDXKY	Yes	No	No	No	XZQBV8	Yes	No	No	No
WM87B6	Yes	No	No	No	Y2G2UD	Yes	Inc	Inc	No
WML6EA	Yes	No	No	No	Y3AZ3K	Yes	Inc	Inc	No
WNGJ79	Yes	No	No	No	Y4Z949	Yes	No	No	No
WRGV29	Yes	No	No	No	Y784MW	Yes	No	No	No
WXZAFE	Yes	Yes	Yes	Yes	Y7THBA	Yes	No	No	No
WYG9QQ	Yes	No	No	No	Y9HGHZ	Yes	No	No	No
XCK2NL	Yes	Inc	Inc	No	YBJNFJ	Yes	No	No	No
XCZECH	Yes	No	No	No	YCAWG8	Yes	No	No	No
XHP9GN	Yes	No	No	No	YKDMDJ	Yes	No	No	No
XJLAAF	Yes	Inc	Inc	No	YRAZFK	Yes	No	No	No
XJZB3M	Yes	No	No	No	YV9BCK	Yes	No	No	No
XKUWXY	Yes	No	No	No	YY6HEN	Yes	Inc	Inc	No
XKVEM4	Yes	Inc	Inc	No	Z7MAEE	Yes	No	No	No
XL6FHB	Yes	No	No	No	Z82GZW	Yes	No	No	No
XMMD3M	Yes	No	No	No	Z8GZH9	Yes	No	No	No
XNUZR7	Yes	No	No	No	Z9VVC9	Yes	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
ZDLCLD	Yes	No	No	No					
ZJDJ78	Yes	No	No	No					
ZJRHAB	Yes	No	No	No					
ZPBWLV	Yes	No	No	No					
ZQWALU	Yes	Inc	Inc	No					
ZWGDQC	Yes	Inc	Inc	No					
ZWXYA7	Yes	Inc	Inc	No					

Response Summary

Participants: **308**

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

Responses	Item 2	Item 3	Item 4	Item 5
Yes	**307** ***(99.7%)***	**3** ***(1.0%)***	**3** ***(1.0%)***	**3** ***(1.0%)***
No	**1** ***(0.3%)***	**254** ***(82.5%)***	**254** ***(82.5%)***	**303** ***(98.4%)***
Inc	**0** ***(0.0%)***	**51** ***(16.6%)***	**51** ***(16.6%)***	**2** ***(0.6%)***

Conclusions

TABLE 2

WebCode	Conclusions
26982E	We come to the conclusion that the hypothesis, that item 2 was fired by the questioned firearm (item 1), is strongly supported. Additionally our results show a strong support for the hypothesis, that another two firearms were used to fire item 3, item 4 (which were fired by one firearm) and item 5.
27DUKK	Item 19-526 consisted of item 1, three cartridge cases test fired in the suspect's pistol, and items 2 through 5, cartridge cases recovered from the crime scene. The items were all identified as expended 9mm Luger cartridge cases. Based on correspondence of firearm related class characteristics and significant correspondence of individualizing characteristics, I determined that item 2 was fired in the same firearm as that used to generate the item 1 test fired cartridge cases. Based on apparent differences in firearm related class characteristics and significant differences in individualizing characteristics, I determined that items 3 and 4 were not fired in the same firearm as that used to generate the item 1 test fired cartridge cases. Items 3 and 4 were compared to each other. Based on correspondence of firearm related class characteristics and significant correspondence of individualizing characteristics, I determined that items 3 and 4 were fired in the same firearm. Based in differences in firearm related class characteristics, I determined that item 5 was not fired in either of the same firearms used to generate items 1 through 4.
2A4ETG	I compared Items 001-02 through 001-05 to a test fired cartridge case from the SCCY brand pistol. I observed agreement of all discernable class characteristics and sufficient agreement of individual characteristics to conclude Item 001-02 was fired in the SCCY brand pistol. I observed disagreement of class characteristics to conclude Items 001-03 through 001-05 were not fired in the SCCY brand pistol.
2DKYDB	Item 2, a Remington caliber 9mm Luger cartridge case, was microscopically examined and identified as having been fired in the firearm represented by the Item 1 cartridge cases. Items 3 and 4, each a Remington caliber 9mm Luger cartridge case, were microscopically examined and identified as having been fired in the same firearm. Item 5, a Remington caliber 9mm Luger cartridge case, was microscopically examined. Firearms that produce class characteristics like those present on this item include Smith & Wesson M&P Series caliber 9mm Luger pistols. This is not all encompassing; it may be possible another brand of firearm produced class characteristics like those present and is not listed due to the content of the database searched. Items 3, 4, and 5 were eliminated as having been fired in the firearm represented by the Item 1 cartridge cases. These items represent two (2) caliber 9mm Luger firearms.
2EVLCP	SEE REPORT INCLUDED IN CASE FILE. [Attachment not provided by participant]
2M8AYJ	By means of cartridge case, microscopic and comparison examinations it was determined that: 1. The cartridge cases marked E-1 to E-3, described in Item 1 and the cartridge case marked E-4, described in the Item 2, are caliber 9mm Luger and were fired by the same firearm. (Identification); 2. The cartridge case marked E-5, described in Item 3 and the cartridge case marked E-6, described in the Item 4, are caliber 9mm Luger and were fired by the same firearm. (Identification); 3. The cartridge case marked E-7, described in Item 5, is 9mm Luger caliber and was fired by a firearm. It was not fired by the firearm used to fire the cartridge cases marked from E-1 to E-3, E-4, E-5 and E-6, described in Items 1, 2, 3 and 4 respectively.
2MAWDC	The evidence in items 1 through 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

TABLE 2

WebCode	Conclusions
	the three (3) known 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) known fired 9mm cartridge cases in item 1. The two (2) fired 9mm cartridge cases in items 3 and 4 were fired in one weapon. The fired 9mm cartridge case in item 5 was fired in a different weapon than the two (2) fired 9mm cartridge cases in items 3 and 4. Further analysis of the three (3) fired 9mm cartridge cases in items 3, 4, and 5 is pending submission of two (2) weapons for additional comparison.
2NGEC8	As a product of the comparison of the related vanilla: ID EMP 2, 3, 4 and 5, Items 2, 3, 4 and 5, reason for study, in relation to the samples ID EMP1 (Item 1), it is established that they present uniprocedence, with vanilla ID EMP2, item 2, that is, they were struck by the same firearm. Vanilla ID EMP 3, 4 and 5, Items 3, 4 and 5 do not present uniprocedence with vanilla ID EMP 1, item 1.
2PDRXE	Microscopic examination and comparison of the fired cartridge case (item # 2) with the test fired cartridge cases (item # 1) revealed sufficient microscopic evidence to conclude that the fired cartridge case (item # 2) was fired in the same pistol as the test fired cartridge cases (item # 1). Microscopic examination and comparison of the fired cartridge cases (items # 3,4 & 5) with the test fired cartridge cases (item # 1) revealed sufficient microscopic evidence to conclude that the fired cartridge cases (items # 3,4 & 5) were not fired in the same pistol as the test fired cartridge cases (item # 1).
2R2PH6	The evidence was fired by three different firearms: Firearm #1 -Item #1 (Sccy CPRX-2 pistol)fired Item #2. Firearm #2 -Items #3 and #4 were fired by the same firearm. Firearm #3 -Item #5 was eliminated from both the Sccy pistol (Firearm #1) and from Items #3 and #4 (Firearm #2). Item #5 was therefore fired from a different firearm.
2UTFGC	The below listed spent cartridge case was macroscopically and microscopically examined and compared with test cartridge cases fired by the SCCY 9mm luger pistol, Property #19-526/[Labcode], Lab Evidence #001-A1, Item #1. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that the below listed item was fired by this firearm. Property # Lab Evidence # Item # Item Description 19-526/[Labcode] 001-A2 2 Spent R-P 9mm luger cartridge case The below listed spent cartridge cases were macroscopically and microscopically examined and compared with test cartridge cases fired by the SCCY 9mm luger pistol, Property #19-526/[Labcode], Lab Evidence #001-A1, Item #1. These items could neither be identified nor eliminated as having been fired by this firearm due to a lack of corresponding individual characteristics. These spent cartridge cases were further microscopically compared to each other. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that the below listed items were fired by the same firearm. Property # Lab Evidence # Item # Item Description 19-526/[Labcode] 001-A3 3 Spent R-P 9mm luger cartridge case 19-526/[Labcode] 001-A4 4 Spent R-P 9mm luger cartridge case The below listed spent cartridge case was macroscopically and microscopically examined and compared with test cartridge cases fired by the SCCY 9mm luger pistol, Property #19-526/U[Labcode], Lab Evidence #001-A1, Item #1. It is my opinion that this item was not fired by this firearm. Property # Lab Evidence # Item # Item Description 19-526/[Labcode] 001-A5 5 Spent R-P 9mm luger cartridge case The spent cartridge case, Property #19-526/[Labcode], Lab Evidence #001-A5, Item #5 was further microscopically compared to the below listed spent cartridge cases. It is my opinion that this item was not fired by the same firearm. Property # Lab Evidence # Item # Item Description 19-526/[Labcode] 001-A3 3 Spent R-P 9mm luger cartridge case 19-526/[Labcode] 001-A4 4 Spent R-P 9mm luger cartridge case. [Participant submitted data in a format that could not be reproduced in this report]

TABLE 2

WebCode	Conclusions
2XNKF3	1. Item 2 was discharged within the same firearm as Item 1. 2. Items 3, 4, and 5 were not discharged within the same firearm as Item 1.
2Y7YYT	The incriminated vanillas belong to the 9x19 mm NATO caliber, and were struck by gun-type firearm or sub-machine gun corresponding to the same caliber. The vanilla incriminated with the alphanumeric V1 / 4 (Item 2) was struck by the same weapon that struck the vanillas sent as reference samples (VA1-1/3, VA1-2/3 and VA1-3/3: Item 1). The incriminated vanilla (VA2/4, VA3/4 and VA4/4: Items 3, 4 and 5) were not struck by the weapon that struck the vanillas sent as reference samples (Item 1).
32N6MY	Cartridge Case Analysis: Methodology : Physical (Visual Examination), Microscopy (Comparison Microscopy): Items 1 and 2, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were not fired in the same firearm as Items 1 and 2, the cartridge cases, based upon different individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 1 and 2, the cartridge cases, based upon different class characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 3 and 4, the cartridge cases, based upon different class characteristics.
34PQFK	[No Conclusions Reported.]
36FYG9	fro the represented questioned expended cases (items 2-5) only item 2 has been discharged from the same firearm as known expended cartridge cases.
36KU6R	The test fired cartridge cases are producing sufficient and significant individual characteristics that enable an examiner to make a reliable identification. The exhibit item listed as Item 2 was identified within the limits of practical certainty as having been fired in the same firearm as the test fired cartridge cases fired in the suspects firearm. The exhibit items listed as Items 3, 4 and 5 where eliminated as having been fired in the suspects firearm. The exhibit items listed as Items 3 and 4 where identified within the limits of practical certainty as having been fired in the same firearm which is not the suspects firearm.
36NUD3	Item #1.1.1 - 1.1.3 and #1.2 have been compared microscopically with each other. Based on the agreement of all discernible class characteristics and a sufficient agreement of corresponding individual characteristics they have been identified as having been fired in the same firearm. Items #1.3 and 1.4 have been compared microscopically with each other. Based on the agreement of all discernible class characteristics and a sufficient agreement of corresponding individual characteristics they have been identified as having been fired in the same firearm. Due to differences in class characteristics Items #1.3 and 1.4 have been eliminated as to being fired in the same firearm as Items # 1.1, 1.2, and 1.5. Item #1.5 has been eliminated from being fired in the same firearm as Items #1.1-1.4 based on differences in class characteristics.
37XVYZ	Item #1 - #4 were compared microscopically with each other. There is agreement in all discernible class characteristics. #1 to #2: There is sufficient agreement in corresponding individual characteristics for identification. Item #2 was fired in the same firearm that discharged the test cartridge cases, Item #1. #1 to #3,#4: There is sufficient disagreement in individual characteristics for elimination. Items #3 and #4 are eliminated from being fired in the firearm that discharged Items #1 and #2. #3 to #4: There is sufficient agreement in corresponding individual characteristics for identification. Item #3 and #4 were fired in the

TABLE 2

WebCode	Conclusions
	same firearm. #5: Based on disagreement of class characteristics, this fired cartridge case is eliminated from being fired in the firearms that discharged Items #1 and #2 and the firearms that discharged Items #3 and #4.
388WV8	Sufficient individualizing characteristics were present to determine that expended cartridge case (Item 2) was discharged from the suspect's SCCY CPX-2 firearm. Expended cartridge cases 3, 4, and 5 were not fired from the suspect's firearm.
3AX8WL	Items #1A, 1B, and 1C were microscopically compared and determined to have good reproducibility of individual characteristics. Item #1A was microscopically compared to Item #2 and sufficient agreement of individual characteristics was observed in the firing pin aperture shear marks and ejector marks to conclude they were fired from the same firearm. Item #1A was microscopically compared to Items #3, 4, and 5 and found to have different class and individual characteristics in the firing pin impressions, breechface marks, ejector marks and firing pin aperture shear marks. They can be excluded as being fired in the same firearm. Item #3 was microscopically compared to Item #4 and sufficient agreement of individual characteristics was observed in the breechface marks and chambering marks to conclude they were fired from the same firearm. Item #5 was microscopically compared to Items #3 and 4 and found to have different class and individual characteristics in the firing pin impressions, breechface marks and firing pin aperture shear marks. They can be excluded as being fired in the same firearm.
3B8Y4G	Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases from Items 1 and 2 were identified as having been fired in the same firearm. Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases, Items 3 and 4, were identified as having been fired in the same firearm. The fired 9mm caliber cartridge cases from Items 1 and 2 exhibit similar class characteristics as those displayed on the fired 9mm caliber cartridges cases, Items 3 and 4. However, due to the lack of corresponding individual detail, Items 1 and 2 could neither be identified nor eliminated as having been fired in the same firearm as the fired 9mm caliber cartridge cases, Items 3 and 4. The results of these examinations are inconclusive. Based on significant disagreement of class characteristics, the fired 9mm caliber cartridge cases from Items 1-4, could not have been fired in the same firearm as Item 5.
3CN7BK	On examination I found; i) The characteristic marks on the questioned expended cartridge case recovered from the parking lot (Item 2) to be similar to the characteristic marks on the known expended cartridge cases from the suspect's weapon (Item 1). ii) The characteristic marks on the questioned expended cartridge cases(Item 3, Item 4 and Item 5) are dissimilar to the characteristic marks on the known expended cartridge cases (Item 1). Hence, I am opinion that the i) Questioned cartridge case recovered from the parking lot (Item 2) was fired from the recovered weapon. ii)Questioned cartridge cases (Item 3, Item 4 and Item 5) were not fired from the recovered weapon.
3EWTZ3	Per the case agent, the cartridge cases in Item 1 were test-fired in a SCCY CPX-2 9mm Luger caliber firearm. Only the test-fired cartridge cases, not the firearm, were submitted for examination. Item 2 was compared to test-fired cartridge cases from Item 1. Microscopic comparison of these cartridge cases revealed that they have the same class of firearm-produced marks and sufficient corresponding individual marks to conclude that Item 2 was discharged in the SCCY firearm. Items 3 and 4 were microscopically compared to test-fired cartridge cases from Item 1. They were determined to have the same class of firearm-produced marks but neither sufficient agreement nor significant disagreement of

TABLE 2

WebCode	Conclusions
	individual marks was observed. The result was inconclusive. Items 3 and 4 were then microscopically intra-compared and were determined to have the same class of firearm-produced marks and sufficient corresponding individual marks for identification. Items 3 and 4 were fired in the same firearm, but it was undetermined if they were fired in the SCCY pistol or another firearm with the same class characteristics. Items 1, 2, 3, and 4 were determined to have the same class of firearm-produced marks. Item 5 was determined to have significant differences in class of firearm-produced marks than Items 1, 2, 3, and 4. Item 5 was not fired in the SCCY pistol. The marks present on Item 5 are characteristic of, but may not be limited to, a Smith & Wesson, model M&P firearm.
3GVA4K	Exhibit 2 was fired in the same firearm as the fired cartridge cases described in exhibit 1 based on sufficient agreement of individual characteristics observed. Exhibits 3 and 4 were fired in a second unknown 9mm Luger caliber firearm based on sufficient agreement of individual characteristics observed. Exhibit 5 was fired in a third unknown 9mm Luger caliber firearm based on disagreement of individual characteristics observed.
3HCWU	Items 1 & 2: Item 2 was Identified to Item 1. Items 3 & 4: The cartridge cases were Identified to each other. The cartridge cases were Eliminated to Items 1 & 2. Item 5: The cartridge case was Eliminated to Items 1 – 4. The cartridge cases display class characteristics consistent with pistols by Smith & Wesson (M&P series). The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: 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.
3JPVYW	Item 1.1 consists of three fired Remington brand 9mm Luger cartridge cases stated to have been fired by a SCCY CPX-2 9mm Luger pistol. Items 1.2, 1.3, 1.4 and 1.5 consist of four fired Remington brand 9mm Luger cartridge cases. They were microscopically compared to Item 1.1 and to each other. Based on agreement of all discernable class characteristics and sufficient corresponding individual detail in the firing pin aperture shear marks, Item 1.2 was identified as having been fired by the same firearm that fired the cartridge cases from Item 1.1. Based on agreement of all discernable class characteristics and sufficient corresponding individual detail in the firing pin aperture shear marks, Items 1.3 and 1.4 were identified as having been fired by the same firearm. Based on individual differences in the firing pin aperture shear marks and breech face marks, they can be eliminated as having been fired by the same firearm that fired the cartridge cases from Item 1.1. Based on class characteristic differences in the firing pin aperture, Item 1.5 can be eliminated as having been fired by the same firearm that fired Items 1.1, 1.2, 1.3 and 1.4.
3TBV27	After microscopic comparison, it was determined that Items# 1 and 2 were fired from the same firearm based on sufficient agreement of class and individual characteristics of the aperture shear marks. After examination, it was determined that Items# 3, 4, and 5 were not fired from the same firearm as Item #1. The elimination was based on differences of class characteristics. After microscopic comparison, it was determined that Items# 3 and 4 were fired from the same

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WebCode	Conclusions
	firearm based on sufficient agreement of class and individual characteristics of the aperture shear marks and the breech face marks.
3VFRYA	The following findings reflect the professional opinion of the examiner authoring this report. Examination of Item 1 revealed three (3) test fired 9mm caliber cartridge cases recovered from the suspect weapon. Examination of Item 2 revealed one (1) fired 9mm caliber cartridge case. Microscopic examination of Item 2 with test fired cartridge cases (Item 1) revealed Item 2 and Item 1 were fired in the same firearm. Examination of Items 3, 4 & 5 revealed three (3) fired 9mm caliber cartridge cases. Microscopic examination of Items 3, 4 & 5 with test fired cartridge cases (Item 1) revealed Items 3, 4 & 5 were not fired in the suspect firearm (Item 1).
4C3MUW	Methodology - Comparison Microscopy: Item 2, the cartridge case, was fired in the same firearm as Item 1, the test fired cartridge cases, based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were not fired in the same firearm as Item 1, the test fired cartridge cases, based upon different class and individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Item 1, the test fired cartridge cases, based on different class characteristics.
4E8KCY	The cartridge cases in Items 1 and 2 were fired in the same gun, based on agreement observed in individual characteristics. The cartridge case in Item 5 was not fired in the same gun that fired the cartridge cases in Item 1, based on differences observed in class characteristics. The cartridge cases in Items 3 and 4 bear class characteristics consistent with the cartridge cases in Item 1. Due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same gun that fired the cartridge cases in Item 1.
4GYJTJ	CARTRIDGE CASE(S): Item 1, Item 2, Item 3, Item 4, Item 5: Items 1A, 1B, 1C, and 2 were Identified to each other. Items 1A, 1B, 1C, and 2 were Eliminated to Items 3, 4, and 5. Items 3 and 4 were Identified to each other. Items 3 and 4 were Eliminated to Item 5. Item 5 displays characteristics consistent with firearms by Smith & Wesson (M&P series).
4H8V9Y	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 and 4 bear class characteristics consistent with the cartridge cases in Item 1. However, due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same firearm that fired the cartridge cases in Item 1. The cartridge case in Item 5 was not fired in the firearm that fired the cartridge cases in Item 1, based on differences observed in class characteristics.
4HTAWC	Results/Opinions and Interpretations: Items 1 through 5: The Item 2 through 5 fired 9mm Luger cartridge cases and test fires (Item 1) were examined and microscopically compared to each other with the following result(s): Item 2 was identified as having been fired in the same firearm as the Item 1 test fires. Items 3 and 4 were identified as having been fired in the same unknown firearm and eliminated from the Item 1 test fires based on differences in individual characteristics. Item 5 was eliminated from having been fired in the same firearm as the Items 1, 2, 3, and 4 based on differences in individual characteristics. Item 5 was fired in a third unknown 9mm Luger firearm. Identification: The opinion of a qualified examiner that there is sufficient agreement of features and detail to conclude that two or more toolmarks originated from the same source.
4KG94Z	The cartridge case Item 2 was microscopically identified as having been fired in the same firearm as the cartridge case Item 1A (test). The cartridge cases, Items 3 and 4, were microscopically identified as having been fired in the same firearm. The cartridge case Item 4

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WebCode	Conclusions
	was not fired in the same firearm as the cartridge case Item 1A (test). The cartridge case Item 5 was not fired in the same firearm as the cartridge case Item 1A (test). The cartridge case Item 5 was also not fired in the same firearm as the cartridge case Item 4.
4RE3V8	The four fired 9mm Luger caliber cartridges, items 2, 3, 4, and 5, were examined and microscopically compared each other and to the test fires from item 1. The fired 9mm Luger caliber cartridge case, item 2, was identified as having been fired in the same firearm as the fired cartridge cases in item 1. The fired 9mm Luger caliber cartridge cases, items 3, 4, and 5, were eliminated as having been fired in the same firearm as the fired cartridge cases in item 1, based on differences in class characteristics. The fired 9mm Luger caliber cartridge case, item 3, was identified as having been fired in the same firearm as the fired cartridge case in item 4. The fired 9mm Luger caliber cartridge case, item 5, was eliminated as having been fired in any of the other firearms represented. Two firearms, other than the SCCY pistol, item 1 test fires, are represented in the fired cartridge cases, items 3, 4, and 5.
4T4YCT	Sufficient agreements of class and individual characteristics confirmed the item 2 expended cartridge case was fired in the same firearm that fired the item 1 expended cartridge cases. Disagreements of class characteristics confirmed the item 3, 4, and 5 expended cartridge cases were not fired in the same firearm as the item 1 expended cartridge cases.
4VDPZC	The item 2 cartridge case is identified as having been fired in the firearm that fired the item 1 cartridge cases. The item 3, 4 and 5 cartridge cases are eliminated as having been fired in the firearm that fired the item 1 cartridge cases. The item 3 and 4 cartridge cases are identified as having been fired in the same unknown firearm. The item 5 cartridge case is eliminated as having been fired in the same unknown firearm that fired the item 3 and 4 cartridge cases.
4W2GFM	Test fired cartridge cases from the Item 1 known firearm were microscopically compared to the Item 2, 3, 4, and 5 fired cartridge cases with the following results: Due to sufficient agreement of class and individual characteristics it was concluded that the questioned Item 2 fired cartridge case WAS fired in the Item 1 firearm. Due to differences in class and individual characteristics it was concluded that the questioned Item 3, 4, and 5 fired cartridge cases were NOT fired in the Item 1 firearm. In addition, due to sufficient agreement of class and individual characteristics it was concluded that Items 3 and 4 were fired in the same firearm which is not the Item 1 firearm and not the same (unknown) firearm as the Item 5 fired cartridge case.
4YBXUQ	The fired cartridge case of Exhibit 2 was fired in the same firearm that produced the cartridge cases of Exhibit 1. It is inconclusive if the fired cartridge cases of Exhibits 3 and 4 were fired in the same firearm that produced the cartridge cases of Exhibit 1. There is agreement of all discernible class characteristics and disagreement of individual characteristics, but insufficient for an elimination. The fired cartridge case of Exhibit 5 was not fired in the same firearm that produced the cartridge cases of Exhibit 1.
4YV9MR	Item 1, Item 2: Item 1 was Identified to Item 2. Item 3, Item 4: Item 3 was Identified to Item 4. Item 3 and Item 4 were Eliminated to Item 1, Item 2, and Item 5. Item 5: Item 5 was Eliminated to Item 1, Item 2, Item 3, and Item 4. Item 5 displays class characteristics consistent with firearms by Smith & Wesson (M&P series).
66JJMU	Item 2 was identified as having been fired in the same firearm as Item 1. Item 3 was identified as having been fired in the same firearm as item 4; however, it was inconclusive whether they were fired in the same firearm as Item 1 due to agreement of class characteristics and disagreement of individual characteristics, but insufficient for an elimination. Item 5 was eliminated from being fired in the same firearm as Items 1 through 4 based on differing class characteristics.

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WebCode	Conclusions
6D84D8	Item 2 is identified as having been fired in Item 1 (9mm Luger caliber, SCCY, CPX-2, semiautomatic pistol). Items 3 and 4 are identified as having been fired in the same firearm. Item 5 is eliminated from items 1, 2, 3 and 4. There are differences in class characteristics (teardrop shaped firing pin aperture versus circular firing pin aperture). Items 3 and 4 are not identified or eliminated as having been fired in item 1 (Inconclusive). The individual characteristics present do not display agreement. However, the characteristics present suggest that items 3 and 4 were fired in a different firearm than item 1. Submission of that firearm is necessary for further examination. Identifications are made only to a degree of practical certainty and are based on sufficient agreement of the individual characteristics of tool marks. Sufficient agreement, in part, means that the likelihood of another tool producing the same marks is so remote that it is considered a practical impossibility.
6G7KP2	Item 1 consists of three Remington brand 9mm caliber, fired cartridge cases from a known firearm. Item 2 consists of one Remington brand 9mm caliber, fired cartridge case. Item 3 consists of one Remington brand 9mm caliber, fired cartridge case. Item 4 consists of one Remington brand 9mm caliber, fired cartridge case. Item 5 consists of one Remington brand 9mm caliber, fired cartridge case. The questioned cartridge cases, Items 2 through 5, were examined, documented, and compared with the known cartridge cases, Item 1, with the following results: Item 2 was identified as having been fired in the same firearm as Item 1 cartridge cases. Items 3, 4 and 5 cartridge cases were eliminated as having been fired in the same firearm as the Item 1 cartridge cases, because of a difference in individual characteristics. Item 3 and 4 were identified as having been fired in the same firearm. A comparison microscope and digital imaging were used in the examination of the cartridge cases.
6G8MNY	Examinations showed that Item 2 was discharged within the questioned firearm. Examinations showed that Item 3, Item 4 and Item 5 were not discharged within the questioned firearm.
6N7XEJ	Based on a microscopic comparison of the four cartridge cases recovered at the scene, three firearms were used. One of the cartridge cases collected at the scene (Item 2) was fired in the SCCY CPX-2 pistol (Item 1); two cartridge cases (Items 3 and 4) were fired in a second gun; and the fourth cartridge case (Item 5) was fired in a third gun.
6R8U7Y	1.The cartridge cases described in the item 1 and described in the item 2, are 9mm Luger caliber and were fired by the same firearm. 2.The cartridge case described in the item 3 and described in the item 4, are 9mm Luger caliber and were fired by the same firearm. 3. The cartridge case described in the item 5, is 9mm Luger and was fired by a firearm. 4. The cartridge case described in the item 5, is 9mm Luger caliber and wasn't fired by the firearm used to fired the cartridge cases described in the item 1 and the cartridge case described in the item 2. 5. The cartridge case described in the item 5, is 9mm Luger caliber and wasn't fired by the firearm used to fired the cartridge case described in the item 3 and the cartridge case described in the item 4.
6ZMFF3	The four cartridge cases recovered from the scene of the shooting were discharged in three different pistols. Item 2 was fired in the seized gun SCCYCPX-2. Items 3 and 4 were both fired in the same weapon, a different pistol to SCCYCPX-2. Item 5 was fired in a third pistol, possibly a Glock handgun.
72T794	The fired cartridge case of item #2 was microscopically identified as having been fired in the SCCY pistol of item #1. The fired cartridge cases of items #3 and #4 were eliminated as having been fired in the SCCY pistol of item #1 due to significant differences in class and individual characteristics. The fired cartridge cases of items #3 and #4 were microscopically

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WebCode	Conclusions
	identified as having been fired in the same unknown firearm. The fired cartridge case of item #5 was eliminated as having been fired in the SCCY pistol of item #1 due to significant differences in class characteristics. This cartridge case was also eliminated as having been fired in the same pistol as that of items #3 and #4 due to significant differences in class characteristics.
73L6FA	All the items(#2, #3, #4, #5) were microscopically examed to each other. Based on these comparative examinations and observed class and individual characteristics, it was determined that : Only item #2 was discharged from the same firearm as the known expended cartridge cases(Item #1)
74DAQ9	[No Conclusions Reported.]
778G7K	Item 2 was identified as having been fired by the same firearm that fired Item 1 based on the agreement of class and individual characteristics. Items 3 and 4 were identified as having been fired by the same firearm based on the agreement of class and individual characteristics. Items 3 and 4 could not have been fired by Item 1 based on differences in class characteristics. Item 5 could not have been fired by the firearm that fired Items 1 and 2 or the firearm that fired Items 3 and 4 based on differences in class characteristics.
7D8YKW	Examinations showed that Item 2 was discharged within the same firearm as Item 1. Examinations showed that Item 3, Item 4 and Item 5 were not discharged within the same firearm as Item 1.
7D948F	the cases No. 2 where shot from the same weapon as the three expended cartridge cases discharged from the suspect's weapon (No. 1). cases No. 3 and 4 where shot from the same weapon other than three expended cartridge cases (No. 1). at the scene used three weapons.
7FVXU9	The questioned cartridge case "Item 2" was very likely to have been fired from the firearm that fired the cartridge cases in "Item 1". The three questioned cartridges "Item 3" to "Item 5" were not fired from the firearm that fired the cartridge cases in "Item 1".
7KM6CG	Item 002 and Item 001 were identified as having been fired by the same firearm. Therefore, Item 002 was fired by the SCCY CPX-2 handgun associated with Item 001. Items 003 and 004 were identified as having been fired by the same unknown firearm. These items were not fired by the same firearm as Item 001. Item 005 was not fired in the same firearm as Items 003 and 004, or in the same firearm as Items 001 and 002. Therefore, a total of three firearms are represented by the submitted fired cartridge cases (Items 001, 002, 003, 004, and 005).
7P2PDB	Item 2 was identified as having been fired in item 1. Items 1, 3 and 4 exhibit some agreement of individual characteristics and all discernable class characteristics but are insufficient for an identification. It is not possible to identify items 3 and 4 as having been fired in item 1. Item 5 was eliminated as having been fired in item 1 due to a difference in class and individual characteristics.
7QRVMA	The reference fired cartridge cases from the SCCY pistol, specimen #1, were microscopically compared to the 9mm caliber fired cartridge cases, specimens #2 through #5. It was determined that specimens #2 through #5 were fired in three separate weapons, due to differences in the markings from the firing pins and the aperture striations. Further examination revealed the following: Specimen #2 was fired in the SCCY pistol, specimen #1. Specimens #3 and #4 were fired in a second weapon. Specimen #5 was fired in a third weapon.
7VNXU2	Item 2 was fired in the SCCY pistol. Items 3 and 4 were fired in the same firearm but it was undetermined if they had been fired in the SCCY pistol or another pistol with the same class

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WebCode	Conclusions
	characteristics. Item 5 was not fired in the SCCY pistol.
7W2YPV	Item 1B (CTS #2) was identified as having been fired by the same firearm that fired item 1A (CTS #1), based on the agreement of class characteristics and the individual characteristics observed in the breech face marks. Items 1C (CTS #3), 1D (CTS #4), and 1E (CTS #5) were eliminated as having been fired by item 1A (CTS #1) based on the differences in individual characteristics observed in the breech face marks.
7YMGP8	Items 1 through 5 were microscopically examined. Item 2, a Remington brand caliber 9mm Luger cartridge case, was identified as having been fired in the firearm represented by the Item 1 Remington brand caliber 9mm Luger cartridge cases. Items 3 and 4, each a Remington brand caliber 9mm Luger cartridge case, were identified as having been fired in the same firearm. The Item 3 and 4 cartridge cases were eliminated as having been fired in the firearm represented by the Item 1 cartridge cases. Item 5, a Remington brand caliber 9mm Luger cartridge case, exhibits markings which may be suitable for identification with the firearm in which it was fired. The Item 5 cartridge case was eliminated as having been fired in the firearm represented by the Item 1 cartridge cases and in the same firearm as the Item 3 and 4 cartridge cases. Firearms that produce general class characteristics like those present on Item 5 include Smith & Wesson brand firearms chambered to fire caliber 9mm Luger cartridges. This is not all-encompassing. It is possible another brand of firearm produced these class characteristics and is not listed due to the content of the database searched.
82PZAF	One of the 9mm Luger cartridge cases (Item 2) was fired in the same firearm as the three known cartridge cases (Item 1). Two of the 9mm Luger cartridge cases (items 3 and 4) were fired in the same firearm; however, they were not fired in the same fream as the three known cartridge cases (Item 1). The remaining 9mm Luger cartridge case (Item 5) was not fired in the same fream as the three known cartridge cases (Item 1), and it was not fired in the same firearm as items 3 and 4.
84CFJT	The cartridge cases in Items 1, 2, 3, 4, and 5 were microscopically examined in conjunction with one another. 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 cartridge cases in Item 1. B. The cartridge cases in Items 3 and 4 had both been fired in the same firearm. These cartridge cases bear similar class characteristics as the cartridge cases in Items 1 and 2. However, the lack of sufficient similar individual characteristics precludes a more conclusive determination at this time. C. The cartridge case in Item 5 bears different class characteristics than the cartridges cases in Items 1, 2, 3, and 4. Therefore, Item 5 had not been fired in the same firearms as the cartridge cases in Items 1, 2, 3, and 4. Class characteristics present on the cartridge case in Item 5 are common to Smith & Wesson M&P series pistols and some Glock pistols.
87LTGH	MICROSCOPIC COMPARISON EXAMINATION OF EVIDENCE CARTRIDGE CASES Q1 THROUGH Q4 (ITEMS #'S 2 THROUGH 5) WITH ITEM#1 REVEALED SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY THE FOLLOWING: Q1 (ITEM 2) WAS FIRED WITH THE SAME FIREARM AS ITEM 1 (FIREARM 1). Q2 AND Q3 (ITEMS 3 AND 4) WERE FIRED WITH THE SAME UNKNOWN FIREARM (FIREARM 2). DUE TO DIFFERENCES IN BREECHFACE MARKINGS AND FIRING PIN IMPRESSIONS, Q4 (ITEM 5) WAS FIRED WITH A DIFFERENT FIREARM Q1 THROUGH Q3. SHOULD ANY OTHER SUSPECT FIREARM(S) BE RECOVERED, SUBMIT SAME IN REFERENCE. "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 mark is so remote as to be considered a practical impossibility. Sufficient agreement is related to the significant duplication of random toolmarks

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	as evidenced by a pattern or combination of patterns of surface contours.
899ZPX	The discharged cartridge cases reportedly collected from the parking lot and sidewalk, sub-items 001B through 001E, were compared to the test-fired cartridge cases from the recovered firearm, sub-item 001A, using a comparison microscope. Based on these comparisons, it is my opinion that sub-item 001B (CTS item 2) was fired in the recovered firearm, and sub-items 001C through 001E (CTS items 3 through 5) were not fired in the recovered firearm based on difference in class characteristics. Sub-items 001C (CTS item 3) and 001D (CTS item 4) was also compared to each other using a comparison microscope. Based on this comparison, it is my opinion that these two cartridge cases were fired in the same firearm. The results of the comparison microscopy identified the four recovered cartridge cases from the parking lot and sidewalk were fired from three separate firearms.
8KGK87	Items 1 through 5 were microscopically examined and analyzed. Items 1 and 2 were identified as having been fired in the same firearm. Items 3 and 4 were identified as having been fired in the same firearm. Items 3 and 4 were eliminated as having been fired in the same firearm as Items 1 and 2. Item 5 exhibits microscopic markings that may be suitable for identification with the firearm in which it was fired. Item 5 was eliminated as having been fired in the same firearm(s) as Items 1 through 4.
8KLZLR	Item 2 was fired by the same firearm that fired Item 1. Items 3 and 4 were fired by the same firearm, but not by the firearm that fired Items 1 and 2. Item 5 was not fired by the firearm that fired Items 1 and 2 or by the firearm that fired Items 3 and 4. Class characteristics indicate that Item 5 was fired by a Smith & Wesson M&P or Glock pistol.
8M8LCU	The cartridge cases in Items 2, 3, 4 and 5 were microscopically examined in conjunction with the test fired cartridge cases in Item 1. Based on these comparative examinations, it was determined that: A) The cartridge case in Item 2 had been fired in the same firearm as those in Item 1. B) The cartridge cases in Items 3 and 4 bear some similar class characteristics as those found on the Item 1 cartridge cases. However, no similar individual characteristics were found to link the cartridge cases in Items 3 and 4 with those in Item 1. C) The cartridge case in Item 5 had not been fired in the same firearm as those in Item 1 due to differences in class characteristics. The cartridge cases in Items 3, 4 and 5 were also microscopically examined in conjunction with one another. Based on these comparative examinations, it was determined that: A) The cartridge cases in Items 3 and 4 had been fired in the same 9 mm caliber firearm. B) The cartridge case in Item 5 had been fired in a different firearm than those in Items 3 and 4.
8WDLRM	The Item 2 cartridge case was identified, within the limits of practical certainty, as having been fired in the same firearm as the Item 1 test fired cartridge cases. The Item 3 and 4 cartridge cases were identified, within the limits of practical certainty, as having been fired in the same firearm. The Item 5 cartridge case was not fired in the same firearm that fired Items 1 and 2 or Items 3 and 4. *Three (3) firearms are represented.
8Y3MHP	RESULTS: Item 2: The cartridge was Identified to the Item 1A cartridge case. The cartridge case was Eliminated to the Item 3, 4, and 5 cartridge cases. Item 3, Item 4: The cartridge cases were Identified as having been fired in the same unknown firearm. The cartridge cases were Eliminated to the Item 5 cartridge case. Item 5: The Item 1 cartridge case displays class characteristics consistent with firearms by Smith &Wesson (M&P series). REMARKS: The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: Identified: Agreement of all discernible class characteristics and sufficient agreement of individual characteristics where the extent of

TABLE 2

WebCode	Conclusions
	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 discernable class characteristics and some disagreement of individual characteristics, but insufficient for an elimination. Eliminated: Significant disagreement of discernable class characteristics and/or individual characteristics leading to the conclusion that the items were not fired in/from the same firearm.
8ZEY6E	Exhibits 1 (test fires) and Exhibits 2, 3, 4, and 5 (expended cartridge cases) are all 9mm Luger caliber fire cartridge cases. Exhibits 1 through 5 were microscopically compared to each other. An agreement of class characteristics and a sufficient agreement of individual characteristics were observed between Exhibits 1 and 2. Thus, it was concluded that Exhibits 1 and 2 were fired in the same firearm. An agreement of class characteristics and a sufficient agreement of individual characteristics were observed between Exhibits 3 and 4. Thus, it was concluded that Exhibits 3 and 4 were fired in the same firearm. Exhibits 1 and 2 were not fired in the same firearm as Exhibits 3, 4, and 5 based on a disagreement of class characteristics. Exhibits 3 and 4 were not fired in same firearm as Exhibit 5 based on a disagreement of class characteristics.
9JNJUA	The fired cartridge case of item #2 was microscopically identified as having been fired in the SCCY pistol that fired the cartridge cases of item #1. The fired cartridge cases of items #3 and #4 were microscopically identified as having been fired in the same unknown 9mm Luger caliber firearm. The fired cartridge case of item #5 was found to have been fired in a second unknown 9mm Luger caliber firearm.
9KG48D	Exhibit 1 = Exhibit 2 based on sufficient agreement of individual characteristics observed. Exhibit 3 = Exhibit 4 based on sufficient agreement of individual characteristics observed. Exhibits 3 and 4 were eliminated as having been fired from exhibit 1 based on differences of individual characteristics (BFM, lack of FPAS). Suspect weapons include 9mm caliber SCCY pistols. Exhibit 5 was eliminated as having been fired from Exhbit 1 or the weapon which fired Exhibits 3 and 4 based on differences in class characteristics (FPA shape). Suspect weapons include 9mm caliber Smith & Wesson M&P series pistols.
9MM2R2	It is the opinion of this examiner that Item #2 was discharged from known submitted SCCY firearm based upon sufficient agreement of both class and individual characteristics. Item # 3 and Item #4 were excluded as having been discharged from the submitted SCCY firearm, based upon disagreement of individual markings. Item #5 was excluded as having been discharged from the submitted SCCY known firearm, based upon disagreement of individual markings.
9RGREZ	Item #01.01 three (3) expended casings (tests discharged from suspect's weapon). Item #01.02 one (1) expended casing. Item #01.03 one (1) expended casing. Item #01.04 one (1) expended casing. Item #01.05 one (1) expended casing. Results: Item #01.01: The expended casings were originally components of three (3) Remington-Peters brand 9mm caliber cartridges. Item #01.02: The expended casing was originally a component of a Remington-Peters brand 9mm caliber cartridge. Microscopic examination and comparison of the submitted test expended casings (item #01.01) with item #01.02 revealed sufficient agreement of individual characteristics to conclude that item #01.02 had been fired in item #01.01. Items #01.03, and #01.04: The expended casings were originally components of two (2) Remington-Peters brand 9mm caliber cartridges. Microscopic examination and

TABLE 2

WebCode	Conclusions
	comparison of the two (2) expended casings with the test expended casings (item #01.01) revealed sufficient disagreement of individual characteristics to conclude that they had not been fired in item #01.01. Further microscopic examination and comparison of the two (2) expended casings revealed sufficient agreement of individual characteristics to conclude that they had both been fired in the same unknown weapon, (a second weapon). Item #01.05: The expended casing was originally a component of a Remington-Peters brand 9mm caliber cartridge. Microscopic examination and comparison of item #01.05 with the test expended casings (item #01.01), and items #01.02- #01.04 revealed sufficient disagreement of individual characteristics to conclude that it had not been fired in item #01.01, nor items #01.02- #01.04, (a third weapon).
9X92NY	The cartridge case Item 2 was Identified as having been fired in the same firearm as the cartridge cases Item 1. The cartridge cases Items 3 and 4 were Identified as having been fired in a single (second) firearm. The cartridge case Item 5 was fired in a third firearm. It bears class characteristics commonly encountered in 9mm Luger caliber firearms by Smith & Wesson M&P series.
A49ZCU	CARTRIDGE CASES: Items 1 and 2: The Items 1 and 2 cartridge cases were Identified as having been fired in a single firearm. The Items 1 and 2 cartridge cases were Eliminated to the Items 3, 4 and 5 cartridge cases. Items 3 and 4: The Items 3 and 4 cartridge cases were Identified as having been fired in a second firearm. Item 5: The Item 5 cartridge case was Eliminated to the Items 3 and 4 cartridge cases. The Item 5 cartridge case was fired in a third firearm. The cartridge case displays class characteristics consistent with firearms by Smith & Wesson (M&P series).
A9HN4V	The four 9mm Luger caliber cartridge cases recovered from the scene (Items 2, 3, 4, 5) were examined and found to have been fired by three firearms. I compared the test fired cartridge cases from the SCCY CPX-2 firearm (Item 1) to the cartridge case (Item 2) and the same class of firearm produced marks and sufficient corresponding individual microscopic marks were found. The SCCY firearm (Item 1) fired the cartridge case (Item 2). Items 3 and 4 had the same class of firearm produced marks and sufficient corresponding individual microscopic marks to conclude that they were fired by a single firearm, but eliminated from having been fired by the SCCY handgun (Item 1). Item 5 had different class marks than the other Items 1, 2, 3, 4 and was fired by a different firearm.
AP8QLJ	I microscopically compared the submitted spent cartridge case (Item 2) to test fired cartridge cases (Item 1) produced in the SCCY CPX-2 handgun, comparing both class and individual characteristics. From this examination, I formed the opinion that there was agreement of all discernable class characteristics, and that there was sufficient agreement of the observed individual characteristics, and therefore concluded that the SCCY CPX-2 handgun had fired the submitted exhibit (Item 2). I microscopically compared the submitted spent cartridge case (Item 3) to test fired cartridge cases (Item 1) produced in the SCCY CPX-2 handgun, comparing both class and individual characteristics. From this examination, I formed the opinion that there were differences in the size, shape and general appearance of the class characteristics, and therefore the SCCY CPX-2 handgun did not fire the submitted exhibit (Item 3). (Similar wording would be used for elimination of Items 4 and 5).
AXHEGZ	Item #1, #2, #3, #4 #5 where fired from the same firearms.
AXYJ46	The recovered questioned expended cartridge case Item 2 have been discharged from the same firearm as the known expended cartridge cases (Item 1). The recovered questioned expended cartridge cases Items 3 and 4 have not been discharged from the same firearm as

TABLE 2

WebCode	Conclusions
	the known expended cartridge cases (Item 1). Expended cartridge cases Items 3 and 4 have been discharged from the same firearm. The recovered questioned expended cartridge cases Item 5 cannot be determined if it was discharged or not with the same firearm as the known expended cartridge cases (Item 1).
AYFVLB	Item 1 was Identified to Item 2. Items 1 and 2 were Eliminated to Items 3, 4, and 5. Item 3 was Identified to Item 4. Items 3 and 4 were Eliminated to Item 5 Item 5 displays class characteristics consistent with pistols by Smith & Wesson (M&P Series), among possible others.
BB3GCX	Item #2 was fired in the Item #1 pistol. Items #3 and 4 were fired in the same unknown firearm. Item #5 was fired in a different firearm than Items 1 thru 4.
BFVL3N	The examination of the recovered (questioned)expended cases under a comparison microscope, allow us to conclude that the item 2 was fired from the seized SCCY CPX-2. The examination also showed that items 3 and 4, were fired from a second firearm, and that a third one shot the item 5.
BJFGYL	Items 1 & 2:The cartridge cases were Identified to each other. Items 3 & 4: The cartridge cases were Identified to each other. The cartridge cases were Eliminated to the Item 1 & 2 cartridge cases. Item 5: The cartridge case displays class characteristics consistent with firearms by Smith & Wesson (M&P series). The cartridge case was Eliminated to the Item 1 & 2 and Item 3 & 4 cartridge cases.
BJH766	Items 1-1-1, 1-1-2, and 1-1-3 (CTS item 1) 9mm Luger caliber cartridge cases were submitted as known standards for comparison. Items 1-2-1 (CTS item 2), 1-3-1 (CTS item 3), 1-4-1 (CTS item 4), and 1-5-1 (CTS item 5) are 9mm Luger caliber cartridge cases. Based on agreement of all discernible class characteristics, items 1-2-1 (CTS item 2), 1-3-1 (CTS item 3), and 1-4-1 (CTS item 4) were microscopically compared to item 1-1-1 (CTS item 1) known standard. Item 1-2-1 (CTS item 2) was identified as having been fired by the same firearm that fired item 1-1-1 (CTS item 1) based on sufficient similarities in the patterns of microscopic markings observed between the compared items. Items 1-3-1 (CTS item 3) and 1-4-1 (CTS item 4) could neither be identified nor eliminated as having been fired by the same firearm that fired item 1-1-1 (CTS item 1). These inconclusive conclusions are the result of the following: differences observed in the overall appearance of the cartridge cases, similarities observed in the patterns of microscopic markings that were insufficient for a conclusion of identification, and a difference in the composition of the primer material between the compared items that may have contributed to the difference in the overall appearance of the compared items. Items 1-3-1 (CTS item 3) and 1-4-1 (CTS item 4) were identified as having been fired by the same firearm based on sufficient similarities in the patterns of microscopic markings observed between the compared items. Item 1-5-1 was eliminated as having been fired by the same firearm(s) that fired items 1-1-1, 1-2-1, 1-3-1, and 1-4-1 based on differences in class characteristics.
BWPW6Q	Item 2, a fired cartridge case collected at the scene, was identified as having been fired in the suspect's firearm, a SCCY CPX-2 9mm caliber pistol based on the presence of sufficient agreement of individual marks in the ejector, extractor, firing pin aperture shear, and firing pin drag mark. Items 3, 4, and 5 were eliminated as having been fired in this firearm. Based upon the presence of sufficient agreement of individual marks in the firing pin aperture shear, Items 3 and 4 were identified as having been fired in the same unknown firearm. Item 5 was fired in a different unknown firearm.
BXZ9RF	See report in case file. [Attachment not provided by participant]

TABLE 2

WebCode	Conclusions
BY7ERG	Results of Examination: Item 1 through Item 5 are 9mm Luger (9x19mm) cartridge cases that bear the headstamp of Remington ammunition. The Item 2 cartridge case was identified as having been fired in the Item 1 pistol. The Item 3 and Item 4 cartridge cases were identified as having been fired in the same firearm. The Item 5 cartridge case was excluded as having been fired in the same firearms as the Item 1 through Item 4 cartridge cases. The Item 1 and Item 2 cartridge cases were excluded as having been fired in the same firearm as the Item 3 and Item 4 cartridge cases.
CHJR3P	The test fired cartridge cases in Item 1 were microscopically examined in conjunction with the cartridge cases in Items 2, 3, 4, and 5. Based on these comparative examinations, the following was determined: a. Items 1 and 2 were fired in the same firearm. b. Items 3 and 4 bear the same class characteristics and some similar individual characteristics as Item 1. However, these similarities are insufficient for a more conclusive determination. Microscopic examination of Items 3 and 4 in conjunction with one another revealed that they bear the same class characteristics and some similar individual characteristics. However, these similarities are insufficient for a more conclusive determination. c. Item 5 was not fired in the same firearm as Item 1 due to differences in class characteristics. The characteristics present on Item 5 are consistent with Smith & Wesson M&P series pistols and newer Glock model pistols (model 43 and generation 5 models). Any suspect firearm should be submitted for comparison.
CLJD22	Microscopic examination and comparison of the test fired cartridge cases Item 1 to fired 9 mm caliber cartridge case Item 2 reveals corresponding toolmarks in the firing pin and breech face impressions establishing that Item 2 was fired by the same firearm that fired the three (3) test fired cartridge cases Item 1. Microscopic examination and comparison of the test fired cartridge cases Item 1 to fired 9 mm caliber cartridge cases Items 3, 4, and 5 reveals dissimilar toolmarks in the firing pin and breech face impressions establishing that Items 3, 4, and 5 were not fired by the same firearm that fired the three (3) test fired cartridge cases Item 1. Microscopic examination and comparison of fired 9 mm caliber cartridge case Item 3 to fired 9 mm caliber cartridge case Item 4 reveals corresponding toolmarks in the firing pin and breech face impressions establishing that Items 3 and 4 were fired by the same unknown 9 mm caliber firearm. Microscopic examination and comparison of fired 9 mm caliber cartridge case Item 5 to fired 9 mm caliber cartridge cases Items 3 and 4 reveals dissimilar toolmarks in the firing pin and breech face impressions establishing that Item 5 was fired by a second unknown 9 mm caliber firearm.
CPCTYN	Item 1 consists of three 9mm Luger cartridge cases reportedly fired from a SCCY CPX-2 pistol. Item 2 is a 9mm Luger cartridge case which was identified as having been fired in the same firearm as Item 1, due to sufficient correspondence of individual microscopic characteristics. Items 3 and 4 are 9mm Luger cartridge cases which were identified as having been fired in the same firearm, due to sufficient correspondence of individual microscopic characteristics. These items were not fired in the same firearm as Items 1 and 2, due to significant differences in individual characteristics. Item 5 is a 9mm Luger cartridge case which was not fired in either of the same firearms as Items 1 and 2, or Items 3 and 4, due to differences in class characteristics.
CPFRDB	The Item 2 cartridge case was identified as having been fired by the same firearm as the Item 1 "tests" based on microscopic comparison and the correspondence of individual characteristics. The Item 3 and Item 4 cartridge cases were not fired by the same firearm as Items 1 and 2, based on differences in individual characteristics. Items 3 and 4 were identified as having been fired in the same unknown firearm, based on microscopic comparison and the correspondence of individual characteristics. The Item 5 cartridge case was fired in an additional unknown firearm, based on different class characteristics.

TABLE 2

WebCode	Conclusions
CUPHPC	1.The cartridge case (item 2) was discharged from the same firearm as cartridge case (item 1). 2.The cartridge cases(item 3,4,5) were not discharged from the same firearm as cartridge case (item 1). 3.The cartridge cases(item 3,4) were discharged from the same firearm.
CUWTYH	The item #2 cartridge case was fired in the same firearm as the item #1 tests. This is based on agreement of class characteristics and sufficient agreement of individual characteristics. The items #3 & 4 cartridge cases were fired in the same unknown firearm. This is bases on agreement of class characteristics and sufficient agreement of individual characteristics. They were not fired in the same firearm as the item #1 tests. This is based on significant disagreement of individual characteristics of both #1 & 2 verses #3 & 4. The item #5 cartridge case was not fired in the same firearm as any of the item #1-4 cartridge cases. This is due to different class characteristics within the firing pin and shearing marks.
CVAKTK	I conducted a comparison examination of cartridge case Item 1 (test) with those of exhibit Items 2, 3, 4 & 5. Item 2 is a positive identification and in my opinion was discharged in the same firearm as that which produced Item 1. Items 3, 4 & 5 were not discharged in the same firearm that produced Items 1 & 2. Items 3 & 4 however are a match to each other and were discharged in the same firearm but not that which produced Items 1 & 2. Item 5 was discharged in a third as yet unknown firearm.
CWYHUJ	CARTRIDGE CASES: Items 1 and 2: Item 2 was Identified to Item 1. Items 3 and 4: Item 3 was Identified to Item 4. Items 3 and 4 were Eliminated to Item 1. Item 5: Item 5 was Eliminated to Items 1, 3 and 4. Item 5 displays class characteristics consistent with firearms by Smith & Wesson (M&P series).
CXCWHT	Item 2 was discharged from the same pistol than Item 1. Items 3 and 4 were discharged from a same pistol (different pistol than Items 1 and 2). Item 5 was discharged from a different pistol than the other Items.
D33E4N	Cartridge Case Analysis: Methodology: Physical (Visual Examination), Microscopy (Comparison Microscope): Item 2, the cartridge case, was fired in Item 1, the SCCY pistol, based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual characteristics. Items 3 and 4, the cartridge cases, were not fired in Item 1, the Sccy pistol, based upon different class and individual characteristics. Item 5, the cartridge case, was not fired in Item 1, the Sccy pistol, based upon different class characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 3 and 4, the cartridge cases, based upon different class characteristics.
D66RTV	After microscopic comparison it was determined that Item #2 was fired from the SCCY CPX-2 9mm handgun based on sufficient agreement of class and individual characteristics of the aperture shear marks. After microscopic comparison, it was determined that Items #3 and #4 were fired from the same firearm, based based on sufficient agreement of class and individual characteristics of the breech face marks. After examination, it was determined that Item #5 was not fired from the SCCY CPX-2 9mm hand gun based on differences of class characteristics, different aperture shapes. After examination, it was determined that Item #5 was not fired from the same firearm as Items #3 and #4, based on differences of class characteristics and individual characteristics. Different aperture shear and breech face marks.
DBVAHL	See attached report included in the case file [Attachment not provided by participant]
DJCFA7	Item 1 and Item 2 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual

TABLE 2

WebCode	Conclusions
	characteristics, Items 1 and 2 are identified as having been fired in the same specific firearm. Items 1 and 2 were microscopically examined and compared to Items 3 and 4. Based on the observed disagreement of their individual characteristics and some class characteristics, Items 3 and 4 were not identified as having been fired in the same firearm as Items 1 and 2. Items 3 and 4 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items 3 and 4 are identified as having been fired in the same specific firearm. Item 5 exhibits class characteristics that differ from those of Items 1, 2, 3 and 4. It is eliminated as having been fired in the same firearm(s) that fired Items 1, 2, 3 and 4.
DRKD6G	The fired cartridge case from submission 1b (CTS item 2) was identified as having been fired in the same firearm as submission 1a (CTS item 1) based on sufficient agreement in individual characteristics present to conclude an identification. The fired cartridge cases from submissions 1c (CTS item 3) and 1d (CTS item 4) were identified to each other as having been fired in a second unknown firearm based on sufficient agreement in individual characteristics present to conclude an identification. Submissions 1c and 1d were eliminated from the firearm that fired submissions 1a and 1b based on different class characteristics or sufficient individual characteristics differences. The fired cartridge case from submission 1e (CTS item 5) was eliminated as having been fired in either of the firearms that fired submissions 1a-1d based on different class characteristics present.
DU3DNP	One of the submitted cartridge cases, Item 2, was fired from the suspect's pistol. Two other firearms were used to fire the remaining three cartridge cases, Items 3 to 5.
DVXHCB	Comparison microscope examinations were conducted and the findings of this examiner are as follows: 1. Casing M (Item 2) was fired in the submitted 9mm SCCY pistol, model CPX-2 (Item 1). 2. Casings N (Item 3) and O (Item 4) were fired in a second 9mm firearm. Suspect weapons are unknown. 3. Casing P (Item 5) was fired in a third 9mm firearm. Suspect weapons include 9mm Smith & Wesson M&P pistols. 4. Any suspect weapon should be submitted to the laboratory for analysis.
DY67A9	The Item 2 cartridge case was Identified to the Item 1 cartridge cases. The Item 3 and Item 4 cartridge cases were Identified to each other. They were Eliminated to the Item 1 and Item 2 cartridge cases. The Item 5 cartridge case was Eliminated to the Item 1, Item 2, Item 3 and Item 4 cartridge cases. Item 5 displays class characteristics similar to cartridge cases fired in Smith & Wesson (M&P series) pistols, among possible others.
E3F46F	I conducted a comparative microscopic examination between the three 9mm fired cartridge cases in Item 1 and the single 9mm fired cartridge case in each of the four Items 2, 3, 4 and 5; with the following results: At least three different firearms were used to discharge the cartridge cases in these five Items. The Item 2 cartridge case was discharged in the same firearm that discharged the Item 1 cartridge cases. The Items 3, 4 and 5 cartridge cases were not discharged in the same firearm that discharged the Item 1 cartridge cases. The Item 3 and 4 cartridge cases display microscopic information to suggest they had been discharged in the same firearm, however the marks were not sufficiently clear in quantity or quality to be definitive. The Item 5 cartridge case was discharged in a different firearm to the one that discharged Items 1 and 2 and the one that likely discharged Items 3 & 4.
E6KBCT	First expended cartridge case recovered from the parking lot (item 2), was fired by the same firearm as the know expended cartridge cases (item 1). The expended cartridge cases recovered from the scene were not fired by the suspect firearm collected (items 3, 4 and 5).
E7FP4R	Because the class characteristics of Item 5 differ from those of Item 1 we would say that: Item 5

TABLE 2

WebCode	Conclusions
	was discharged from another firearm with different class characteristics. Because we found some similar class characteristics in Items 1, 2,3, and 4 we would use the Bayesian approach for conclusions about these items. Using the Bayesian approach in casework we consider our findings under two hypotheses. For the 'unknown' cartridge cases item 2,3, 4 and the three 'known' cartridge cases item 1, the following hypotheses were considered: - H1: The questioned cartridge cases Item 2,3 and 4 were discharged from the firearm that the three cartridge cases Item 1 were discharged from. - H2: The questioned cartridge cases Item 2,3 and 4 were discharged from another firearm of the same caliber and with the same class characteristics as the firearm that the three cartridge cases Item 1 was discharged from. The likelihood of the findings under the two hypotheses is estimated. The likelihood ratio is expressed on a 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 of the examination regarding the cartridge case item 2 are extremely more probable if Hypothesis 1 is true, then if Hypothesis 2 is true. The findings of the examination regarding the cartridge cases item 3 and 4 are at least very much more probable if Hypothesis 2 is true, then if Hypothesis 1 is true.
E7GNXZ	A microscopic examination was performed on the submitted cartridge cases. We are of the opinion that there was sufficient firing detail present on item 2 to indicate it had been fired in the same weapon as item 1. There was sufficient firing detail present on item 3 to indicate it had been fired in the same weapon as item 4, but not the same weapon as items 1 and 2. Item 5 had been fired in a third weapon.
E7VDYR	It was established that of the four (4) questioned vanilla described in ITEM 2, 3, 4 and 5, the only one that was struck and extracted by the firearm seized from the suspect, gun type, marks SCCY CPX-2 caliber 9X19 millimeters , was the one described in ITEM 2, which presented identifying characteristics that allowed establishing its uniprocedence. It was established that of the four (4) questioned cartridge cases described in ITEM 2, 3, 4 and 5, the only one that was struck and extracted by the firearm seized from the suspect, gun type, brand SCCY CPX-2 caliber 9X19 millimeters, was the one described in ITEM 2, which presented identifying characteristics that allowed establishing its uniprocedence.
E88C9L	Comparative microscopic examination of the test fired cartridge cases in Item 1 in conjunction with Items 2 through 5 revealed the following: A) Item 2 was fired in the same pistol as the cartridge cases in Item 1. B) Item 3 and Item 4 were fired in the same 9mm Luger caliber firearm. C) Items 1 and 2 bear the same class and some similar individual characteristics as Items 3 and 4, but these similarities are insufficient for a more conclusive determination. D) Due to a difference in class characteristics, Item 5 was not fired in the same firearm as Items 1 and 2 or Items 3 and 4.
E89T8Y	The reference fired cartridge cases fired from the SCCY pistol, specimen #1, were microscopically compared to the 9mm caliber fired cartridge cases, specimens #2 through #5. It was determined that specimens #2 through #5 were fired in three different weapons due to differences in the aperture striations and the markings from the breech faces. Further examination revealed the following: Specimen #2 was fired in the SCCY pistol, specimen #1. Specimens #3 and #4 were fired in a second weapon. Specimen #5 was fired in a third weapon.
EB9VFA	Item 2-5 were examined and determined to be four (4) fired, R-P 9mm LUGER casings. Item 2-5 were microscopically inter-compared. It is my opinion that item 3 and item 4 were fired by the same unknown firearm based on sufficient agreement of breechface marks seen on

TABLE 2

WebCode	Conclusions
	primers. Item 2-5 were then microscopically compared to the test fire casing labeled item 1. It is my opinion that item 2 was fired by the SCCY, CPX-2 9mm pistol based on significant agreement of aperture shear marks seen on the primers.
EBVE82	Item 2, fired 9mm Luger cartridge case, was microscopically compared to the test fired cartridge cases in Item 1. It was determined that Item 2 was fired in the same firearm as the Item 1 test fires. Items 3, 4, and 5, fired 9mm Luger cartridge cases, were microscopically compared to the test fired cartridge cases in Item 1. It was determined that Item 5 was not fired in the same firearm as the Item 1 test fires. Items 3 and 4 could not be eliminated or identified as having been fired in the same firearm as the Item 1 test fires. Items 3 and 4 were examined and were identified as having been fired by the same firearm. Item 5 was examined and was eliminated as having been fired in the same firearm as Items 3 and 4. Items 3, 4, and 5 exhibit sufficient toolmark information for comparison to a known firearm should one be submitted and test fired.
EBWKXP	Methodology – Comparison Microscopy: Items 1A, 1B, and 1C, 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 2, the cartridge case, was fired in the same firearm as Items 1A, 1B, and 1C, the cartridge cases, based upon corresponding class and individual microscopic characteristics. A reference from this group will be entered into NIBIN. Items 3 and 4, 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 4, the cartridge cases, were not fired in the same firearm as Items 1A, 1B, 1C, and 2, the cartridge cases, based upon different individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 1A, 1B, 1C, and 2, the cartridge cases, based upon different class characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 3 and 4, the cartridge cases, based upon different class characteristics. NIBIN: Item 5, the cartridge case, will be entered into NIBIN. The results of NIBIN entries and searches will be the subject of a separate report.
ECP3NC	Microscopic comparison examinations were conducted between submitted cartridge case evidence and test cartridges fired in K-1, resulting in the conclusions: QC-1 was fired in K-1. This identification was based on sufficient agreement of individual characteristics. QC-2 and QC-3 were fired in a second firearm, firearm unknown. This identification was based on sufficient agreement of individual characteristics. QC-4 was fired in a third firearm, firearm unknown. This conclusion was due a difference in class characteristics between QC-4 and QC-1, QC-2, and QC-3.
EDY4HX	The item 2 cartridge case was identified as having been fired in the same firearm as the known expended cartridge cases (Item 1). Because of differences in individual characteristics the items 3 to 5 cartridge cases could not have been fired in the same firearm as the known expended cartridge cases (Item 1)
EDYAQ6	Item 2 was Identified to the Item 1 pistol. Items 3 and 4 were Identified to each other. Items 3 and 4 were Eliminated to the Item 1 pistol. Item 5 was Eliminated to the Item 1 pistol and to Items 3 and 4.
EREM9J	See report in case file. [Attachment not provided by participant]
F93PFU	The suspicious vanilla marked with the number "2" (M19/8500AV1/4) was struck by the suspicious firearm gun type SCCY CPX-2 9mm. The suspicious vanillas marked with the number "3" (M19/8500AV2/4) and "4" (M19/8500AV3/4) were struck in a firearm different from the suspicious weapon. The suspicious vanilla marked with the number "5"

TABLE 2

WebCode	Conclusions
	(M19/8500AV4/4) was fired on a firearm different from the previous ones.
FDUHLM	The Item 2 cartridge case was identified, within the limits of practical certainty, as having been fired by the recovered SCCY CPX-2 9mm Luger calibre handgun that was used to generate the Item 1 test fired cartridge cases. The Item 3 and 4 cartridge cases were identified, within the limits of practical certainty, as having been fired by the same firearm. The Item 3 and 5 cartridge cases were not fired by the same firearm or by the recovered SCCY CPX-2 9mm Luger calibre handgun that was used to generate the Item 1 test fired cartridge cases.
FM6R7U	Examination of Item #1 revealed three (3) 9mm caliber cartridge cases reportedly test fired in a SCCY semi-automatic pistol. Examination of Item #2 revealed one (1) fired 9mm caliber cartridge case. Microscopic examination of Item #1 with Item #2 revealed Item #2 was fired in the SCCY semi-automatic pistol. Examination of Items #3 & #4 revealed two (2) fired 9mm caliber cartridge cases. Microscopic examination of Items #3 & #4 revealed they were fired in the same firearm. Microscopic examination #5 revealed one (1) fired 9mm caliber cartridge case that was not fired in the SCCY semi-automatic pistol or the same firearm as Items #3 & #4 due to differences in class characteristics.
FQJLMR	The submitted fired cartridge case, Item 2, was fired in the same firearm as the submitted tests, Item 1. The submitted fired cartridge cases, Items 3 and 4, were fired in the same firearm. The submitted fired cartridge cases, Items 3, 4, and 5, were not fired in the same firearm as the submitted test fired cartridge cases, Item 1, or the submitted fired cartridge case, Item 2. The submitted fired cartridge cases, Items 3 and 4, were not fired in the same firearm as the submitted fired cartridge case, Item 5. Due to the common class characteristics observed on their breechface and firing pin impressions, a list of possible firearm manufacturers could not be determined for the submitted fired cartridge cases, Items 3 and 4. The submitted fired cartridge case, Item 5, is consistent with having been fired in a short recoil operated firearm. A list of possible firearm manufacturers would include, but not be limited to, the following: Smith and Wesson Model M&P.
FW3DTE	Item 2 was fired in Item 1 based on corresponding discernible class and individual characteristics (identification). Items 3 and 4 were fired in the same unknown firearm based on corresponding discernible class and individual characteristics (identification). Item 5 was not fired in Item 1 or in the same unknown firearm as Items 3 and 4 based on different class and individual characteristics (elimination). Items 3 and 4 could not be identified or eliminated as having been fired in Item 1 due to insufficient corresponding individual characteristics (inconclusive).
FYDQFT	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 and 4 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. Microscopic examination and comparison revealed that Items 3 and 4 could neither be identified nor eliminated as having been fired in the same firearm that fired the test fires, Item 1, due to insufficient agreement / disagreement of individual characteristics; however, similar class characteristics were noted. Item 5 was microscopically eliminated as having been fired in the same firearm that fired the test fires, Item 1, and from the same unknown firearm that fired Items 3 and 4 due to disagreement of discernible class characteristics.
G46NXC	Item 1 matched item 2 and were discharged in the same firearm. No other item (3-5)/spent cases match item 1. Items 3 + 4 matched each other + were discharged in the same firearm.

TABLE 2

WebCode	Conclusions
	Item 5 match no other spent case. Three firearms used in total.
GE4N4N	The cartridge marked as item 2 provided with the test 19-526 "fire arms examination" was fired from the same weapon as the expended cartridges cases item 1. The cartridges cases marked as item 3,4 and 5 provided with the mentioned test 19-526, were not discharged from the same weapon of the expended cartridge cases of the item 1.
GE6BP9	MICROSCOPIC COMPARISON EXAMINATIONS OF THE Q1 THROUGH Q4 (ITEM 2 THROUGH 5) 9MM LUGER EVIDENCE CARTRIDGE CASES WITH THE CARTRIDGE CASES (ITEM 1) TEST FIRED WITH THE K1 SCCY CPX-2 9MM LUGER HANDGUN REVEALED THAT SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY THE FOLLOWING: Q1 (ITEM 2) WAS FIRED WITH THE K1 SCCY HANDGUN. Q2 AND Q3 (ITEMS 3 AND 4) WERE FIRED WITH THE SAME UNKNOWN FIREARM (FIREARM 1). Q4 (ITEM 5) WAS FIRED WITH A SECOND UNKNOWN FIREARM (FIREARM 2). Q4 HAS MARKS OF VALUE AND IS SUITABLE FOR FUTURE COMPARISONS. Q4 BEARS CLASS CHARACTERISTICS LIKE THOSE PRODUCED BY SMITH & WESSON M&P PISTOLS AND SOME GLOCK PISTOLS. SHOULD ANY OTHER SUSPECT FIREARMS BE RECOVERED, PLEASE SUBMIT AND REFERENCE THE ABOVE CC#. “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 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.
GEHKK8	1) Casing M (Item 2) was fired in the submitted 9mm SCCY pistol, model CPX-2 (Item 1). 2) Casing N (Item 3) and casing O (Item 4) were fired in a second 9mm firearm. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted for examination. 3) Casing P (Item 5) was fired in a third 9mm firearm. Suspect weapons include 9mm Smith & Wesson M&P pistols; however, any suspect weapon should be submitted for examination.
GG9J2Q	Item 2 was fired in the same firearm as Item 1. Item 3 was fired in the same firearm as Item 4. Items 3 and 4 were fired in a firearm capable of chambering and discharging a 9mm Luger caliber cartridge. Due to commonly seen class characteristics, a possible firearm manufacturer was not determined. Due to a similarity of class characteristics and a lack of matching marks/pattern areas of individual characteristics, Items 3 and 4 were unable to be eliminated or identified as having been fired in the same firearm as Items 1 and 2. Item 5 was not fired in the same firearm(s) as Items 1, 2, 3, and 4. Item 5 was fired in a firearm capable of chambering and discharging a 9mm Luger caliber cartridge. A list of possible firearm manufacturers would include, but not be limited to, the following: Smith & Wesson.
GJYL8E	Item #1 and item #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 in the same firearm. Item #3 and item #4 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, items #3 and #4 are identified as having been fired in the same firearm. Item #1 and items #3, #4, #5 were microscopically examined and compared. Based on the observed disagreement of individual characteristics, item #1 and items #3, #4, #5 are eliminated as having been fired in the same firearm. Item #5 and items #2, #3, #4 were microscopically examined and compared. Based on the observed disagreement of individual characteristics, item #5 and items #2, #3, #4 are eliminated as having been fired in the same firearm. The evidence will be returned to the submitter.

TABLE 2

WebCode	Conclusions
GN9YND	1) Examinations showed the questioned expended cartridge case in Item 2 was discharged within the same firearm as the known expended cartridge cases in Item 1. 2) Examinations showed the questioned expended cartridge cases in Items 3, 4 and 5 were not discharged within the same firearm as the known expended cartridge cases in Item 1.
GR9QJQ	Microscopic comparison made between test shots from the submitted Firearm (Item #1) and recovered discharged Cartridge Cases Items #2, #3, #4, #5 with the following results: Item #2 - Identification - Fired by the submitted Firearm. Item #3 - Exclusion - Fired by a different (Second) Firearm. Item #4 - Exclusion - Fired by a different (Second) Firearm. Item #5 - Exclusion - Fired by a different (Third) Firearm
GRB89B	MICROSCOPIC COMPARISON OF EVIDENCE CARTRIDGE CASES ITEM 2 THROUGH ITEM 5 WITH TEST FIRED CARTRIDGE CASES FROM ITEM 1 REVEALS THAT SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY THE FOLLOWING: ITEM 2 WAS FIRED WITH ITEM 1. ITEM 3 AND ITEM 4 WERE FIRED WITH A SECOND UNKNOWN FIREARM (FIREARM 2). ITEM 5 WAS FIRED WITH A THIRD UNKNOWN FIREARM (FIREARM 3). ITEM 3, ITEM 4, AND ITEM 5 CAN BE ELIMINATED AS HAVING BEEN FIRED WITH ITEM 1 DUE TO DIFFERENCES IN BREECH FACE AND FIRING PIN IMPRESSIONS. ITEM 5 CAN BE ELIMINATED AS HAVING BEEN FIRED WITH THE SAME UNKNOWN FIREARM AS ITEM 3 AND ITEM 4 DUE TO DIFFERENCES IN BREECH FACE AND FIRING PIN IMPRESSIONS.
GV6XYY	The Item 2 cartridge case was Identified to the Item 1 cartridge cases. The Item 3 and 4 cartridge cases were Identified to each other; however, they were Eliminated from the Item 1 and 2 cartridge cases. The Item 5 cartridge case was Eliminated from the Item 1 and 2 cartridge cases. It was also Eliminated from the Item 3 and 4 cartridge cases. The Item 5 cartridge case displays class characteristics similar to pistols by Glock (model 43 and Gen 5 series) and Smith & Wesson (M&P series).
H2EE9N	The submitted fired cartridge case, Item 2, was fired in the same pistol as the submitted test fired cartridge cases, Item 1, reported to be from a SCCY CPX-2 semiautomatic pistol. It is inconclusive if the submitted fired cartridge cases, Items 3 and 4, were fired in the same firearm or were fired in the same firearm as the submitted fired cartridge cases, Items 1 and 2, due to similar class characteristics and a lack of repeatable individual characteristics. The submitted fired cartridge case, Item 5, was eliminated as having been fired in the same firearm(s) as the submitted fired cartridge cases, Items 1, 2, 3 and 4, due to differences in class characteristics. A possible firearm type that could have fired the submitted cartridge case, Item 5, could include, but is not limited to Smith and Wesson M&P pistols, due to commonly seen class characteristics.
H4JCQQ	The cartridge case shipped as "Item 2: first expended cartridge case recovered from the parking lot (questioned)", was percussed by the firearm, pistol SCCY CPX2 9mm found in possession of a suspect.
H4L2YU	Item 2 (fired cartridge case) is identified as having been fired from the same firearm as items 1-T1, 1-T2 and 1-T3 (test shots from SCCY Industries pistol). Items 3 and 4 (fired cartridge cases) are identified as having been fired from the same firearm. Items 3 and 4 are not identified or eliminated (inconclusive) as having been fired from the same firearm as items 1-T1, 1-T2 and 1-T3. The individual characteristics present do not display agreement. Item 5 is eliminated as having been fired from the same firearm as items 1-T1, 1-T2 and 1-T3 as well as from the same firearm as items 3 and 4 (teardrop vs. circular firing pin aperture). Identifications are made only to a degree of practical certainty and are based on sufficient agreement of the

TABLE 2

WebCode	Conclusions
	individual characteristics of tool marks. Sufficient agreement, in part, means that the likelihood of another tool producing the same marks is so remote that it is considered a practical impossibility.
H4V84H	Item 2: Bullet at the scene (Questioned) was fired from the recovered firearms, (Known) the same as Item 1. Item 3, Item 4 and Item 5 Bullet recovered (Questioned) wasn't fired from the recovered firearm (Known) as Item 1
H7A27H	Methodology – Comparison Microscopy: Item 2, the cartridge case, was fired in the same firearm as Item 1, the test fired cartridge cases, based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characeristics. A reference from this gropu will be entered into NIBIN. Items 3 and 4, the cartridge cases, were not fired in the same firearm as Item 1, the test fired cartridge cases, based upon different individual microscopic characeristics. Item 5, the cartridge case, was not fired in the same firearm as Items 3 and 4, the cartridge cases, nor Item 1, the test fired cartridge cases, based upon different class characeristics.
HBFC3X	Item 2 cartridge case was fired by the same firearm that fired the Item 1 test-fired cartridge cases. Items 3 and 4 cartridge cases were fired in one firearm. These cartridge cases can neither be eliminated nor identified as having been fired from the same firearm that fired Item 1 based on a lack of agreeing individual characteristics in the shear, breechface marks, and firing pin drag possibly due to ammunition type; however, available class and some individual characteristics are similar. These cartridge cases are consistent with having been fired by a 9mm Luger caliber firearm; however, class characteristics are not specific enough to provide a list of possible firearm manufacturers/origins. Item 5 cartridge case was not fired by the same firearm(s) that fired Items 1 through 4. Class characteristics present on Item 5 are consistent with cartridge cases fired from Smith & Wesson Model "M&P" 9mm Luger caliber pistols; other firearm makes and models should be considered.
HCPDWJ	Results of Examinations: Item 1 consists of three 9mm Luger test fired cartridge cases from a SCCY pistol, Model CPX-2. Items 2 through 5 are 9mm Luger cartridge cases bearing the headstamp of Remington ammunition. The Item 2 cartridge case was identified as having been fired in the Item 1 pistol (Group 1). The Item 3 and 4 cartridge cases were identified as having been fired in the same firearm (Group 2). The Group 2 cartridge cases were eliminated as having been fired in the same firearm as the Group 1 cartridge cases, due to a difference in class characteristics. The Item 5 cartridge case was eliminated as having been fired in the same firearm as the Group 1 and Group 2 cartridge cases, due to a difference in class characteristics.
HHYEBZ	Item 1 (test fired cartridge cases) and Item 2 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, the SCCY semiautomatic pistol. Items 3 and 4 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), 3, 4 and 5 were microscopically examined. Based on observed disagreement of class characteristics, Item 5 was eliminated as having been fired in the same firearm(s) that fired Items 1, 3, and 4. Items 1 (test fired cartridge cases), 3, and 4 were microscopically examined and compared. Agreement of class characteristics was observed. However, there is insufficient agreement or disagreement of individual characteristics to either identify or eliminate Items 3 and 4 as having been fired in the same firearm that fired

TABLE 2

WebCode	Conclusions
	Item 1, the SCCY semiautomatic pistol.
HVK7HG	1-The Items 02-05 cartridges cases were fired by same (unknown gun). 2-Three expended cartridge cases discharged from the suspect's weapon (known) identical with cartridges(02-05) which coming from crime scene.
HZG2MG	Item 1 - Three expended cartridge cases discharged from the suspect's weapon. Item 2 - One expended cartridge case recovered from the parking lot. Item 3 - One expended cartridge case recovered from the parking lot. Item 4 - One expended cartridge case recovered from the parking lot. Item 5 - One expended cartridge case recovered from the sidewalk. Analysis Result: Agreements of class characteristics and sufficient agreement of individual characteristics confirmed the Item 2 expended cartridge case was fired in the same firearm as the Item 1 expended cartridge cases. Disagreement of individual characteristics confirmed Items 3 and 4 expended cartridge cases were not fired in the same firearm as the Item 1 expended cartridge cases. Disagreement of class characteristics confirmed the Item 5 expended cartridge case was not fired in the same firearm as the Item 1 expended cartridge case. Analyses performed by physical examination and microscopy.
J348GC	Item 1 (three 9mm Luger caliber cartridge cases said to be fired from a SCCY Model CPX-2 9mm Luger caliber pistol) were fired by the same firearm as Item 2 (a 9mm Luger caliber cartridge case). Items 3 and 4 (two 9mm Luger caliber cartridge cases) were fired by the same firearm. It could not be determined if Items 1 and 2 were fired by the same firearm as Items 3 and 4*. Item 5 (a 9mm Luger caliber cartridge case) was not fired by the same firearm as Item 1. Items 3 and 4 were not fired by the same firearm as Item 5. *The comparative examinations showed agreement of individual characteristics, but insufficient for an identification. The comparative examinations were inconclusive.
JA4W9W	1) Examinations showed the cartridge case listed in Item #2 was discharged within the firearm listed in Item #1: SCCY CPX-2 9mm Luger caliber pistol (supplied test fires). 2) Examinations showed the three (3) cartridge cases listed in Item #3, Item #4 and Item #5 were not discharged within the firearm which discharged Item #2 due to differences in class and individual characteristics. 3) Examinations showed the cartridge case listed in Item #3 and the cartridge case listed in Item #4 were not discharged within the same firearms which discharged Item #2 and Item #5 due to differences in class and individual characteristics. The cartridge case listed in Item #3 and the cartridge case listed in Item #4 were discharged within the same unknown firearm. 4) Examinations showed that the cartridge case listed in Item #5 was not discharged within the same firearms which discharged Item #2, Item #3 and Item #4, but within another unknown firearm, due to differences in class characteristics.
JBGWG6	Item 2 (M) was fired in the submitted 9mm SCCY pistol, model CPX-2. Item 3 (N) and Item 4 (O) were fired in a second 9mm firearm. The specific brand of the suspect weapon is unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis. Item 5 (P) was fired in a third 9mm firearm. Suspect weapons include 9mm Smith and Wesson M&P pistols; however, any suspect weapon should be submitted to the laboratory for analysis.
JBV2JV	1. A microscopic comparative examination of FCC-1(Item#2)against Pistol P-1 (Item#1), disclosed that FCC-1 was discharged in Pistol P-1. 2. A microscopic comparative examination of FCC-2(Item#3)and FCC-3 (Item#4)against each other, disclosed that FCC-2 and FCC-3 were discharged in the same firearm, however, when compared against Pistol P-1 (Item#1), these items exhibit the similar class characteristics; however, there were insufficient individual corresponding microscopic markings to permit a positive identification (Inconclusive). 3. FCC-4 (Item#5) was not discharged in the same firearm as FCC-1, FCC-2, FCC-3 or Pistol P-1, due

TABLE 2

WebCode	Conclusions
	to differences in class characteristics.
JD6VQG	After a microscopic comparison, I was able to identify Item 2, a fired cartridge case from the scene, as having been fired from the suspect's SCCY CPX-2 9mm caliber pistol based on the presence of sufficient agreement of individual marks in the the firing pin aperture shear. Items 3 and 4, fired cartridge cases from the scene, were identified as having been fired from the same unknown firearm based on the presence of sufficient agreement of individual marks in the the firing pin aperture shear. These items were not fired in the suspect's pistol. Item 5 was not fired in the suspect's pistol or the firearm that fired Items 3 and 4.
JHW39P	1. pistol sccy cpx-2 caliber 9X19mm serial number ????? fired cc that inscribed item#2. 2. pistol sccy cpx-2 caliber 9x19mm serial number ????? did not fired cc's that inscribed item#3, item#4 and item#5. 3. cc's that inscribed item#3 and item#4 were fired in the same firearm but different from the suspect pistol and different from the pistol that fired cc that inscribed item#5.
JJ9EVD	Item 1 – Three (3) 9mm Luger caliber fired cartridge cases bearing the Remington headstamp (samples from SCCY pistol) (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 Item 2 through 5 were examined and identified as four (4) fired 9mm Luger caliber cartridge cases bearing the Remington headstamp. Item 2 through Item 5 were microscopically inter-compared and compared to Item 1 sample cartridge cases. As a result of microscopic comparison, it was concluded that Item 1 and Item 2 were identified as having been fired in the same firearm. Item 3 and Item 4 were identified as having been fired in the same firearm. It was concluded that they exhibit the same class characteristics, but Item 1 and Item 2 were eliminated as having been fired in the same firearm as Item 3 and Item 4 due to differences in individual characteristics. Item 5 was eliminated as having been fired from the same firearm that fired Item 1 and Item 2 or Item 3 and Item 4 due to differences in class characteristics.
JJA43W	Comparison microscope examinations were conducted and the findings of this examiner are as follows: 1. Casing M (Item 2) was fired in the 9mm SCCY pistol, model CPX-2. 2. Casings N and O (Items 3 and 4) were fired in a second 9mm firearm. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis. 3. Casing P (Item 5) was fired in a third firearm. Suspect weapons include Smith & Wesson M&P pistols; however, any suspect weapon should be submitted to the laboratory for analysis. The evidence was forwarded to the Miami-Dade Police Department Property and Evidence Section for storage.
JJT7QJ	Our laboratory is not reporting potential associations in terms of "identification" or "inconclusive", but indicates the level of support that the observations bring to the proposition that the questioned expended cartridge case was discharged from the firearm at the source of the control expended cases as opposed to another unknown firearm. In the present case, we reached the following conclusions: The observations provide extremely strong support for the view the expended cartridge case under Item 2 was discharged from the firearm at the source of the control expended cases under Item 1, rather than by another unknown firearm. We consider the observation to be at least a million times more probable if the cartridge cases were discharged from the same firearm as the cases under Item 1, rather than by another unknown firearm. The scale used by our laboratory has been published in: Marquis R, Biedermann A, Cadola L, Champod C, Gueissaz L, Massonnet G, et al. Discussion on How to Implement a Verbal Scale in a Forensic Laboratory: Benefits, Pitfalls and Suggestions to Avoid Misunderstandings. Science & Justice, 2016; 56 (5): 364-370. The expended cartridge case

TABLE 2

WebCode	Conclusions
	under Item 3, 4 and 5 cannot have been discharged from the same firearm as the one under Item 1 due to differences observed in terms of class characteristics and accidental characteristics (breech marks, firing pin shapes, ejector and extractor marks).
JLF9HK	1. The cartridge cases described in item # 1 and the cartridge case described in the item # 2, are 9mm caliber and were fire by the same firearm; and were not fired by the firearm used to fired the cartridge case described in item 5. 2. The cartridge case described in the item # 3 and the cartridge case described in the Item # 4, are 9mm caliber and were fire by the same firearm; and were not fired by the firearm used to fired the cartridge case described in item 5. 3. The cartridge case described in the item # 5, is 9mm caliber and was fire by the firearm.
JM9HPL	The three fired cartridge cases (1-01) were identified as having been fired in the same firearm as one of the other fired cartridge cases (1-02) due to consistent and repeatable marks. The fired cartridge case (1-03) was identified as having been fired in the same firearm as one of the other fired cartridge case (1-04) due to consistent and repeatable marks; however, these two fired cartridge cases were not identified or eliminated as having been fired in the same firearm as four of the other fired cartridge cases (1-01 and 1-02) due to agreement in available class characteristics but a lack of consistent and repeatable individual marks. The fired cartridge case (1-05) was eliminated as having been fired in the same firearm as the six other fired cartridge cases (1-01, 1-02, 1-03, and 1-04) due to differences in class characteristics.
JPYCDW	The fired cartridge cases, Item 1 and Item 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 in the same firearm. The fired cartridge cases, Items 1, 2, 3, 4 and 5, were microscopically examined and compared. Based on the observed disagreement of their class characteristics, Item 5 is eliminated as having been fired in the same firearm(s) that fired Items 1, 2, 3 and 4. The fired cartridge cases, Items 1, 2, 3 and 4, were microscopically examined and compared. Based on the observed disagreement of their individual characteristics and some class characteristics, Items 3 and 4 were not identified as having been fired in the same firearm as Items 1 and 2.
JWTG7X	Results/Opinions and Interpretations: The Item 1 test fired 9mm Luger caliber cartridge cases and the Items 2-5 fired 9mm Luger caliber cartridge cases were examined and microscopically compared to each other with the following results: Item 2 was identified as having been fired in the firearm used to create the Item 1 test fires. Items 3 and 4 were eliminated as having been fired in the firearm used to create the Item 1 test fires based on differences in individual characteristics. Items 3 and 4 were identified as having been fired in the same unknown 9mm Luger caliber firearm. Item 5 was eliminated as having been fired in either the firearm used to create the Item 1 test fires or in the unknown firearm used to fire the Item 3 and 4 cartridge cases based on differences in class characteristics. Item 5 was fired in a second unknown firearm. Item 5 exhibits class characteristics commonly exhibited by 9mm Luger caliber Smith & Wesson and Glock firearms. However, any suspect firearm should be submitted for comparison. Remarks: Identification - The opinion of a qualified examiner that there is sufficient agreement of features and detail to conclude that two or more toolmarks originated from the same source.
JXN6KM	The cartridge case item 2 was fired in the SCCY CPX-2 pistol. The items 3,4 and 5 were not fired in this firearm.
JYLEE6	The Item 2 cartridge case was fired by the same gun that fired the Item 1 test fire cartridge cases. The Item 3 and 4 cartridge cases were fired in one gun. These cartridge cases can

TABLE 2

WebCode	Conclusions
	neither be eliminated nor identified as having been fired in the same firearm that fired Items 1 and 2 based on insufficient agreeing individual characteristics possibly due to ammunition differences; however, visible class characteristics are similar. Item 5 was not fired by the same firearm or firearms that fired Items 1, 2, 3, and 4. Class characteristics found on Item 5 are consistent with those produced by Smith & Wesson model "M&P" firearms, although other firearms should be considered.
JZCMFT	[No Conclusions Reported.]
K2LDF2	1. Microscopic comparison revealed Exhibits 1 and 2 were fired in the same firearm due to agreement of class characteristics and sufficient agreement of individual characteristics. 2. Microscopic comparison revealed Exhibits 3 and 4 were fired in the same firearm due to agreement of class characteristics and sufficient agreement of individual characteristics; however, they were fired in a different firearm than Exhibits 1 and 2 due to agreement of class characteristics and sufficient disagreement of individual characteristics. Observing this amount of disagreement from the same source is considered extremely remote. 3. Microscopic comparison revealed Exhibit 5 was fired in a different firearm than Exhibits 1 and 2 and a different firearm than Exhibits 3 and 4 due to disagreement of class characteristics. TECHNICAL NOTES: Class characteristics are defined as measurable features of a firearm which indicate a restricted group source. They result from design features and are determined prior to manufacture of the firearm. Individual characteristics are defined as marks produced by the random imperfections or irregularities of firearm 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 are not to the absolute exclusion of all other firearms because it is not feasible to examine all possible firearms. However, observing this amount of agreement from a different source is considered extremely remote.
K8CBZ7	MICROSCOPIC COMPARISON EXAMINATIONS OF THE EVIDENCE CARTRIDGE CASES AND THE TEST FIRED CARTRIDGE CASES FROM THE SCCY CPX-2 9MM LUGER PISTOL HAVE REVEALED THAT SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY THE FOLLOWING: THE 9MM LUGER CARTRIDGE CASE Q1 WAS FIRED WITH THE SCCY CPX-2 9MM LUGER PISTOL K1. THE 9MM LUGER CARTRIDGE CASES Q2 AND Q3 WERE FIRED WITH THE SAME UNKNOWN FIREARM (UNKNOWN FIREARM #1). Q2 AND Q3 CAN BE ELIMINATED AS HAVING BEEN FIRED WITH THE SCCY CPX-2 9MM LUGER PISTOL DUE TO DIFFERENCES IN FIRING PIN AND BREECHFACE IMPRESSIONS. THE 9MM LUGER CARTRIDGE CASE Q4 CAN BE ELIMINATED AS HAVING BEEN FIRED WITH THE SCCY CPX-2 9MM LUGER PISTOL AND THE SAME UNKNOWN FIREARM AS CARTRIDGE CASES Q2 AND Q3 DUE TO DIFFERENCES IN FIRING PIN AND BREECHFACE IMPRESSIONS. Q4 IS SUITABLE FOR COMPARISONS. SHOULD SUSPECT FIREARMS BE RECOVERED PLEASE SUBMIT AND REFERENCE 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 the 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.
KAFHA3	Item #2 was fired from the same firearm that fired the Item #1 casings based on the correspondence of individual characteristics. Item #3 and 4 were identified as having been fired from the same unknown firearm, based on the correspondence of individual characteristics. Item #5 was eliminated from having been fired from the same firearm that fired the Item #1, Item #3, and Item #4 casings due to differences in class characteristics. Item #3 and 4 were eliminated from having been fired from the same firearm that fired the Item #1

TABLE 2

WebCode	Conclusions
	casings due to differences in individual characteristics. * All Identifications are based on microscopic comparison.
KC2NQ9	Results of Examinations: Items 1 through 5 are 9mm Luger (9x19mm) cartridge cases bearing the headstamp of Remington ammunition. Item 1 and Item 2 were identified as having been fired in the same firearm. Item 3 and Item 4 were identified as having been fired in the same firearm. Due to a lack of sufficient individual microscopic marks of value, no conclusion could be reached if Item 3 and Item 4 were fired in the same firearm as Item 1 and Item 2. Due to a difference in class characteristics (firing pin [mold mark] and extractor location), Item 5 was not fired in the same firearm as the Item 1 through Item 4 cartridge cases.
KCKPGG	The ítems number 2, 3 and 4 have been shooted by the same gun. The number 5 hve been shooted by a diferent gunof the others.
KEK3U9	Results of Examinations: Item 1 includes three 9mm Luger (9x19mm) cartridge cases that were reportedly test fired in a SCCY pistol, Model CPX-2, and bear the headstamp of Remington ammunition. Item 2 through Item 5 consists of four 9mm Luger cartridge cases that bear the headstamp of Remington 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 and Item 4 cartridge cases were identified as having been fired in the same firearm. Due to a difference in class characteristics, the Item 1 and Item 2 cartridge cases were eliminated as having been fired in the firearms that fired the Item 3 through Item 5 cartridge cases. Due to a difference in class characteristics, the Item 3 and Item 4 cartridge cases were eliminated as having been fired in the firearm that fired the Item 5 cartridge case.
KGG8Z3	Following a detailed comparison of class and individual characteristics, I am satisfied that the expended cartridge case Item 2 was discharged from the suspect weapon from which the test-fired cases Item 1 were produced. I am satisfied that none of the other expended cases Items 3, 4, 5 were discharged from the suspect weapon, but that Items 3 and 4 were fired from the same gun as each other and that Item 5 was fired from a different gun. Three weapons have therefore been discharged during the incident in question.
KH8F2Q	The fired cartridge cases in Items 001-02 through 001-05 were microscopically compared with each other and with the Item 001-01 test fired cartridge cases with the following results: Item 001-02 was identified as having been fired in the same firearm as the Item 001-01 test fired cartridge cases. Item 001-03 was identified as having been fired in the same firearm as Item 001-04. Items 001-03 and 001-04 were inconclusive as having been fired in the same firearm as the Item 001-01 test fired cartridge cases (see Inconclusive B definition). Item 001-05 was eliminated as having been fired in the same firearm(s) as Items 001-01, 001-02, 001-03 and 001-04.
KKZP9R	The Item 1, 2, 3, 4, and 5 cartridge cases were microscopically examined and identified as having been fired in three firearms as follows: The Item 1 and 2 cartridge cases were fired in one firearm. The Item 3 and 4 cartridge cases were fired in a second firearm. The Item 5 cartridge case was fired in a third firearm. Firearms that produce general class characteristics like those present on the Item 5 cartridge case include Smith & Wesson firearms chambered to fire 9mm Luger cartridges. This is not all-encompassing; it is possible another brand of firearm produced these class characteristics and is not listed due to the content of the database searched.
KLQKG2	1) The cartridge cases described in the item 1 and the cartridge case describe in the item 2, are 9 mm Luger caliber and were fired by the same firearm. (identification). 2) The cartridge cases described in the items 3 and 4, are 9 mm Luger caliber and were fired by the same

TABLE 2

WebCode	Conclusions
	firearm (identification). 3) The cartridge case described in the item 5 is 9 mm Luger caliber and was fired by a firearm; it was not fired by the firearms used to fire the cartridge cases described in the items 1,2,3 and 4.
KNEWHR	I microscopically compared Item 2 to Item 1 (test-fired cartridge cases). I identified Item 2 as having been fired in the same firearm as Item 1 based on sufficient agreement of individual characteristics within the firing pin aperture shear marks. I microscopically compared Items 3 and 4 to Item 1 (test-fired cartridge cases). Items 3 and 4 can be eliminated as having been fired in the same firearm as Item 1 based on different class characteristics within the firing pin aperture, firing pin impression, ejector, extractor, and ejector port marks. I microscopically compared Items 3 and 4 to each other. I identified Items 3 and 4 as being fired in a second firearm based on sufficient agreement of individual characteristics within the breech face marks. I microscopically compared Item 5 to Item 1 (test-fired cartridge cases), as well as Items 3, and 4. Item 5 can be eliminated as having been fired in the same firearm as Item 1, as well as the same firearm that fired Items 3 and 4 based on different class characteristics within the firing pin aperture shear marks, and firing pin impression. Item 5 was fired from a third firearm.
KPQWD2	The cartridge item 2 was fired in the recovered handgun SCCY CPX-2. The cartridges item 3, item 4 and item 5 were not discharged in the handgun SCCY CPX-2.
KX3HDA	Item 1 (three cartridge cases said to be from an SCCY Model CPX-2 9mm Luger caliber pistol) fired Item 2 (one 9mm Luger caliber cartridge case). Item 1 was fired in a different firearm than Items 3, 4 and 5 (three 9mm Luger caliber cartridge cases). Items 3 and 4 were fired from the same firearm. Items 3 and 4 were fired in a different firearm than Item 5.
L8ACAM	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, 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. Items 001-03 and 001-04 were fired in the same firearm (identification). This is also the opinion of Firearms Examiner NAME. Item 001-05 was not fired in the same firearm as Items 001-03 and 001-04 (elimination). This is also the opinion of Firearms Examiner NAME.
L9ZEEB	Items 2-5 were examined. Items 2-4 were microscopically compared to the cartridge cases submitted as Item 1. Item 2 was fired in the same firearm as the cartridge cases submitted as Item 1. Items 3 and 4 were fired in the same firearm, but were not fired in the same firearm as the cartridge cases submitted as Item 1. Item 5 was not fired in the same firearm as the cartridge cases submitted as Item 1 or Items 3 and 4. Items 3 and 5 would be compared to the open case file (IBIS/NIBIN).
LAE8Q6	See Report in case file. [Attachment not provided by participant]
LB678P	The cartridge cases (items 1 and 2) were identified as having been fired in the same firearm. The cartridge cases (items 3 and 4) were identified as having been fired from a second firearm. Because of a difference in class and individual characteristics, the cartridge case (item 5) could not have been fired in either firearm above but was fired in a third firearm.
LMLGQV	The Item 2 cartridge case is identified as having been fired in the same firearm as the Item 1 cartridge cases. The Item 3 and 4 cartridge cases are identified as having been fired in the same unknown firearm (a second firearm). The Item 5 cartridge case is eliminated as having been fired in the same firearm that fired Items 1 and 2. The Item 5 cartridge case is eliminated as having been fired in the same firearm that fired Items 3 and 4. The Item 5 cartridge case was fired in a third unknown firearm.
LPT4EE	Cartridge Case Analysis: Methodology: Physical (Visual Examination), Microscopy (Comparison

TABLE 2

WebCode	Conclusions
	Microscope): Item 2, the cartridge case, was fired in Item 1, the SCCY pistol, based upon corresponding class and individual microscopic characteristics. Items 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Item 5, the cartridge case, was not fired in Item 1, the SCCY pistol, based upon different class characteristics. Items 3 and 4, the cartridge cases, were not fired in the same firearm as Item 5, the cartridge case, based upon different class characteristics. Items 3 and 4, the cartridge cases, were not fired in Item 1, the SCCY pistol, based upon different class and individual microscopic characteristics.
LVTTM7	Laboratory evidence items 1.3, 1.4 and 1.5 were microscopically compared to test fired cartridge cases from laboratory evidence item 1.1, with the following results. The expended cartridge cases contained in laboratory items 1.3, 1.4 and 1.5 were eliminated as having been fired in the same firearm that produced the test fires in laboratory item 1.1. The expended cartridge cases contained in laboratory items 1.3 and 1.4 were microscopically compared to each other with the following results. The expended cartridge cases contained in laboratory items 1.3 and 1.4 were both identified as having been fired in the same firearm. Laboratory evidence item 1.2 was microscopically compared to test fired cartridge cases from evidence item 1.1, with the following results. The expended cartridge case contained in item 1.2 was identified as having been fired in the same firearm that fired the test fires in evidence item 1.1.
LX3TRD	The fired cartridge cases in items 1(a-c) and item 2 were all fired in the same firearm. The fired cartridge cases in items 3 and 4 were fired in the same firearm; however, a different firearm than the one that fired the cartridge cases in items 1(a-c) and 2. The fired cartridge case in item 5 was excluded as having been fired in the firearm that fired items 1(a-c) and 2 or the firearm that fired items 3 and 4.
LXGRY3	The 9mm Luger cartridge case (Item 2) was identified as having been fired in the same firearm as the test fired cartridge cases (Item 1). Agreement of the characteristics is sufficient to determine that the cartridge cases were fired in the same firearm. The three 9mm Luger cartridge cases (Items 3, 4 and 5) were excluded as having been fired in the same firearm as the test fired cartridge cases (Item 1). Differences were found in characteristics sufficient to eliminate the cartridge cases as having been fired in the same firearm. The 9mm Luger cartridge case (Item 3) was identified as having been fired in the same firearm as the 9mm Luger cartridge case (Item 4). Agreement of the characteristics is sufficient to determine that the two casings were fired in the same firearm. The two 9mm Luger cartridge cases (Items 3 and 4) were excluded as having been fired in the same firearm as the 9mm Luger cartridge case (Item 5). Differences were found in characteristics sufficient to eliminate the cartridge cases as having been fired in the same firearm.
LXKR4P	Items A1-1, A1-2, A1-3, A1-4, and A1-5: The items A1-1, A1-2, A1-3, A1-4 and A1-5 fired cartridge cases were examined and found to be consistent in class characteristics. Item A1-1 was compared to item A1-2. The Items A1-1 and A1-2 fired cartridge cases were identified as having been fired in the same firearm, firearm not submitted. Item A1-1 was compared to items A1-3 and A1-4. The Items A1-3 and A1-4 questioned cartridge cases exhibit the same discernible class characteristics as those present on Item A1-1 known cartridge cases; however, because of the lack of sufficient suitable corresponding microscopic markings, it was not possible to identify or eliminate Items A1-3 and A1-4 as having been fired in the same firearm as the Item A1-1 fired cartridge cases. Item A1-1 was compared to item A1-5. Items A1-1 and A1-5 exhibit similar class characteristics; however, microscopic examination revealed sufficient differences in individual characteristics to eliminate them as having been fired in the same firearm.

TABLE 2

WebCode	Conclusions
M2G6BU	Item 2 was fired in the Item 1 firearm. Item 5 was not fired in the item 1 firearm. Due to similarities and differences in microscopic characteristics results were inconclusive as to whether or not item 3 and item 4 were fired in the item 1 firearm. Item 3 and item 4 were fired in the same firearm.
M39ALT	It was determined that the Item 2 cartridge case was fired in the Item 1 firearm. It was further determined that the Item 3 and Item 4 cartridge cases were fired in the same firearm, but NOT the Item 1 firearm. Additionally, it was determined that the Item 5 cartridge case was fired in a firearm different from either of the two above-mentioned firearms.
M3NMAP	I microscopically compared Items 1 (A, B, C) to Items 2, 3, 4, and 5. I identified Items 1 (A, B, C) and Item 2 as being fired in the same firearm based on sufficient agreement of individual characteristics within the firing pin aperture shear marks. I microscopically compared Items 3 and 4 to each other. I identified Items 3 and 4 as being fired in a second firearm based on sufficient agreement of individual characteristics within the firing pin aperture shear and slide scuff marks. Items 1 (A, B, C) and Item 5 can be eliminated from being fired in the same firearm based on differences in class characteristics within the firing pin aperture shear marks and firing pin impressions. Item 5 was fired in a third firearm. Items 3 and 4 can be eliminated from being fired in the same firearm as Item 5 due to differences
M47Y8F	The results extremely strongly support that the cartridge case Item 2 has been fired in the same firearm as the cartridge cases Item 1. The results extremely strongly support that the cartridge case Item 3 and the cartridge case Item 4 have been fired in the same firearm, but not the firearm that Item 1 have been fired in. No other connections have been observed.
M4KZUW	1. The cartridge case described in item 1 and the cartridge case described in item 2, are 9 mm Luger and were fired by the same firearm (identification). 2. The cartridge case described in item 3 and the cartridge case described in item 4, are 9 mm Luger and were fired by the same firearm (identification). 3. The cartridge case described in item 5,is 9 mm Luger and was fired by a firearm; it was no fired by the firearm used to fire the cartridges cases described in items 1,2,3,4.
M6CLET	Item 2 casing was fired in the same 9mm pistol as the Item 1 test fires. Item 3 and Item 4 casings were fired in a second 9mm pistol. Item 5 casing was fired in a third 9mm pistol.
MD9Z6F	Item #2 was identified as having been fired in the item #1 pistol based upon sufficient agreement of individual characteristics. Items #3 and #4 were identified as having been fired in the same firearm based upon sufficient agreement of individual characteristics (Unknown Firearm #1). Item #5 retains marks of value for future comparative microscopy (Unknown Firearm #2).
MH4JVD	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 4 were fired in a second firearm. Item 5 was fired in a third firearm.
MKLYQD	Results of Examinations: Item 1 includes three (3) 9mm Luger (9x19mm) cartridge cases reportedly fired from a 9mm Luger SCCY pistol, Model CPX-2. Item 2 is a 9mm Luger cartridge case bearing the headstamp of Remington ammunition and was identified as having been fired in the same firearm as the Item 1 cartridge cases. Items 3 and 4 are 9mm Luger cartridge cases bearing the headstamp of Remington ammunition and were identified as having been fired in the same firearm, but excluded from having been fired in the same firearm as Item 1. Item 5 is a 9mm Luger cartridge case bearing the headstamp of Remington ammunition that was excluded as having been fired in the same firearms as Item 1 or Items 3 and 4.

TABLE 2

WebCode	Conclusions
MT3H3Q	Microscopic examination and comparison of the test fired cartridge cases Item 1 to fired 9 mm caliber cartridge case Item 2 reveals corresponding toolmarks in the firing pin and breech face impressions establishing that Item 2 was fired by the same firearm that fired the three (3) test fired cartridge cases Item 1. (Identification); Microscopic examination and comparison of the test fired cartridge cases Item 1 to fired 9 mm caliber cartridge cases Items 3, 4, and 5 reveals dissimilar toolmarks in the firing pin and breech face impressions establishing that Items 3, 4, and 5 were not fired by the same firearm that fired the three (3) test fired cartridge cases Item 1. (Elimination); Microscopic examination and comparison of fired 9 mm caliber cartridge case Item 3 to fired 9 mm caliber cartridge case Item 4 reveals corresponding toolmarks in the firing pin and breech face impressions establishing that Items 3 and 4 were fired by the same unknown 9 mm caliber firearm. (Identification); Microscopic examination and comparison of fired 9 mm caliber cartridge case Item 5 to fired 9 mm caliber cartridge cases Items 3 and 4 reveals dissimilar toolmarks in the firing pin and breech face impressions establishing that Item 5 was fired by a second unknown 9 mm caliber firearm. (Elimination)
N4FU32	1.The cartridge case, Exhibit 2, was identified as having been fired in the same firearm as the cartridge cases, Exhibit 1. 2.The cartridge cases, Exhibit 3 and Exhibit 4, were not fired in the same firearm as the cartridge cases, Exhibit 1. The cartridge cases, Exhibit 3 and Exhibit 4, were neither identified nor eliminated as having been fired in the same firearm. 3.The cartridge case, Exhibit 5, was not fired in the same firearm as the cartridge cases, Exhibit 1. The cartridge case, Exhibit 5, was not fired in the same firearm as the cartridge cases, Exhibit 3 or Exhibit 4.
N79PYB	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 4 were fired in a second firearm. Item 5 was fired in a third firearm.
N9TBBB	See report included in the case file [Attachment not provided by participant]
NBYUHJ	After microscopic comparison of the test fires from the suspect's weapon (Item 1) and the fired cartridge cases (Items 2-5) it was determined that: Item 2 was fired in the suspect's pistol. Items 3, 4, & 5 were not fired in the suspect's pistol.
NGKNEG	1. The 9mm Luger cartridge case (Item 01-02) was fired in the same SCCY pistol that fired the cartridge cases (Item 01-01). 2. The 9mm Luger cartridge cases (Items 01-03 and 01-04) were neither identified nor eliminated as having been fired in the same unknown firearm or in the SCCY pistol that fired the cartridge cases (Items 01-01 and 01-02) due to the agreement of class characteristics, but insufficient agreement of individual details; the result is inconclusive. 3. The 9mm Luger cartridge case (Item 01-05) was eliminated as having been fired in the same unknown firearm (s) as the cartridge cases (Items 01-03 and 01-04) or in the SCCY pistol that fired the cartridge cases (Items 01-01 and 01-02) due to class characteristic differences.
NGR42D	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 4 were fired in a second firearm. Item 5 was fired in a third firearm.
NJVYJU	Comparisons were conducted using the Leica FSC comparison microscope and the ballistic identification system “balScan” in relation to the firing pin, breech face, extractor, ejector and magazine loading markings imparted to their surface area. Item 1 and Item 2 have matching extractor impressions, therefore it was determined that Item 2 were fired by the same firearm that was used to shoot the tree cartridge cases from Item 1. Based on significant differences in individual firearm produced markings, the cartridge cases (items 3, 4 and 5) were not fired in the firearm that fired the three cartridge cases (item 1).

TABLE 2

WebCode	Conclusions
NLKADU	Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fried 9mm caliber cartridge cases from Items 1 and 2 were identified as having been fired in the same firearm. Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases, Items 3 and 4, were identified as having been fired in the same firearm. Based on significant disagreement of class characteristics the fired 9mm caliber cartridge case, Item 5, could not have been fired in the same firearm(s) as the fired 9mm caliber cartridge cases from Items 1-4. The fired 9mm caliber cartridge cases, Items 3 and 4, exhibit similar class characteristics as the fired 9mm caliber cartridge cases from Items 1 and 2. However, due to the lack of corresponding individual detail, Items 3 and 4, could neither be identified nor eliminated as having been fired in the same firearm as the fired 9mm caliber cartridge cases from Items 1 and 2.
NN6ERJ	Item 1 and Item 2 were fired in the same firearm (firearm #1). Item 3 and 4 were fired in the same firearm (firearm #2). Item 5 was fired in a firearm different than the firearms that fired Items 1, 2, 3 and 4 (firearm #3).
NPHCD9	The fired cartridge case contained in item 2 had been fired in the same firearm as the test fired cartridge cases contained in item 1, which were said to have been fired in the 9mm calibre SCCY CPX-2 handgun (suspect's weapon). The fired cartridge cases contained in items 3, 4 and 5, were not fired in the suspect's weapon.
NXFGDJ	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 4 were fired in a second firearm. Item 5 was fired in a third firearm.
NXW3WE	The test fired cartridge cases in Item 1 were microscopically examined in conjunction with the fired cartridge cases in Items 2, 3, 4, and 5. Based on these comparative examinations, it was determined that: A. The cartridge case in Item 2 had been fired in the same firearm as the cartridge cases in Item 1 based on the agreement of class and individual characteristics. B. Due to differences in class characteristics, Item 5 is eliminated as being fired in the same firearm as the cartridge cases in Items 1, 2, 3 and 4. C. Based on the agreement of class and individual characteristics, the cartridge cases in Items 3 and 4 had been fired in the same firearm as one another. D. The cartridge cases in Items 3 and 4 bear the same class characteristics as the cartridge cases in Items 1 and 2. However, there was insufficient agreement or disagreement of individual characteristics fore a more conclusive determination.
NXWTVP	Items 1 were fired from the same 'firearm A' as item 2.
P33BGF	Laboratory Item 001.B (Item 2) spent R-P 9mm Luger cartridge case is identified as being fired by the same firearm as the three test fires, Laboratory Item 001.A (Item 1), from the subject's SCCY CPX-2 9mm caliber pistol. Laboratory Items 001.C (Item 3) and 001.D (Item 4) two spent R-P 9mm Luger cartridge cases are identified as being fired by the same firearm. Laboratory Items 001.C (Item 3) and 001.D (Item 4) two spent R-P 9mm Luger cartridge cases are eliminated as being fired by the same firearm as the three test fires, Laboratory Item 001.A (Item 1), from the subject's SCCY CPX-2 9mm caliber pistol. Laboratory Item 001.E (Item 5) spent R-P 9mm Luger cartridge case is eliminated as being fired by the same firearm as the three test fires, Laboratory Item 001.A (Item 1), from the subject's SCCY CPX-2 9mm caliber pistol. Laboratory Item 001.E (Item 5) spent R-P 9mm Luger cartridge case is eliminated as being fired by the same firearm as Laboratory Items 001.C (Item 3) and 001.D (Item 4) two spent R-P 9mm Luger cartridge cases.
P6MV26	8.1 The shell casing classified as item 2 and the three shell casings identified as item 1 discharged from the firearm of the suspect, have identical identifying characteristics, so that it is established that it has been fired for the firearm concerned. 8.2 The two shell casings,

TABLE 2

WebCode	Conclusions
	classified as items 3 and 4, belong to the 9x19mm caliber. Due to they have identical identification characteristics, it is established that they have been fired by a second firearm. 8.3 The shell casing, classified as item 5, corresponds to the 9x19mm caliber and because of the different characteristics with the casings of the two previous numerals, it is established that it has been fired by a third firearm.
P6Q3ZT	The Item 2-5 fired cartridge cases were microscopically compared to the Item 1 cartridge cases with the following results: The Item 2 cartridge case was identified as having been fired from the same firearm as the Item 1 cartridge cases. The Item 3 and 4 fired cartridge cases were identified as having been fired in the same unknown 9mm firearm. The Item 5 cartridge case was eliminated from having been fired from the same firearms as Items 1 through 4 due to differences in general breechface characteristics.
PAFNHE	A. The cartridge cases described in items 1 and 2, are 9mm Luger caliber and were fired by the same firearm (identification). B. The cartridge cases described in items 3 and 4, are 9mm Luger caliber and were fired by the same firearm (identification). C. The cartridge case described in item 5, is 9mm Luger caliber and was fired by a firearm. D. The cartridge case described in item 5, is 9mm Luger caliber and was not fired by the firearm used to fire the cartridge cases described in items 1 and 2,and the cartridge cases described in items 3 and 4.
PHRRK8	The fired cartridge case (item 2) was identified as having been fired from the suspect's firearm. The fired cartridge cases (items 3, 4, and 5) were eliminated as having been fired from the suspect's firearm. The fired cartridge cases (items 3 and 4) were identified as having been fired from the same firearm.
PNKXCF	The cartridge case Item 2 was Identified as having been fired in the same firearm as the cartridge cases Item 1, which were said to have been fired in the suspects's firearm. The cartridge cases Items 3 and 4 were Identified as having been fired in a SECOND FIREARM. The cartridge case Item 5 was fired in a THIRD FIREARM. It displays class characteristics similar to Smith & Wesson M&P pistols.
PPCG78	I made an examination of the exhibit fired cartridge cases and the test fired cartridge cases using a comparison microscope. As a result of this examination I found that fired cartridge case in Item 2 had been fired by the recovered exhibit firearm. Items 3, 4 and 5 were not fired by the recovered exhibit firearm that discharged the fired cases in Item 1.
PQ34LB	I examined item 1, the three test-fired cartridge cases from the SCCY pistol, and found the individual marks to be reproducible and sufficient for identification. I microscopically compared item 2 to a test-fired cartridge case. I found sufficient agreement for identification in the individual marks, including firing pin aperture shear marks. I concluded that item 2 was fired in the SCCY pistol. I microscopically compared items 3 through 5 to a test-fired cartridge case. I found sufficient disagreement in the class characteristics, including the ejector marks or firing pin aperture marks, to conclude that items 3 through 5 were not fired in the SCCY pistol.
PQAURE	The Item 2 cartridge case was fired from the Item 1 pistol. The Items 3 to 5 cartridge cases were not fired from the Item 1 pistol. The Items 3 and 4 cartridge cases were fired from the same unknown firearm. The Item 5 cartridge case was fired from a different unknown firearm.
PRY6H8	See attached report in case file [Attachment not provided by participant]
PUKB2X	Item 1 and Item 2 were fired in the same gun. Items 3 and 4 were fired in the same gun but in a different gun than Items 1 and 5. Item 5 was not fired in Item 1.
PY63L2	Q1 (ITEM 2) WAS FIRED WITH K1 (ITEM 1). Q2 (ITEM 3) AND Q3 (ITEM 4) WERE FIRED

TABLE 2

WebCode	Conclusions
	WITH THE SAME UNKNOWN FIREARM. Q2 (ITEM 3) AND Q3 (ITEM 4) WERE NOT FIRED WITH K1 (ITEM 1) DUE TO DIFFERENCES IN BREECHFACE MARKINGS AND FIRING PIN IMPRESSIONS. Q4 (ITEM 5) CAN BE ELIMINATED AS HAVING BEEN FIRED WITH K1 (ITEM 1) DUE TO DIFFERENCES IN BREECHFACE MARKINGS AND FIRING PIN IMPRESSIONS. Q4 (ITEM 5) CAN BE ELIMINATED AS HAVING BEEN FIRED WITH THE SAME UNKNOWN FIREARM AS Q2 (ITEM 3) AND Q3 (ITEM 4) DUE TO DIFFERENCES IN BREECHFACE MARKINGS AND FIRING PIN IMPRESSIONS. Q4 (ITEM 5) BEARS MICROSCOPIC MARKS OF VALUE THAT ARE SUITABLE FOR FUTURE COMPARISON PURPOSES.
Q2HYAU	The submission 002 cartridge case and the submission 001 test fires were identified as having been fired in the same firearm. The submission 003 and 004 cartridge cases were identified as having been fired in the same unknown firearm. The submission 001, 002, 003, and 004 cartridge cases were eliminated as having been fired in the same firearm that fired the cartridge case in submission 005 due to differences in class characteristics. The submission 003 and 004 cartridge cases were eliminated as having been fired in the same firearm that fired the test fires from submission 001 due to differences in individual characteristics. All identifications were based on microscopic comparison and the correspondence of individual characteristics.
Q3D7C2	Results of Examinations: Item 1 through Item 5 are cartridge cases that bear the headstamp of Remington Peters Ammunition. Item 1 consists of three test-fired cartridge cases reportedly fired from a seized 9mm Luger caliber, SCCY Model CPX-2 pistol. The Item 2 cartridge case was identified as having been fired in the same firearm that fired the Item 1 cartridge case. The Item 3 and Item 4 cartridge cases were identified as having been fired in the same firearm, but eliminated from the firearm that fired the Item 1 and Item 2 cartridge cases due to differences in class characteristics. The Item 5 cartridge case was eliminated as having been fired in the firearms that fired the Item 1 through Item 4 cartridge cases due to differences in class characteristics.
Q4CK67	Comparisons: The submitted cartridge cases were examined and microscopically compared to each other and the test fired cartridge cases, Lab Item 1, with the following results: The cartridge case, Lab Item 2, was identified as having been fired in the same firearm that fired the test fired cartridge cases, Lab Item 1. Two cartridge cases, Lab Items 3 and 4, were identified as having been fired in a single firearm. These cartridge cases were eliminated as having been fired in the same firearm that fired the test fired cartridge cases, Lab Item 1. The cartridge case, Lab Item 5, was eliminated as having been fired in the same firearm that fired the test fired cartridge cases, Lab Item 1, and was eliminated as having been fired in the same firearm that fired the two cartridge cases, Lab Items 3 and 4.
Q7V9BK	Date Analyzed: 07/11/19. The evidence in items 1 through 5 was analyzed by physical and microscopic examination. The fired 9mm cartridge case in item 2 was determined to have been fired in the weapon which fired the three (3) reference 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 weapon which fired the three (3) reference 9mm cartridge cases in item 1. The two (2) fired 9mm cartridge cases in item 3 and 4 were fired in one weapon. The fired 9mm cartridge case in item 5 was determined to have been fired in a different weapon than the two (2) fired 9mm cartridge cases in items 3 and 4. Further analysis of the three (3) fired 9mm cartridge cases in item 3, 4, and 5 is pending submission of two weapons for additional comparison.
QBQ2NM	The spent cartridge case listed as Item 2 has been identified as having been fired in the same firearm as the three (3) test fired spent cartridge cases listed as Item 1. The two (2) spent

TABLE 2

WebCode	Conclusions
	cartridge cases listed as Item 3 and Item 4 have been identified as having been fired in the same firearm, but NOT the same firearm as Items 1 and 2. The spent cartridge case listed as Item 5 was NOT fired in the same firearm as Items 1 and 2 or as the same firearm as Items 3 and 4.
QEUAY6	The test fired cartridge cases (Exhibit 1) were microscopically compared to each other and to the fired cartridge cases (Exhibits 2, 3, 4 and 5). Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibit 2 was fired in the same firearm as Exhibit 1. The probability that Exhibit 2 was fired in a different firearm is so small that it is negligible. Based on a disagreement of class characteristics, Exhibits 3, 4 and 5 were not fired in the same firearm as Exhibit 1. The fired cartridge case (Exhibit 3) was microscopically compared to the fired cartridge case (Exhibit 4). Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibit 3 was fired in the same firearm as Exhibit 4. The probability that Exhibits 3&4 were fired in a different firearm is so small that it is negligible. Based on a disagreement of class characteristics, Exhibit 5 was not fired in the same firearm as Exhibits 3 and 4. These conclusions conform with the relevant [Laboratory] policy on Uniform Language for Testimony and Reports available at [Website].
QH9HTH	In my opinion, a microscopical comparison of firing marks has shown there is sufficient agreement of class and individual characteristic markings to conclusively determine that items 1 & 2 were fired in the same firearm (Gun A). Significant agreement was observed across the breechface markings.
QVHB23	I compared the fired cartridge cases from the parking lot and the sidewalk with the fired cartridge cases test fired in the suspect's hangun. I found a correspondence of the firing pin impression shape and size and an excellent correspondence of microscopic striated detail in the firing pin aperture drag marks between the first fired cartridge case recovered from the parking lot (item 2) and the cartridge cases fired from the suspect's handgun (item 1). In my opinion, the fired cartridge case, item 2, was fired in the suspect's handgun. I did not find any correspondence of marks between the remaining cartridge cases from the parking lot (items 3 and 4) and the sidewalk (item 5) and the cartridge cases fired from the suspect's handgun (item 1). In my opinion, the fired cartridge cases, items 3, 4 and 5 were not fired in the suspect's handgun.
R49WAT	1. The cartridges cases described in item 1 and the cartridge case described in item 2, are 9mm caliber and were fired by the same firearm (identification); and were not fired by the firearm used to fire the cartridge case described items 5. 2. The cartridge case described in item 3 and cartridge case described Item 4, are 9mm caliber and were fired by the same firearm (identification); and were not fired by the firearms used to that fired the cartridge case described items 5. 3. The cartridge case described in Item 5, is 9mm caliber and was fired by a firearm.
R96C4A	Item 2 was identified as having been fired by Item 1 based on the agreement of class characteristics, and individual characteristics in the firing pin aperture shear marks. Items 3 and 4 were identified as having been fired by the same unknown firearm based on the agreement of class characteristics, and individual characteristics in the firing pin aperture shear marks, breechface impression marks and slide scuff marks. Items 3 and 4 were inconclusive to Items 1 and 2 due to a lack of disagreement of individual characteristics in all marks compared; however, all class characteristics were in agreement. Item 5 was eliminated to Items 1 through 4 based on differences in class characteristics. That difference being the firing pin aperture shape.

TABLE 2

WebCode	Conclusions
R9YUPP	Items 1, 2, 3, 4 and 5: The Item 1 and 2 cartridge cases were Identified to each other. The Item 3 and 4 cartridge cases were Identified to each other. They were Eliminated from the Item 1 and 2 cartridge cases. The Item 5 cartridge case was Eliminated from the Item 1, 2, 3 and 4 cartridge cases. It displays similar physical characteristics to firearms by Smith & Wesson (M&P Series) and Glock.
RDZ74W	The known cartridge cases Item 1 and the questioned cartridge case Item 2 have matching individual markings, so it is undoubtedly proved, that the cartridge case Item 2 were fired from the same firearm as the cartridge cases Item 1. The known cartridge cases Item 1 and the questioned cartridge cases Item 3, Item 4 and Item 5 have different individual markings, so it is undoubtedly proved, that the cartridge cases Item 3, 4 and 5 were not fired in the same firearm as the cartridge cases Item 1 and the cartridge case Item 2. The questioned cartridge cases Item 3 and 4 have with each other matching individual markings, so it is undoubtedly proved, that these cartridge cases were fired in the same unknown firearm (second firearm). The cartridge case Item 5 were fired in another unknown firearms (third firearm).
REQ2BH	The Item 2 fired cartridge case was fired in the same firearm that fired the known Item 1 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 cartridge cases. These eliminations are based on differences in class characteristics. The Items 3 and 4 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 5 fired cartridge case was not fired in the same unknown firearm that fired the Items 3 and 4 fired cartridge cases. This elimination is based on differences in class characteristics. Note: There is a minimum of three different firearms involved in this case submission.
RFHZNG	Microscopic examination and comparison of the Remington cartridge cases (Items 1, 1A, 1B and 2) revealed sufficient agreement of individual characteristics to conclude that they were fired in the same firearm. Microscopic examination and comparison of the Remington cartridge cases (Items 3 and 4) revealed sufficient agreement of individual characteristics to conclude that they were fired in the same firearm. Microscopic examination and comparison of the Remington cartridge cases (Items 3 and 4) failed to reveal sufficient quantity and quality of individual characteristics to determine whether or not they were fired in the same firearm as the Remington cartridge cases (Items 1, 1A, 1B and 2). Microscopic examination and comparison of the Remington cartridge case (Item 5) revealed it can be eliminated as having been fired in the same firearm(s) as the Remington cartridge cases (Items 1, 1A, 1B, 2, 3 and 4) based on differences in class characteristics. Evidence examined for this report will be returned to [Laboratory] Quality Manager.
RGN7LW	[No Conclusions Reported.]
RKXXCQ	Comparative examination of Item 1 (three cartridge cases said to have been test fired in a recovered SCCY model CPX-2 pistol) against Item 2 (a cartridge case said to have been recovered from a parking lot) showed the presence of matching features. This means that Items 1 and 2 were fired by the same firearm. It could not be determined if the firearm used to create Item 1 fired Items 3 and 4 (two cartridge cases said to have been recovered from a parking lot). The comparative examination showed disagreement of individual characteristics, but, insufficient for an elimination. The comparative examinations were inconclusive. Comparative examination of Item 1 against Item 5 (a cartridge case said to have been recovered from a sidewalk) showed the presence of different class characteristics. This means that Item 1 and

TABLE 2

WebCode	Conclusions
	Item 5 were not fired in the same firearm. Comparative examination of Item 3 against Item 4 showed the presence of matching features. This means that Items 3 and 4 were fired by the same firearm.
RQJXJQ	Items 1 (the test fired cartridge cases) and 2 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 (the test fired cartridge cases from the SCCY pistol). Items 3 and 4 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. Item 5 was microscopically examined and compared to Items 1 (the test fired cartridge cases) and 3. Based on observed disagreement of class and individual characteristics, Item 5 was eliminated as having been fired in the same firearm(s) that fired Item 1 (the test fired cartridge cases from the SCCY pistol) or Item 3. Item 1 was microscopically examined and compared to Items 3 and 4. Agreement of class characteristics was observed. However, there is insufficient agreement or disagreement of individual characteristics to either identify or eliminate Items 3 and 4 as having been fired in the same firearm that fired Item 1 (the test fired cartridge cases from the SCCY pistol).
RQXJVD	The cartridge case identified with item 2, were discharged from the suspicious fire gun, pistol SCCY CPX-2 caliber 9mm.
RU36RQ	Items 1A, 1B, 1C, and 2 were identified to each other. Items 3 and 4 were identified to each other. Items 3 and 4 were eliminated to Items 1A, 1B, 1C, and 2. Item 5 was eliminated to Items 1A, 1B, 1C, 2, 3, and 4. Item 5 cartridge case displays characteristics consistent with firearms manufactured by Smith & Wesson (M&P Series).
TBLQXF	The fired cartridge case, item 2, was identified as having been fired from the same firearm that generated the test fires, item 1. The fired cartridge cases, items 3 and 4, were identified as having been fired in a second firearm. The fired cartridge case, item 5, was eliminated as having been fired in the same firearm which fired item 2 or items 3 and 4.
TEHGXY	Item 2 was identified as having been fired by Item 1 based on agreement of class and individual characteristics. Items 3 and 4 were identified as having been fired by the same firearm based on agreement of class and individual characteristics. Items 3 and 4 could not be identified or eliminated as having been fired by Item 1 because microscopic examination of individual characteristics did not reveal enough information. Item 5 was eliminated as having been fired by Item 1 or the firearm that fired Items 3 and 4 based on differences in class characteristics.
TL7ZH3	The submitted cartridge cases were examined and microscopically compared to the test fired cartridge cases and to each other with the following results: There are three firearms represented in the submitted cartridge cases. The cartridge case (Lab Item 2) was identified as having been fired in the same firearm that fired the test fired cartridge cases (Lab Item 1). The two cartridge cases (Lab Items 3 and 4) were identified as having been fired in a single, second firearm. The cartridge case (Lab Item 5) was fired in a third firearm.
TP772E	Item 2 was identified as having been fired by the same firearm as that which produced the test fired cartridge cases received with item 1 based on the sufficient agreement of class and individual characteristics. Items 3 and 4 were identified as having been fired by the same unknown firearm based on the sufficient agreement of class and individual characteristics. Items 3 and 4 were determined to have similar class characteristics to the test fired cartridge cases received with item 1 but could neither be identified nor eliminated as having been fired

TABLE 2

WebCode	Conclusions
	by the same firearm as that which produced the test fired cartridge cases received with item 1 due to an insufficient agreement or disagreement of class and/or individual characteristics. All such comparisons were inconclusive. Item 5 was eliminated as having been fired by the same firearm(s) as that which fired items 2, 3, 4, and the test fired cartridge cases received with item 1 based on the sufficient disagreement of class characteristics.
TRC4L3	Items 1 and 2: Item 2 was Identified to Item 1. Items 3 and 4: The cartridge cases were Identified to each other. They were Inconclusive (-) to Item 1. Item 5: The cartridge case was Eliminated to Items 1, 3, and 4. The cartridge case displays class characteristics similar to firearms by Smith & Wesson (M&P series).
TTZ6B4	The cartridge case in Item 2 was examined and found upon microscopic comparison to have been discharged in the same firearm as the cartridge cases in Item 1. This identification was based on an agreement of both class and individual characteristics. The cartridge cases in Items 3, 4 and 5 were examined and found not to have been discharged in the same firearm as the cartridge cases in Item 1. This elimination was based on differences of class and individual characteristics.
TWKKVQ	CARTRIDGE CASE(S): Items 1A, 1B, 1C, 2, 3, 4 and 5: Items 1A, 1B, and 1C were Identified to Item 2. Item 3 was Identified to Item 4. Items 3 and 4 were Eliminated to Items 1A, 1B, 1C and 2. Item 5 was Eliminated to Items 1A, 1B, 1C, 2, 3 and 4. Item 5 displays class characteristics consistent with firearms by Smith & Wesson (M&P variants), among possible others.
TWNNC2	Microscopic comparisons were conducted between the test fired cartridge cases (Item 1) and the cartridge case (Item 2). There exists agreement of all discernible class characteristics and sufficient agreement of individual markings to identify the cartridge case (Item 2) as having been fired in the SCCY CPX-2 pistol (Item 1). The fired cartridge cases (Items 3 & 4) were noted to possess similar class and individual characteristics. The similarities indicated the possibility the cartridge cases were fired in the same firearm. No microscopic examinations and comparisons were performed at this time. Additional examinations and comparisons may be requested when a suspect firearm is submitted to the lab. Microscopic comparisons were conducted between the cartridge cases (Items 3, 4, & 5) and the test fired cartridge cases (Item 1). There exists a disagreement of the discernible class characteristics and individual markings to eliminate the cartridge cases (Items 3, 4, & 5) as having been fired in the SCCY CPX-2 pistol (Item 1). Information collected from the examination of Item 5 indicated the possibility that it was fired in a Smith & Wesson M&P 9, a Glock model 43, or a Glock Gen 5 9mm pistol.
TYR3TM	The item 2 cartridge case was microscopically examined and identified as having been fired in the item 1 firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. The items 3 and 4 cartridge cases were microscopically examined and identified 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 4 were eliminated as having been fired in item 1 due to disagreement of individual characteristics. The item 5 cartridge case was eliminated as having been fired in item 1 and the same unknown firearm as items 3 and 4 due to disagreement of discernible class characteristics.
U2U7XU	Item 2 was discharged in the same firearm as item 1.
U3KEYJ	Examinations showed Item 2 was discharged from the same firearm as the known expended cartridge cases in Item 1 (SCCY CPX-2 firearm). Examinations showed Items 3, 4 and 5 were not discharged within the same firearm as the known expended cartridge cases in Item 1

TABLE 2

WebCode	Conclusions
	(SCCY CPX-2 firearm) due to insufficient individual and class characteristics. Examinations showed Item 3 and Item 4 were discharged within the same unknown firearm. Examinations showed Item 5 was not discharged within the same firearm as Items 3 and 4 due to differences in class characteristics.
U8KJYH	The microscopic comparisons disclosed the following results: Item 2 was identified as having been fired by the firearm used to produce the test fired cartridge cases in Item 1 based on agreement of all discernible class characteristics and agreement of individual characteristics. Item 3 was not fired in the same firearm that generated the test fired cartridges contained in Item 1 based on a lack of individual detail agreement. Item 4 was not fired in the same firearm that generated the test fired cartridges contained in Item 1 based on a lack of individual detail agreement. Item 5 was not fired in the same firearm that generated the test fired cartridges contained in Item 1 based on differences in class characteristic markings. Items 3 and 4 were identified as fired by the same unknown firearm based on an agreement all discernible class characteristics and agreement of individual characteristics. Item 5 was determined to have been fired from a second unknown firearm based on class characteristic differences observed between Item 2 and Items 3 and 4.
UH4X3K	The four recovered cartridge cases (items: 2 thru 5) and the three submitted test cartridge cases (item 1) were visually and microscopically examined and their characteristics noted. The four recovered cartridge cases (items: 2 thru 5) were microscopically compared to each other and to the three submitted test cartridge cases (from item number 1). The microscopic comparisons of the 9mm Luger caliber cartridge cases showed the following: Item number 2 displayed similar class firing characteristics and areas of matching individual characteristics as the test cartridge cases (from item 1). It was microscopically identified as having been discharged in the same gun as the test cartridge cases (Identification). The 9mm Luger caliber cartridge cases from item numbers 3 and 4 displayed similar class firing characteristics and areas of matching individual characteristics. These two cartridge cases were microscopically identified as having been discharged in the same gun (Identification) however, significant differences of individual detail were noted when compared with item number 2 and the test cartridge cases from item number 1. Item numbers 3 and 4 were eliminated as having been discharged in the same gun as the test cartridge cases from item number 1 (Elimination). The 9mm Luger caliber cartridge case from item number 5 displayed significantly different class firing characteristics (firing pin impression and breach face markings) than the test and recovered cartridge cases. Item number 5 was eliminated as having been discharged in the same gun as items: 1, 2, 3 and 4 (Elimination). The cartridge cases from item numbers: 3, 4 and 5 are of value for additional comparisons.
ULJWKL	Item 2 (M) was fired in the Item 1 9mm SCCY pistol, model CPX-2. Item 3 (N) and Item 4 (O) were fired in a second 9mm firearm. Suspect weapons are unknown at this time; however, any suspect weapon should be submitted to the laboratory for analysis. Item 5 (P) was fired in a third 9mm firearm. Suspect weapons include 9mm Smith & Wesson M&P pistols; however, any suspect weapon should be submitted to the laboratory for analysis.
UVLDU4	Exhibit 1(A through C) consists of three (3) 9mm Luger caliber cartridge cases bearing the R-P headstamp, reportedly fired in a SCCY brand handgun, model CPX-2. Exhibits 2 through 5 consist of four (4) fired, 9mm Luger caliber cartridge cases bearing the R-P headstamp, which contain marks of value for comparison. Exhibits 2 through 5 were macroscopically examined and microscopically compared to the Exhibit 1(A through C) reported test fires, with the following results: It was determined there is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify Exhibit 2 as having been fired in the same firearm that fired Exhibit 1(A through C). An identification conclusion indicates the

TABLE 2

WebCode	Conclusions
	probability that Exhibit 2 was fired in a different firearm than the firearm that fired Exhibit 1(A through C) is so small that it is negligible. It was determined there is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify Exhibits 3 and 4 as having been fired in the same firearm. An identification conclusion indicates the probability that Exhibits 3 and 4 were fired in different firearms is so small that it is negligible. Although consistent in class characteristics, Exhibits 3 and 4 could neither be identified nor excluded as having been fired in the same firearm that fired Exhibits 1(A through C), due to insufficient agreement or disagreement of individual characteristics. Due to differences in class characteristics, Exhibit 5 was excluded as having been fired in the same firearm(s) that fired Exhibits 1 and 2, or Exhibits 3 and 4.
UYNC6W	The four 9mm Luger caliber cartridge cases (Items 2, 3, 4, and 5) were microscopically compared to the three cartridge cases fired from the SCCY, model CPX-2, 9mm Luger caliber pistol (Item 1). One of the cartridge cases from the parking lot (Item 2) was identified as having been fired in the SCCY, model CPX-2, 9mm Luger caliber pistol (Item 1) based on sufficient corresponding individual characteristics observed. The remaining three cartridge cases (Items 3, 4, and 5) could not have been fired in the SCCY, model CPX-2, 9mm Luger caliber pistol (Item 1) because of differences observed in class and individual characteristics. Any suspect firearms should be submitted for comparison.
V7KW4Q	The Item 2 cartridge case was Identified to the Item 1(A-C) firearm. The Item 3 cartridge case was Identified to the Item 4 cartridge case. They were Eliminated to the Item 1 firearm and the Item 2 cartridge case. The Item 5 cartridge case was Eliminated to the Item 1 firearm and the Item 2 cartridge case. Item 5 was Eliminated to the Item 3 and 4 cartridge cases. The cartridge cases do not meet requirements for imaging per NIBIN protocol.
V97FP2	Item 1 - three (3) 9mm Luger test fired cartridge cases. Items 2 - 5 - four (4) fired 9mm Luger cartridge cases. The submitted items of evidence marked as Items 2 through 5 are four (4) caliber 9mm Luger fired cartridge cases, bearing the Remington Peters headstamp. These Items were microscopically compared to test fired cartridge case samples identified as Item 1. As a result of microscopic comparison it was concluded that Item 2 was identified as having been fired in the same firearm as Item 1 test fired samples. Items 3 and 4 were identified as having been fired in the same firearm and not the same firearm as Items 1, 2 or 5. Item 5 was not fired in the same firearm as Items 1 through 4.
VBHTUX	Item 2 was microscopically identified as having been fired in the firearm that generated the test fires, Item 1. Items 3 and 4 were microscopically identified as having been fire in the same unknown firearm "A". Item 5 was microscopically identified as having been fired in a different unknown firearm "B" than Items 3 and 4.
VD4ZBT	The Item 2 cartridge case was Identified to the Item 1 test fires. The Item 2 cartridge case was Eliminated to the Item 3, 4, and 5 cartridge cases. The Item 3 and 4 cartridge cases were Identified to each other. The Item 3 and 4 cartridge cases were Eliminated to the Item 2 and 5 cartridge cases and the Item 1 test fires. The Item 5 cartridge case was Eliminated to the Item 2, 3, and 4 cartridge cases and the Item 1 test fires. The Item 5 cartridge case displays class characteristics consistent with firearms by Smith & Wesson (M&P variants), among possible others.
VGG6HL	A test fired cartridge case, Item 1.B, 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 the test fired cartridge cases from Item 1. The test

TABLE 2

WebCode	Conclusions
	fired cartridge cases from Item 1, were microscopically examined and compared with the recovered fired cartridge cases, Items 3 and 4. There is observed agreement of some class characteristics. However, based on the observed disagreement of individual characteristics, Items 3 and 4 were not identified as having been fired in the same firearm as the test fired cartridge cases from Item 1. A recovered fired cartridge case, Item 3, was microscopically examined and compared with a recovered fired cartridge case, Item 4. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Item 3 is identified as having been fired in the same firearm as Item 4. The test fired cartridge cases from Item 1 were microscopically examined and compared with Item 5. Based on the observed disagreement of class characteristics, Item 5 is eliminated as having been fired in the same firearm as the test fired cartridge cases from Item 1.
VKJFLU	See report in case file. [Attachment not provided by participant]
VPWJRJ	The hypothesis that expended cartridge cases items 1 and item 2 are discharged from the same firearm is very strongly supported.
VUPFY3	The following results are the opinion of this examiner: The 9mm cartridge cases (Items 1 and 2) were fired in the same firearm. The 9mm cartridge cases (Items 3 and 4) were fired in a second firearm. The 9mm cartridge case (Item 5) was fired in a third firearm.
VXP2XE	After microscopic comparison, it was determined that Item # 2 was fired in Item # 1 based on agreement of class characteristics and sufficient agreement of individual characteristics of the firing pin aperture shear marks. After microscopic comparison, it was determined that Items # 3 and 4, were fired in the same firearm based on agreement of class characteristics and sufficient agreement of individual characteristics of the breech face marks. After microscopic comparison, it was determined that Item # 5 was NOT fired in the same firearm as Item# 2 based on disagreement of class characteristics(firing pin aperture). After microscopic comparison, it was determined that Item # 5 was NOT fired in the same firearm as Items# 3 and 4 based on disagreement of individual characteristics(breech face).
W7Y879	The cartridge cases were compared on the comparison microscope. Based on this examination and an observed correspondence of class and individual characteristics on the primer, it is the opinion of this examiner, that the cartridge case item CTS #2 was fired in the same firearm as the test fired cartridge cases in item CTS #1. Based on a correspondence of class and individual characteristics on the case head that the cartridge case item CTS #3 was at one time fired in the same firearm as the cartridge case item CTS #4. Based on different breech face marks, the discharged cartridge cases items CTS 3, CTS 4 and CTS #5 were fired in a different firearm than the test fired cartridge cases in item CTS #1.
WGDXKY	The fired cartridge case (item 2) was fired from the same firearm that fired item 1 (indicated to be an SCCY CPX-2 handgun). The identification of the cartridge cases is made to the practical, not absolute, exclusion of all other firearms. This is because it is not possible to examine all firearms in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between two firearm-produced toolmarks means that the likelihood another firearm could have made the questioned mark is so remote as to be considered a practical impossibility. The fired cartridge cases (items 3, 4, and 5) were eliminated as having been fired from the same firearm that fired item 1 (indicated to be an SCCY CPX-2 handgun).
WM87B6	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.

TABLE 2

WebCode	Conclusions
WML6EA	There were three firearms in the crime scene. Item 2 was fired from the known firearm. Item 3 and Item 4 were fired from an other firearm, but it's type was the same like the known firearm. Item 5 was fired from the third unknown firearm.
WNGJ79	Item 1 was visually inspected. Item 2 was Identified to Item 1. Items 3 and 4 were Identified to each other. Items 3 and 4 were Eliminated from Items 1 and 2. Item 5 was Eliminated from Items 1, 2, 3, and 4. It displays class characteristics typical of Smith & Wesson (M&P series) pistols.
WRGV29	Items 1 and 2: The cartridge cases were Identified as having been fired in a single firearm. Images of a cartridge case in Item 1 were entered into NIBIN. No potential associations were made at this time. Items 3 and 4: The cartridge cases were Identified as having been fired in a single, second firearm. They were Eliminated from the cartridge cases Items 1 and 2. Images of Item 3 were entered into NIBIN. No potential associations were made at this time. Item 5: The cartridge case was Eliminated from Items 1 through 4: it was fired in a third firearm. It bears breech face and firing pin impression characteristics of Smith & Wesson M&P series pistols; however, any suspect firearm should be submitted to this laboratory. Images of Item 5 were entered into NIBIN. No potential associations were made at this time.
WXZAFE	Item #1, #2, #3, #4 #5 fired from same firearm.
WYG9QQ	I examined item 1 (test fired cartridge cases from the suspect's gun), and items 2, 3, 4, and 5 (cartridge cases from the scene) using stereo and comparison microscopes. I compared item 2 to the provided test fired cartridge cases (item 1), which were fired in the suspect's firearm. I observed sufficient agreement of class characteristics (caliber, approximate position of extractor and ejector marks, hemispherical firing pin impressions) and identification-quality consecutive matching striae (CMS) on the primers (firing pin aperture shear marks) and sides of the cases (chamber marks), to conclude that item 2 was fired in the suspect's gun, or a limited number of guns with similar subclass characteristics, if subclass is present. I could not do a subclass evaluation of the firearm, as it was not provided (nor was subclass ruled out in the case scenario.) I compared items 3, 4, and 5 to item 1. I observed disagreement of some class characteristics in differently shaped ejector marks and mildly differing ejector mark positions, a differently shaped primer flow-back on item 5, and distinct breech face and possible ejector aperture marks on items 3 and 4 not present on the other cases. I observed disagreement of CMS on the primers (firing pin aperture shear marks) and case heads (breech face marks) and sides of the cases (chamber marks) between these cartridge cases and the test fired cartridge cases in the suspect's gun. Due to these observations I concluded that items 3, 4, and 5 (fired cartridge cases from the scene) were not fired in the suspect's firearm. I compared items 3 and 4 to each other. I observed sufficient agreement of class characteristics (caliber, approximate position of extractor and ejector marks, position and shape of possible ejector aperture marks, and some other unidentified breech face marks). I also observed identification-quality CMS on the primers and case heads (possible ejector aperture marks) to conclude that items 3 and 4 were fired in the same gun, or a limited number of guns with similar subclass characteristics, if subclass is present. I could not do a subclass evaluation for these items.
XCK2NL	There are sufficient individual markings present to identify item 2 (cartridge case) as having been fired in the same firearm as item 1 (cartridge cases). There are sufficient individual markings present to identify items 3 and 4 (cartridge cases) as having been fired in the same firearm. Items 3 and 4 could neither be identified nor eliminated as having been fired in the same firearm as items 1 and 2 (cartridge cases). Based on class characteristic differences, item 5 (cartridge case) can be eliminated as having been fired in the same firearm as items 1

TABLE 2

WebCode	Conclusions
	through 4 (cartridge cases).
XCZECH	#1: Three (3) 9mm Luger caliber fired cartridge cases in a white jewel box labeled "Item 1", sub-itemed #1-1a, #1-1b, and #1-1c. Four (4) 9mm Luger caliber fired cartridge cases, each in a white jewel box labeled "Item 2", "Item 3", "Item 4" and "Item 5", sub-itemed #1-2, #1-3, #1-4, and #1-5. All contained in a sealed white box labeled "Test No. 19-526: FIREARMS EXAMINATION Sample Pack: F1". FINDINGS & OPINIONS: (The findings and opinions below are based upon standard firearms identification and examination procedures.) The submitted evidence was visually or microscopically examined, compared, and its characteristics noted. The four (4) cartridge cases, items #1-1a, #1-1b, #1-1c, and #1-2, have corresponding class firing characteristics and areas of matching individual characteristics. These cartridge cases were identified as having been discharged in the same gun. The two (2) cartridge cases, items #1-3 and #1-4, have corresponding class firing characteristics and areas of matching individual characteristics. These cartridge cases were identified as having been discharged in the same gun. The cartridge cases, items #1-1a, #1-1b, #1-1c and #1-2, have different firing characteristic marks than the cartridge cases from items #1-3 and #1-4. Items #1-1a, #1-1b, #1-1c and #1-2 were eliminated as having been discharged from the firearm that discharged items #1-3 and #1-4. No conclusive gun prediction could be made with respect to items #1-3 and #1-4. Item #1-5 has different class firing characteristics than the other six (6) submitted cartridge cases. Item #1-5 was eliminated as having been discharged from the firearms that discharged items #1-1a, #1-1b, #1-1c, #1-2, #1-3 and #1-4. Based on a review of known references, item #1-5 is consistent with having been fired in a Smith & Wesson Model M&P 9 semi-automatic pistol. It should be noted this is not an all-inclusive list and any suspect 9mm Luger caliber firearm should be submitted along with item #1-5 for further examination.
XHP9GN	The following submitted evidence was visually and microscopically examined: Exhibit 1: Three cartridge cases; 9mm Luger. Exhibit 2: One cartridge case; 9mm Luger. Exhibit 3: One cartridge case; 9mm Luger. Exhibit 4: One cartridge case; 9mm Luger. Exhibit 5: One cartridge case; 9mm Luger. 1. Exhibits 2, 3, 4,and 5 were microscopically compared to the three cartridge cases in Exhibit 1. a. Agreement of the observed class and individual characteristics was sufficient to conclude that the Exhibit 2 cartridge case was fired in the same firearm as the Exhibit 1 cartridge cases. b. Despite agreement of class characteristics, observed disagreement of individual characteristics was sufficient to conclude that the cartridge cases in Exhibits 3 and 4 were not fired in the same firearm as the Exhibit 1 cartridge cases. c. Disagreement of class characteristics was sufficient to conclude that the Exhibit 5 cartridge case was not fired in the same firearm as the Exhibit 1 cartridge cases. TECHNICAL NOTES: Class characteristics are defined as measureable 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.
XJLAAF	The fired cartridge case (Item 2) is identified as having been fired in the same firearm as the submitted test shots (Items 1a, 1b and 1c). The fired cartridge cases (Items 3 and 4) are identified as having been fired in the same firearm. Identifications are made only to a degree

TABLE 2

WebCode	Conclusions
	of practical certainty and are based on sufficient agreement of the individual characteristics of tool marks. Sufficient agreement, in part, means that the likelihood of another tool producing the same marks is so remote that it is considered a practical impossibility. The submitted fired cartridge cases (Items 3 and 4) are not identified or eliminated (Inconclusive) as having been fired in the same firearm as the submitted test shots (Items 1a, 1b, and 1c). The individual characteristics present do not display agreement. The submitted fired cartridge case (Item 5) is eliminated as having been fired in the same firearm as Items 1a, 1b, 1c, 2, 3, and 4. There are differences in class characteristics. Firing pin aperture (teardrop vs circular).
XJZB3M	1. Microscopic comparison identified Exhibits 1 and 2 as having been fired in the same firearm due to agreement of class characteristics and sufficient agreement of individual characteristics. 2. Microscopic comparison identified Exhibits 3 and 4 as having been fired in the same firearm due to agreement of class characteristics and sufficient agreement of individual characteristics; however, they were eliminated as having been fired in the same firearm as Exhibits 1 and 2 due to agreement of class characteristics and disagreement of individual characteristics. Observing this amount of disagreement from the same source is considered extremely remote. 3. Microscopic comparison eliminated Exhibit 5 as having been fired in the same firearm as Exhibits 1 and 2 or Exhibits 3 and 4 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 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.
XKUWXY	Item #1 and Item #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 in the same firearm. Item #1 and Items #3, #4, and #5 were microscopically examined and compared. Based on the observed disagreement of class and/or individual characteristics, Items #3, #4, and #5 are eliminated as having been fired in the same firearm as Item #1. Item #3 and Item #4 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items #3 and #4 are identified as having been fired in the same firearm. Item #4 and Item #5 were microscopically examined and compared. Based on the observed disagreement of class characteristics, Items #4 and #5 are eliminated as having been fired in the same firearm. The evidence will be returned to the submitter.
XKVEM4	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 and 4 bear class characteristics consistent with the cartridge cases in Item 1. Due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same gun that fired the cartridge cases in Item 1. The cartridge case in Item 5 was not fired in the same gun that fired the cartridge cases in Item 1, based on differences observed in class characteristics.
XL6FHB	Item 1, 2 were fired from the same firearm.
XMMD3M	The Item 1 cartridge cases were Identified to the Item 2 cartridge case. The Item 3 and 4

TABLE 2

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	cartridge cases were Identified to each other. The Item 3 and 4 cartridge cases were Eliminated to the Item 1 and 2 cartridge cases. The Item 5 cartridge case was Eliminated to the Item 1 - 4 cartridge cases.
XNUZR7	Ex 1-1-1-2: Exhibit 1-2 was microscopically identified as having been fired in the same firearm that fired Exhibit 1-1. Ex 1-3, 1-4: The two cartridge cases were microscopically identified as having been fired in the same unknown firearm. Exhibits 1-3 and 1-4 were fired in a different firearm than Exhibit 1-1 and 1-2. Ex 1-5: The cartridge case was fired in a different firearm than Exhibits 1-1 through 1-4.
XPMMXX	Item 2 was conclusively matched to the suspects weapon. Item 3, Item 4, and Item 5 were not fired from the suspects firearm.
XYEY9H	In conclusion, the carried out investigations showed, that cartridge case (item 2) was fired from the seized firearm (item 1). Cartridge cases (item 3) and item 4 were fired from the same, but yet unknown firearm. The cartridge case item 5 was fired from a different third, yet unknown firearm. The caliber of all cartridge cases is 9 mm Luger.
XZQBV8	The submitted fired cartridge case (Item 2) was fired in the same firearm as the submitted test fires (Item 1) reportedly fired in a SCCY pistol. The submitted fired cartridge cases (Items 3 and 4) were fired in the same unknown firearm. The submitted fired cartridge cases (Items 3 and 4) were eliminated as having been fired in the same firearm as the test fires (Item 1) reportedly fired in a SCCY pistol due to differences in individual characteristics. The submitted fired cartridge case (Item 5) was eliminated as having been fired in the same firearm as the submitted fired cartridge cases (Items 3 and 4)or the test fires (Item 1) reportedly fired in a SCCY pistol due to differences in class and individual characteristics.
Y2G2UD	Group 1: Item 2 is identified as having been fired from the same firearm as items 1A through 1C (submitted test shots). Group 2: Items 3 and 4 are identified as having been fired from the same firearm. Items 3 and 4 are not identified or eliminated (inconclusive) as having been fired from the same firearm as items 1A through 1C and item 2. The individual characteristics present do not display agreement. Group 3: Item 5 is eliminated as having been fired from the same firearm as items 1A through 1C or items 2 through 4. There is a difference in class characteristics (firing pin aperture shape). Note: Identifications are made only to a degree of practical certainty and are based on sufficient agreement of the individual characteristics of tool marks. Sufficient agreement, in part, means that the likelihood of another tool producing the same marks is so remote that it is considered a practical impossibility.
Y3AZ3K	Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases from Items 1 and 2 were identified as having been fired in the same firearm. Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the fired 9mm caliber cartridge cases, Items 3 and 4, were identified as having been fired in the same firearm. The fired 9mm caliber cartridge cases, Items 3 and 4, exhibit similar class characteristics as those exhibited on the fired 9mm caliber cartridge cases from Items 1 and 2. However, due to the lack of corresponding individual detail, Items 3 and 4 could neither be identified nor eliminated as having been fired in the same firearm as the fired 9mm caliber cartridge cases from Items 1 and 2. The results of these examinations are inconclusive. Based on significant disagreement of class characteristics, the fired 9mm caliber cartridge case, Item 5, could not have been fired in the same firearm as the fired 9mm caliber cartridge cases from Items 1 and 2. Based on significant disagreement of class characteristics, the fired 9mm caliber cartridge case, Item 5, could not have been fired in the same firearm as the fired 9mm caliber cartridge cases, Items 3 and 4.

TABLE 2

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Y4Z949	In my opinion, a microscopical comparison of firing marks has shown sufficient agreement of class and individual characteristic markings to conclusively determine that item 2 was fired in the same gun as for item 1 cartridge cases. Furthermore, in my opinion, this comparison has also shown sufficient disagreement of class and individual characteristic markings to conclusively determine that items 3, 4 and 5 were not fired in the same gun as for item 1 cartridge cases.
Y784MW	Items 2, 3, 4, and 5 are four (4) fired 9mm Luger caliber cartridge cases, Remington brand, that were all examined and microscopically compared to each other and to the Item 1 cartridge cases. Item 2 was identified as having been fired in the same firearm as the Item 1 cartridge cases. Items 3 and 4 were identified as having been fired in the same firearm, different than that of the Item 1 firearm and Item 5 firearm. Item 5 was eliminated as having been fired in the same firearm as Items 1, 2, 3, and 4, due to differences breech face markings. Items 2, 3, and 5 were entered into the NIBIN database, and you will be notified if any positive associations are made. The results of this examination relate only to the items examined and listed in this report.
Y7THBA	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 - 001-04 were fired in the same firearm (identification). This is also the opinion of Firearms Examiner (Name). Items 001-03 - 001-04 were not fired in the same firearm as Items 001-01 - 001-02 (elimination). This is also the opinion of Firearms Examiner (Name). Item 001-05 was not fired in the same firearm as Items 001-01 - 001-02 or Items 001-03 - 001-04 (elimination). This is also the opinion of Firearms Examiner (Name).
Y9HGHZ	Item 2 was fired in the same firearm as the item 1 test fires. Items 3 and 4 were fired in a second firearm. Item 5 was fired in a third firearm.
YBJNFJ	The item 2 fired cartridge case was fired in the same firearm as the item 1 (known) fired cartridge cases. The items 3, 4 and 5 fired cartridge cases were not fired in the same firearm as the item 1(known) or item 2 fired cartridge cases. The items 3 and 4 fired cartridge cases were fired in the same firearm(unknown firearm #1) but not the same firearm as the item 5 fired cartridge case (unknown firearm #2).
YCAWG8	1. Cartridge case no 2 was discharged from the same firearm as the known expended cartridge cases (item 1). 2. Expended cartridge cases items no 3, 4, 5 weren't discharged from the same firearm as the known expended cartridge cases (item 1).
YKDMDJ	Item 2 was identified to Item 1. Items 3 and 4 were identified to each other. They were eliminated to Items 1 and 2. Item 5 was eliminated to Items 1,2,3 and 4.
YRAZFK	I microscopically compared Item 001-2 to one of the test fires in Item 001-1 and found agreement of all discernable class characteristics and sufficient agreement of the individual characteristics to conclude that it was fired in the firearm that produced the test fires (SCCY brand, model CPX-2, 9mm Luger caliber pistol). I microscopically compared Items 001-3, 001-4, and 001-5 to one of the test fires and found significant disagreement of the class characteristics to conclude that these three cartridge cases were not fired in the firearm that produced the test fires. I microscopically compared Items 001-3 and 001-4 to each other and found agreement of all discernable class characteristics and sufficient agreement of the individual characteristics to conclude that these two cartridge cases were fired in the same unknown 9mm Luger caliber firearm.
YV9BCK	Item 2 was microscopically compared to Items 1A, 1B, and 1C (test-fires from the SCCY CPX-2

TABLE 2

WebCode	Conclusions
	pistol) using a comparison microscope. Corresponding class characteristics and corresponding individual characteristics sufficient for identification were observed. Item 2 was fired in the SCCY CPX-2 pistol. Item 3 was microscopically compared to Items 1A, 1B, and 1C (test-fires from the SCCY CPX-2 pistol) using a comparison microscope. Although corresponding class characteristics were observed, significant differences in individual characteristics (firing pin aperture shear and breechface shear) were observed to conclude Item 3 was not fired in the SCCY CPX-2 pistol. Item 4 was microscopically compared to Items 1A, 1B, and 1C (test-fires from the SCCY CPX-2 pistol) using a comparison microscope. Although corresponding class characteristics were observed, significant differences in individual characteristics (firing pin aperture shear and breechface shear) were observed to conclude Item 4 was not fired in the SCCY CPX-2 pistol. Item 5 was microscopically compared to Items 1A, 1B, and 1C (test-fires from the SCCY CPX-2 pistol) using a comparison microscope. Significant differences in class characteristics (firing pin aperture shape) were observed to conclude Item 5 was not fired in the SCCY CPX-2 pistol. Item 3 was microscopically compared to Item 4 using a comparison microscope. Corresponding class characteristics and corresponding individual characteristics sufficient for identification were observed. Item 3 and Item 4 were fired in a single firearm.
YY6HEN	Item 2 was fired from the same firearm as Item 1. Item 3 and Item 4 were fired from the same unknown firearm. Item 3 and Item 4 have agreement of all discernible class characteristics and disagreement of individual characteristics but insufficient for an elimination to Item 1. Item 5 is eliminated as having been fired in the same firearm as Item 1, due to a difference in class and individual characteristics.
Z7MAEE	Items 1 and 2 were identified as having been fired in the same firearm based on agreement of class characteristics and sufficient agreement of individual characteristics within the aperture shearing. Items 3 and 4 were identified as having been fired in the same firearm based on agreement of class characteristics and sufficient agreement of individual characteristics within the breechface marks. Item 5 was eliminated as having been fired in the same firearms as Items 1 and 2 and Items 3 and 4 based on disagreement of class characteristics.
Z82GZW	Item 2: The cartridge case was Identified to the firearm represented by the Item 1 tests. Item 3, Item 4: The cartridge cases were Identified to each other. The cartridge cases were Eliminated to the firearm represented by the Item 1 tests. Item 5: The cartridge case was Eliminated to the firearm represented by the Item 1 tests. The cartridge case was Eliminated to the Item 3 and Item 4 cartridge cases. The cartridge case displays class characteristics consistent with firearms by Smith & Wesson (M&P series).
Z8GZH9	Based on agreement of class characteristics, Item 2 through Item 4 cartridge cases were microscopically compared to each other and to test exemplars labeled as having been fired from the Item 1 SCCY pistol with the following results: Item 2 was identified on individual characteristics as having been fired from the SCCY pistol. Items 3 and 4 were identified on individual characteristics as having been fired from the same unknown firearm. The significance of these identifications is made to the practical, not absolute, exclusion of all other firearms. Item 5 was eliminated due to significant disagreement of class characteristics as having been fired from Item 1 SCCY pistol and the unknown firearm that fired Items 3 and 4. Item 5 has class characteristics similar to those known to have been produced by Smith & Wesson, M&P model pistols.
Z9VVC9	The fired caliber 9mm Luger cartridge cases (Items 2, 3, 4, and 5) were microscopically examined and compared to the test fired cartridge cases (Item 1) from the SCCY pistol. It was determined that the fired cartridge case (Item 2) was fired in the SCCY pistol (Item 1). Furthermore, it was determined that the remaining fired cartridge cases (Item 3, 4 and 5) were

TABLE 2

WebCode	Conclusions
	not fired in the SCCY pistol (Item 1). Additionally, it was determined that the fired cartridge cases listed as Items 3 and 4 were fired in the same unknown firearm capable of chambering and firing caliber 9mm Luger ammunition and the fired cartridge case listed as Item 5 was fired from an additional unknown firearm capable of chambering and firing caliber 9mm Luger ammunition, but not the same firearm as Items 3 and 4.
ZDLCLD	1. One 9 mm Luger cartridge case (item 01-02) was fired in the SCCY pistol represented by the three test fired 9 mm Luger cartridge cases (item 01-01). 2. The three 9 mm Luger cartridge cases (items 01-03, 01-04 and 01-05) were not fired in the SCCY pistol represented by the three test fired 9 mm Luger cartridge cases (item 01-01). The eliminations are due to class characteristic differences. 3. The two 9 mm Luger cartridge cases (items 01-03 and 01-04) were fired in a single unknown firearm. The remaining 9 mm Luger cartridge case (item 01-05) was not fired in the same firearm due to class characteristic differences.
ZJDJ78	Item #1 (three R-P {Remington} 9mm Luger fired cartridge cases), Item #2 (one R-P {Remington} 9mm Luger fired cartridge case), Item #3 (one R-P {Remington} 9mm Luger fired cartridge case), Item #4 (one R-P {Remington} 9mm Luger fired cartridge case), and Item #5 (one R-P {Remington} 9mm Luger fired cartridge case) were examined and microscopically compared on 06/10/2019. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Item #2 was positively identified as having been fired in the same firearm as Item #1. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Item #3 was positively identified as having been fired in the same firearm as Item #4. Based on disagreement of class and individual characteristics, Items #3 & #4 were eliminated as having been fired in the same firearm as Items #1 and #2. Based on disagreement of class characteristics, Item #5 was eliminated as having been fired in the same firearm as Items #1 - #4.
ZJRHAB	Item #1 - tests from 9mm SCCY CPX2 pistol. Item #2, based on an agreement of both class and individual characteristics, was fired from item #1. Items #3 and #4 were both fired from one gun based on an agreement of both class and individual characteristics but are eliminated from being fired from item #1 (9mm SCCY CPX2 pistol) based on a disagreement of both class and individual characteristics. Item #5, based on both class and individual characteristics, was not fired from item #1 (9mm SCCY CPX2 pistol) or the other firearm that fired items #3 and #4.
ZPBWLV	Item 2 was fired by the same firing pin and breechface that fired the known cartridge cases (Item 1). Items 3 and 4 were not fired by the firing pin that fired the known cartridge cases (Item 1), but they were fired by the same firing pin as each other. Item 5 was not fired by the firing pin and breechface that fired the known cartridge cases (Item 1) or the firing pin and breechface that fired Items 3 and 4.
ZQWALU	Item 2 was Identified to the Item 1 pistol. Items 3 and 4 were Identified to each other. Item 5 was Eliminated to the Item 1 pistol and to Items 3 and 4. Items 3 and 4 were Inconclusive (-) to the Item 1 pistol and to Item 2.
ZWGDQC	Item 2 (fired cartridge case) is identified as having been fired in the same firearm as Items 1A, 1B and 1C (fired cartridge cases). Items 3 and 4 (fired cartridge cases) are identified as having been fired in the same firearm. Identifications are made only to a degree of practical certainty and are based on sufficient agreement of the individual characteristics of tool marks. Sufficient agreement, in part, means that the likelihood of another tool producing the same marks is so remote that it is considered a practical impossibility. Item 5 (fired cartridge case) is eliminated as having been fired in the same firearm as Items 1A, 1B, 1C, 3 and 4 (fired cartridge cases).

TABLE 2

WebCode	Conclusions
	There are differences in the class characteristics (firing pin aperture shape). Items 3 and 4 (fired cartridge cases) are not identified or eliminated (inconclusive) as having been fired in Item 1A, 1B and 1C (fired cartridge cases). The individual characteristics present do not display agreement.
ZWXYA7	The Item 01-02 cartridge case was identified as having been fired in the same firearm as the Item 01-01 cartridge cases. The Item 01-03 and 01-04 cartridge cases were identified as having been fired in the same unknown firearm that is capable of chambering and firing a 9mm Luger caliber cartridge. The Items 01-03 and 01-04 cartridge cases were unable to be identified or eliminated as having been fired in the same firearm that fired the Items 01-01 and 01-02 cartridge cases due to a lack of reproducible marks. The Item 01-05 cartridge case was eliminated as having been fired in the same unknown firearm(s) as the Items 01-01 to 01-04 cartridge cases. The Item 01-05 cartridge case was fired in an unknown firearm that is capable of chambering and firing a 9mm Luger caliber cartridge. Possible firearms that could have fired this cartridge case include, but are not limited to, some Smith & Wesson Model M&P pistols.

Additional Comments

TABLE 3

WebCode	Additional Comments
2A4ETG	Furthermore, I compared Items 001-03 through 001-05 to each other. I observed agreement of all discernable class characteristics and sufficient agreement of individual characteristics to conclude Items 001-03 and 001-04 were fired in a single firearm. I observed disagreement of class characteristics between these two cartridge cases and Item 001-05 to conclude Item 001-05 was not fired in the same firearm as Items 001-03 and 001-04.
2M8AYJ	Identification: Based on the agreement of the individual characteristics observed through the microscopic comparison examination.
2PDRXE	Microscopic examination and comparison of the fired cartridge cases (items # 3 & 4) with each other revealed sufficient microscopic evidence to conclude that the fired cartridge cases (items # 3 & 4) were fired in the same pistol. This pistol is a different pistol than the pistol which fired the test fired cartridge cases (item # 1). The fired cartridge case (item # 5) was not fired in the same pistol as fired the test cartridge cases (item # 1) or the pistol which fired the two cartridge cases (items # 3 and 4).
2UTFGC	Similar Class/Family characteristics observed. Test cartridge cases from the SCCY pistol having a similar metal primer to the spent cartridge cases would be beneficial. Determination could possibly be made with better representative samples/test fires.
3B8Y4G	Reasons why Items 3 and 4 were inconclusive to Item 1: Items 3 and 4 exhibited a different primer composition than Item 1 and Items 3 and 4 were also marked poorly in comparison to Item 1. Meaning Item 1 exhibited excellent striated detail in the FPAS whereas Items 3 and 4 did not exhibit FPAS and poor quality of detail in the FPI. In addition, the striated detail exhibited on Items 3 and 4 was low in quantity and located in different areas of the case head when compared to each other.
3EWTZ3	Reason for inconclusive with Items 3 and 4. Items 1, 2, 3, and 4 were determined to have the same class of firearm-produced marks but neither sufficient agreement nor significant disagreement of individual marks was observed. Having some samples with brass case/brass primer would have been ideal. In some cases, the ejector mark and ejector cut-out mark were directly over the headstamp area which removed another area of comparison. Additional test-fires would have been done to better visualize the ejector mark and ejector cut-out mark for another area of comparison.
3GVA4K	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 firearm is a 9mm Luger caliber Smith & Wesson model M&P pistol.
4C3MUW	Items 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 3 and 4, the cartridge cases, based on different class characteristics.
4E8KCY	Due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same gun that fired the cartridge cases in Item 1.
4GYJTJ	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: Identified: Agreement of all discernible class characteristics and sufficient agreement of individual characteristics where

TABLE 3

WebCode	Additional Comments
	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. No Value for Microscopic Comparison: The item lacks sufficient individual characteristics for microscopic comparison to other items.
4H8V9Y	Due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same firearm that fired the cartridge cases in Item 1.
4YBXUQ	Exhibit 1 to Exhibits 3 and 4 determined to be inconclusive based on a difference in ammunition (nickel primer vs brass primer). Exhibit 1 knowns produced with brass primers may result in a different conclusion.
66JJMU	Items 3 and 4 were inconclusive due to not being able to generate additional test fires using the same primer type as the known test fires (Item 1). Item 1 primers were nickel and Item 3 and 4 primers were brass. Class characteristics were similar between Items 1, 3 and 4 (firing pin aperture size, extractor shape and location, and ejector location).
6D84D8	Laboratory protocol prohibits eliminations being made on differing individual characteristics.
6G8MNY	Comparisons of both nickel and brass primers are required in this test. Therefore, both nickel and brass primer tests should have been provided.
7P2PDB	Items 2 and 4 exhibit some agreement of individual characteristics and all discernable class characteristics but are insufficient for an identification. It is not possible to identify items 3 and 4 as having been fired in item 1.
7QRVMA	For specimens #3 and #4 I may have limited my conclusions to "cycled through" in actual casework, but that was not an option. Also, the test fires should have the same type of primers as the evidence for a more accurate comparison. In actual casework I would have fired cartridges with both types of primers to ensure ammunition type did not influence the results.
7VNXU2	Item 1 (nickel primers) cartridge cases had typical primer flow back and firing pin aperture shear. Items 3 and 4 (brass primers) did not have primer flow back but had long striated marks on the primer. I was unable to determine if the differences in firing pin aperture marks were due to the difference in primer material or because they were fired in two different guns of the same make and model. There was neither sufficient agreement nor significant disagreement in individual marks. (If I had access to the firearm, I would have fired ammunition with brass primers for comparison).
84CFJT	The cartridge cases in Items 1 and 2 bear similar class characteristics as the cartridge cases in Items 3 and 4 and cannot be eliminated as having been fired from the same firearm. However, the cartridge cases in Items 1 and 2 and the cartridge cases in Items 3 and 4 also lack sufficient agreement of individual characteristics to identify them as having been fired from the same firearm.
8KGK87	Firearms that produce general class characteristics like those present on the Item 5 cartridge

TABLE 3

WebCode	Additional Comments
	case include Smith & Wesson pistols chambered to fire caliber 9mm Luger cartridges. This is not all-encompassing; it is possible another brand of firearm produced these class characteristics and is not listed due to the content of the database searched.
8M8LCU	The cartridge cases in Items 3 and 4 bear firing pin impressions which are similar in dimension and general appearance with those found on test cartridge cases in Item 1. In addition, the appearance of aperture shear marks and ejector marks are similar. Because of these observations, I chose not to exclude items 3 and 4 from the group in Item 1.
9MM2R2	Items #3 and # 4 were fired from a separate unknown firearm from Item # 5.
AXYJ46	The recovered questioned expended cartridge case Item 5 have agreement of class characteristics without agreement of individual characteristics.
BJFGYL	If I had the firearm, I would have shot tests with both nickel and brass primers to better determine the reproducibility of the firearm in both mediums, as the evidence had both nickel and brass primers.
BJH766	Items 1-3-1 (CTS item 3) and 1-4-1 (CTS item 4) could neither be identified nor eliminated as having been fired by the same firearm that fired item 1-1-1 (CTS item 1). These inconclusive conclusions are the result of the following: differences observed in the overall appearance of the cartridge cases, similarities observed in the patterns of microscopic markings that were insufficient for a conclusion of identification, and a difference in the composition of the primer material between the compared items that may have contributed to the difference in the overall appearance of the compared items.
BWPW6Q	The identification of the cartridge case with the firearm in this case is made to the practical, not absolute, exclusion of all other firearms. This is because it is not possible to examine all firearms in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between two firearm-produced toolmarks means that the likelihood another firearm could have made the questioned mark is so remote as to be considered a practical impossibility.
BY7ERG	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known to have been fired in different firearms; and the degree of similarity is equivalent to that

TABLE 3

WebCode	Additional Comments
	normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in ammunition design and construction, cartridge cases fired in the same firearm are sometimes not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
CHJR3P	The results of microscopic examinations of Items 3 and 4 with Item 1 were inclusive for a variety of reasons. First, the individual characteristics (namely the shear on the primer) present on the test fired cartridge cases in Item 1 did not reproduce well. Two of these cartridge cases have well defined shear but one did not, and it was difficult to find agreement between this one (without shear) and the other two (with shear). Second, all of the cartridge cases in Item 1 have nickel plated primers while the cartridge cases in Items 3 and 4 have brass primers. Primer difference can make impact on how individual characteristics reproduce. If the pistol had been received for examination along with the cartridge cases, more than three test fires would have been produced and cartridge cases with nickel plated and brass primers would have been used.
CWYHUJ	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: 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

TABLE 3

WebCode	Additional Comments
	characteristics and/or individual characteristics leading to the conclusion that the items were not fired in/from the same firearm. The submitted items will be transferred to the Evidence Section for return to your agency. Questions regarding this report should be addressed to [email address]
DJCFA7	Note: Items 1 and 2 have nickel plated primers and Items 3 & 4 have brass plated primers. It is not known whether or not the different primer types may have influenced the markings placed on them during discharge.
DU3DNP	Three 9mm Luger cartridge cases, Item 1, reportedly test fired from the suspect's pistol, and four fired 9mm Luger cartridge cases were submitted for examination. One of the submitted cartridge cases, Item 5, had a tear-drop shaped firing pin aperture impression while the other cartridge cases had round aperture impressions. Therefore, Item 5 could not have been fired from the suspect's pistol. I microscopically compared the remaining three submitted cartridge cases to the test-fired cartridge cases, Item 1 from the suspect's pistol. I found sufficient agreement in the individual firearm-produced characteristics, including the firing pin aperture shear marks and firing pin impressions, to conclude that one of the submitted cartridge cases, Item 2, was fired from the submitted pistol. I found sufficient differences in the firearm-produced characteristics, including the breechface and firing pin aperture impressions, to conclude that two of the cartridge cases, Items 3 and 4, were not fired from the submitted pistol. These two cartridge cases were fired from the same unknown firearm, based on striations on their breechface surfaces. The examinations and comparisons were documented with a series of 16 digital images.
DY67A9	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: 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. 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.
E3F46F	Items 3 and 4 are very likely to have been discharged from the same firearm but there is wide variability in the correspondence of marks between them. Although there were some areas of reasonable correspondence, there were also a number of areas that did not match. Without the firearm responsible to create more tests, the only conclusion that can be made is "Inconclusive" re Items 3 and 4 being fired in one gun.
E7GNXZ	In conclusion three weapons have been utilised during this incident.
E88C9L	Items 3 and 4 were marked inconclusive because there was some agreement of individual characteristics, but not enough for an identification. The known cartridge cases received had nickel primers and also did not reproduce individual characteristics well. The markings present on the brass primers of Items 3 and 4 were poor, but agreement was found in other areas (headstamp, Case body). If this situation was encountered in case work, test fires would have been made with the same type cartridges as Items 3 and 4 in order to have a better standard for comparison.
EBVE82	Item 3 was marked as inconclusive as it exhibited agreement of class characteristics and some disagreement of individual characteristics, however it was determined that the disagreement was not sufficient for elimination. Item 4 was marked as inconclusive as it exhibited agreement of class characteristics and some disagreement of individual characteristics, however it was determined that the disagreement was not sufficient for elimination.

TABLE 3

WebCode	Additional Comments
FW3DTE	Items 3 and 4 when compared to test fires from Item 1 shared similar and dissimilar individual microscopic characteristics; therefore, could not ID nor EXCL.
GRB89B	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 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.
GV6XYY	Questions regarding this report should be addressed to [email address].
H2EE9N	Items 3 and 4 are inconclusive to the submitted test fired cartridge cases, Item 1, due to a lack of repeatable individual characteristics.
H4L2YU	The [Laboratory] Firearms policy prohibits elimination based on differences in individual characteristics.
H7A27H	A test fired cartridge case from Item 1, will be entered into NIBIN. Item 5, the cartridge case, will be entered into NIBIN. The results of NIBIN entries and searches will be the subject of a separate report.
HBFC3X	Based on a lack of agreeing individual characteristics in the shear, breechface marks, and firing pin drag possibly due to ammunition type; however, available class and some individual characteristics are similar.
HCPDWJ	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known to have been fired in different firearms; and the degree of similarity is equivalent to that normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics

TABLE 3

WebCode	Additional Comments
	are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in ammunition design and construction, cartridge cases fired in the same firearm are sometimes not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
HHYEBZ	There was no significant agreement or disagreement observed between the test fires (Item 1) and Items 3 and 4. Some disagreement was observed in the breech face marks and possible ejector cut-out shear marks, however, it was insignificant, only random agreement observed. The quality of the markings between the Items was varied due to different primer compositions (brass vs nickel). Test fires (Item 1) have a large aperture flowback with heavy shearing that are reproducing throughout all 3 fired cartridge cases. The presence of significant shearing could vary based on the type of ammunition utilized. Items 3 and 4 have very faint to no aperture shearing. It is laboratory section practice to rarely make eliminations solely on individual characteristics. Due to the items having the same class characteristics and without having test fired cartridge cases from the pistol with the same ammunition as Items 3 and 4, an inconclusive conclusion is made rather than an elimination.
HVK7HG	suspect's weapon was used to fire the recovered cartridge (name 02-05) cases from the scene.
J348GC	The comparative examinations between Item 1 and Items 3 and 4 showed agreement of individual characteristics but insufficient for an identification.
JD6VQG	The identification of the cartridge case with the firearm in this case is made to the practical, not absolute, exclusion of all other firearms. This is because it is not possible to examine all firearms in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between two firearm-produced toolmarks means that the likelihood another firearm could have made the questioned mark is so remote as to be considered a practical impossibility.
JHW39P	PISTOL "A": (ITEM#1 AND ITEM#2) SCCY CPX-2. PISTOL "B": (ITEM#3 AND ITEM#4) SAME FAMILY CHARACTERISTICS AS PISTOL "A". PISTOL "C": (ITEM#5) FAMILY CHARACTERISTICS AS GLOCK TIPE GENERATION 5
JLF9HK	The conclusion are based in cartridge cases examination, microscopic examination and

TABLE 3

WebCode	Additional Comments
	microscopic comparison examination.
JPYCDW	Items 1 and 2 have nickel plated primers and Item 3 and 4 have brass plated primers. It is not known whether or not the different primer types may have influenced the marking placed on them during discharge.
JXN6KM	The items 3 and 4 was fired in the same firearm but different for the SCCY CPX-2 pistol.
JYLEE6	While Items 3 and 4 display none of the shear found on the Items 1 and 2 cartridge cases, this examiner was reluctant to eliminate them as having the same source firearm due to class similarities found in the ejector and extractor marks. This in turn may be due to differences in ammunition (primer components).
KC2NQ9	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known to have been fired in different firearms; and the degree of similarity is equivalent to that normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in

TABLE 3

WebCode	Additional Comments
	ammunition design and construction, cartridge cases fired in the same firearm are sometimes not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
KEK3U9	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known to have been fired in different firearms; and the degree of similarity is equivalent to that normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in ammunition design and construction, cartridge cases fired in the same firearm are sometimes

TABLE 3

WebCode	Additional Comments
	not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
KKZP9R	Item 1: Three Remington 9mm Luger cartridge cases. Item 2: One Remington 9mm Luger cartridge case. Item 3: One Remington 9mm Luger cartridge case. Item 4: One Remington 9mm Luger cartridge case. Item 5: One Remington 9mm Luger cartridge case
KLQKG2	Identification: Based on the agreement of the individuals characteristics observed through the microscopic comparison examination.
KPQWD2	The cartridges item 3 and item 4 were fired in the same unknown handgun. The cartridge item 5 was fired in an other unknown handgun. Totally there are discharged cargridges from three different handguns.
L8ACAM	Items 001-01 through 001-05 are Items 1 through 5, respectively.
LXKR4P	The submitted items 3 and 4 questioned cartridge cases exhibit the same discernible class characteristics as those present on item 1 known cartridge cases; however, because of the lack of sufficient suitable corresponding microscopic markings, it was not possible to identify or eliminate items 3 and 4 as having been fired in the same firearm as the Item 1 fired cartridge cases.
M4KZUW	Identification: Is based on in the agreement of the individual characteristic observed through the microscopic examination.
MD9Z6F	Brass primer test fires should have been provided within item #1.
MKLYQD	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known

TABLE 3

WebCode	Additional Comments
	to have been fired in different firearms; and the degree of similarity is equivalent to that normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in ammunition design and construction, cartridge cases fired in the same firearm are sometimes not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
NBYUHJ	Item 5 was fired in an unknown weapon capable of chambering and firing 9mm Luger caliber ammunition. After additional examination, it was determined that Items 3 & 4 have similar class characteristics and some similar individual markings, but due to insufficient correlation of individual markings, the findings are inconclusive.
NGKNEG	The 9mm Luger cartridge cases (Items 01-03 and 01-04) were neither identified nor eliminated as having been fired in the same unknown firearm or in the SCCY pistol that fired the cartridge cases (Items 01-01 and 01-02) due to the agreement of class characteristics, but insufficient agreement of individual details; the result is inconclusive.
NJVYJU	Based upon observed on similar class characteristics and sufficient correspondence of matching patterns of individual characteristics the cartridge cases labled as items 3 and 4 were identified as having been fired in a single firearm. Based on significant differences in individual firearm produced markings the cartridge case item 5 was not fired in the same firearm that fired the cartridge cases labled as items 1, 2, 3 or 4. The cartridge case was fired in a third firearm.
NLKADU	No pattern of agreement observed between Item 1.1 and Item 3. Reproducibility established for each Item, but only with Items of same primer composition. Item 1.1 has a more defined FP aperture flowback, while Item 3 has more defined marks on the primer and case head. Unable to determine how Items would mark in difference primer compositions, therefore

TABLE 3

WebCode	Additional Comments
	results are inconclusive.
NPHCD9	The fired cartridge cases listed as items 3 and 4 were cycled or fired in the same firearm. This firearm was different to the firearm that had discharged items 1 and 2, and was also different to the firearm that discharged item 5.
NXW3WE	There was insufficient agreement or disagreement of the individual characteristics present between the cartridge cases in Items 1 and 2 (Group A)and the cartridge cases in Items 3 and 4 (Group B) for an identification or an elimination.
NXWTVP	Item 3 and item 4 were fired from another same 'firearm B'. Item 5 was fired from another 'firearm C'.
PAFNHE	A. Identification: Based on the agreement of the individuals characteristics observed through the microscopic comparison examination.
PPCG78	The fired cartridge cases Items 3 and 4 had been fired by the same gun, but not the recovered exhibit firearm that discharged the fired cases in Item 1.
Q3D7C2	Methods: Cartridge/Shotshell Case: Two cartridge cases, either two evidence items or one evidence item and one cartridge case test fired in the Laboratory, undergo two stages of comparison. First, the cartridge cases are examined to determine and compare their class characteristics. The class characteristics of fired cartridge cases include caliber, shape of firing pin impression, shape and orientation of breech face marks, and relative locations of extractor and ejector marks. If the class characteristics of the two cartridge cases are not clearly different, the examination moves to a second stage using light and/or virtual comparison microscopy. A microscopic comparison examination consists of a search of the impressed and striated toolmarks present on two cartridge cases to determine if patterns of similarity exist. At the completion of these examinations, one of the following three opinions is issued: 1) Source Exclusion: Source exclusion is an Examiner's conclusion that two cartridge cases did not originate from the same source. The basis for a source exclusion conclusion is an Examiner's decision that two cartridge cases can be differentiated by their class characteristics. A source exclusion based on general differences does not require a verification. However, a source exclusion based on a minor difference in a measured class characteristic requires a verification. 2) Source Identification: Source identification is an Examiner's conclusion that two cartridge cases originated from the same source. Conditions for a source identification include the degree of similarity, between two samples, being greater than the Examiner has ever observed in previous evaluations of cartridge cases known to have been fired in different firearms; and the degree of similarity is equivalent to that normally observed in cartridge cases known to have been fired in the same firearm. The basis for a source identification conclusion is an Examiner's decision that the observed class characteristics and corresponding individual characteristics provide extremely strong support for the proposition that the two toolmarks came from the same source and extremely weak support for the proposition that the two toolmarks came from different sources. Before being reported, a source identification requires a verification to be completed. 3) Inconclusive (No Conclusion): Inconclusive is an Examiner's conclusion that all observed class characteristics are in agreement but there is insufficient quality and quantity of corresponding individual characteristics such that the Examiner is unable to identify or exclude the two cartridge cases as having originated from the same source. The basis for an inconclusive conclusion is an Examiner's decision 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

TABLE 3

WebCode	Additional Comments
	identification; a lack of any observed microscopic similarity; or microscopic dissimilarity that is insufficient to form the conclusion of source exclusion. Limitations: Cartridge/Shotshell Cases: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to possible changes in firearm operating surfaces from wear, corrosion, and ordinary fouling and differences in ammunition design and construction, cartridge cases fired in the same firearm are sometimes not identifiable as such. Additionally, some firearm manufacturing methods routinely produce working surfaces that leave limited microscopic marks of value on fired cartridge cases. Virtual comparison microscopy (VCM) is restricted to the surface that the three-dimensional toolmark topographical instrument is capable of measuring to produce a digital reproduction. Additionally, individual characteristics may be present on the evidentiary item(s) and 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.
QH9HTH	In my opinion, a microscopical comparison of firing marks has shown there is sufficient agreement of class and individual characteristic markings to conclusively determine that items 3 & 4 were fired in the same firearm (Gun B). Item 5 has no connections to the other items (Gun C).
R49WAT	Identification: The conclusion are based in cartridge cases examination, microscopic examination and microscopic comparison examination.
R96C4A	Items 3/4 inconclusive to Items 1/2 because I'm not comfortable eliminating, when the test fires are from a Sccy Industries pistol. I have had test fires from the same Sccy Industries pistol (in casework) look nothing alike, so I chose to err on the side of caution and conclude inconclusive instead of eliminating. I have a photo of the test fire inter-comparison from casework if interested.
RFHZNG	Inconclusive of Items 3 and 4 to Item 1: Class characteristics are similar and individual characteristics are not sufficiently similar or dissimilar. Primer materials are different; nickel vs brass. Failed to reveal sufficient quantity and quality of individual characteristics to determine whether or not they were fired in the same firearm.
RKXXCQ	Items 1, 2 and 5 had nickel finished primers. Items 3 and 4 had brass finished primers. Items 3 and 4 marked very poorly. Had this been actual casework, I would have created additional test fires using ammunition with features similar to those of Items 3 and 4 to determine if the recovered firearm marked brass finished primers consistently and if those test fires were significantly different than the test fires using nickel finished primers. Based on the poor quality of markings on Items 3 and 4 and the obvious differences in ammunition type used for the provided test fires, I was unable to eliminate based on individual features. Per laboratory policy: "The discipline recognizes that an elimination of a firearm by other than class characteristics is possible but that such an elimination is an exceptional situation. If an examiner arrives at an opinion where he/she eliminates a firearm, for any reason, the examiner must substantiate the reasons supporting his/her opinion and incorporate them into his/her work notes." The features present on Items 3 and 4 could not be considered exceptional.
RQJXJQ	All test fires (Item 1) and Item 2 show reproducing heavy firing pin aperture shearing, vs the faint firing pin aperture and very limited shearing (on Item 3) and the absence of a distinct firing pin aperture (on Item 4). Other disagreement is observed in the individual characteristics

TABLE 3

WebCode	Additional Comments
	on breech face and firing pin. Note Items 3 and 4 have pronounced parallel stria at 12:00, vs the test fires (Item 1) and Item 2 do not have stria on the breech face in this position. Despite these noted differences Items 3 and 4 have different primer composition from Items 1 and 2. Agreement of class, insufficient agreement/disagreement of individual characteristics. This laboratory doesn't routinely eliminate based on individual characteristics only.
RQXJVD	The cartridge cases 9mm caliber questioned, identified with items 3 and 4 were discharged from a single firearm type pistol different from the suspicious weapon.
RU36RQ	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: Identified: Agreement of all discernable 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 discernable class characteristics and some agreement of individual characteristics but insufficient for an identification. Inconclusive: Agreement of all discernable 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 discernable 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
TEHGXY	The difference in primer material and the minor agreement observed were factors in the inconclusive result instead of an elimination.
TP772E	Though the CTS documentation describes test fired cartridge cases (item 1) as "consistent with the cartridge cases found at the scene", they were not consistent in the metallic composition of the primer. In my experience, such differences can affect individual marks that are produced. In this case, I would have produced additional test fired samples with brass primers for comparison purposes. Class characteristics between items 3 & 4 and item 1 are ***generally*** consistent. Firing pin shape and BF cutout are present and oriented consistently. However, there are some subtle differences in BF cutout shape/contour as well as aperture size that are present but insufficient to eliminate. The observed differences could not be confirmed to be repeatable/reliable from the intra-comparison of items 3 and 4 so I am not presently convinced they are sufficient to eliminate. I observed no noteworthy agreement of individual characteristics between items 3 & 4 when compared to item 1.
TRC4L3	While there are some variations in the firing pin aperture shear of Item 3 and the firing pin impression of Items 3 and 4, the differences aren't pronounced enough to base an elimination to Item 1, shooting a similar composition of ammunition (Rem Br/Br) could aid in an elimination, it's possible that Items 3 and 4 were fired in a similar make/model of firearm as Item 1.
UYNC6W	This case involves three different 9mm Luger caliber firearms. The SCCY pistol (Item 1), and two unknown firearms. The three remaining cartridge cases (Items 3, 4, and 5) were microscopically compared to each other. Two of the cartridge cases form the parking lot (Items 3 and 4) were determined to have been fired in the same firearm based on sufficient corresponding individual characteristics observed. The remaining cartridge case form the sidewalk (Item 5) was excluded as having been fired in the same firearm that fired Items 3 and 4 based on differences observed in class characteristics.
VPWJRJ	The hypothesis that expended cartridge cases item 3 and 4 are discharged from the same firearm is very strongly supported.

TABLE 3

WebCode	Additional Comments
WYG9QQ	It would be helpful if the subclass evaluation was included in the case scenario.
XKVEM4	Due to insufficient reproducible individual characteristics, the cartridge cases in Items 3 and 4 could not be positively included or excluded as having been fired in the same gun that fired the cartridge cases in Item 1.
XL6FHB	Item 3, 4 were fired from the same firearm.
XMMD3M	The Item 5 cartridge case displays class characteristics consistent with firearms by Smith & Wesson (M&P Series), among possible others.
XPMMXX	Item 3 and Item 4 were conclusively identified as having been fired from the same firearm but not the handgun belonging to the suspect. This introduces a second unidentified firearm at this scene. Item 5 was not fired from either the suspects handgun or the other handgun which discharged Item 3 and Item 4. This introduces a third handgun at this scene which is currently unidentified.
XYEY9H	All cartridge cases are the same caliber. The fired cartridge case item 2 shows matching individual characteristics, including system characteristics. This cartridge case (item 2) was fired from the same weapon as the cartridge cases item 1. Two of the cartridge cases (items 3 & 4) show matching individual characteristics, including system characteristics. They were not fired from the same gun as the cartridge cases item 1. The cartridge case item 5 shows different system characteristics than the cartridge cases from the seized firearm (item 1). These traces also don't match with any other cartridge cases.
Y2G2UD	Agency policy allows for eliminations due to differences in class characteristics only.
Y3AZ3K	When there are multiple types of ammunition represented in the questioned items, it would be beneficial to be provided with test fires from similar ammunition to all varieties represented in the questioned items, especially variations in primer composition.
YKDMDJ	Item 5 displays class characteristics similar to cc's fired in Smith & Wesson M&P firearms.
YV9BCK	The test states that "Three rounds of Remington 9mm Luger 115 grain FMJ ammunition (consistent with the cartridge cases found at the scene) were fired with the suspect firearm and the cartridge cases collected." This is not entirely correct as the known test-fires were brass with nickel primers while two of the questioned from the scene were brass with brass primers. Typically Firearms Examiners would test-fire like materials and if I had had the gun I therefore would have fired brass/brass as well in the suspect's weapon. Not having this opportunity to do so and not having the tool (the gun) to examine prevents the examiner from being able to determine whether material differences could have an important influence on our observations.
YY6HEN	Item 5 ejector mark and firing pin aperture shapes are different from Item 1.
Z82GZW	The method of testing for ammunition components (that have results that fall into the range of conclusions defined below) included microscopic comparison: 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

TABLE 3

WebCode	Additional Comments
	discernable class characteristics and some disagreement of individual characteristics, but insufficient for an elimination. Eliminated: Significant disagreement of discernable class characteristics and/or individual characteristics leading to the conclusion that the items were not fired in/from the same firearm. The submitted items will be transferred to the Evidence Section for return to your agency. Questions regarding this report should be addressed to: [email address]
ZPBWLV	I assumed the following when making my comparisons: (1) The submitted fired cartridge cases (Items 2 through 5) recovered from the scene were left at the scene at or near the same time during the same incident. (2) Prior to the evidence being submitted, subclass influence was considered and eliminated for all of the items of evidence and the firearm that fired Item 1. If I was not able to make the above assumptions, my conclusions may be different.
ZQWALU	Items 3 and 4 were Inconclusive (-) to the Item 1 pistol. Explanation: The class characteristics of the Item 3 and 4 cartridge cases agree with the tests said to represent the Item 1 pistol. There is no significant agreement of individual characteristics between Items 3 and 4 and the Item 1 tests. There was no disagreement of individual characteristics that could be certainly called significant. The disagreement noted may have been more meaningful had the primer materials of the Item 1 tests been the same as Items 3 and 4. In true case work, I would have created test fires representing the Item 1 pistol in multiple materials, to include those represented by the evidence.
ZWGDQC	[Laboratory] policy, eliminations can only be made on class characteristics.
ZWXYA7	Differences were noted in repeatable patterns of individual characteristics between the Items 01-03 and 01-04 cartridge cases and Items 01-01 and 01-02; however, due to the difference in primer composition these differences were unable to be attributed to the firearm or difference in the ammunition itself.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 19-526: Firearms Examination

DATA MUST BE SUBMITTED BY **July 22, 2019, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: TN9V8W

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 outside of a convenience store. Investigators recovered four expended cartridge cases at the scene - three from the parking lot and one from the sidewalk. A suspect was apprehended later that day and police seized a SCCY CPX-2 9mm handgun from his possession. Three rounds of Remington® 9mm Luger 115 grain FMJ ammunition (consistent with the cartridge cases found at the scene) were fired with the suspect firearm and the cartridge cases collected. Investigators are asking you to compare the recovered cartridge cases from the scene with those 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 inscribed with its item number.

Items Submitted (Sample Pack F1):
Item 1: Three expended cartridge cases discharged from the suspect's weapon (known).
Item 2: First expended cartridge case recovered from the parking lot (questioned).
Item 3: Second expended cartridge case recovered from the parking lot (questioned).
Item 4: Third expended cartridge case recovered from the parking lot (questioned).
Item 5: One expended cartridge case recovered from the sidewalk (questioned).

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

Item 2	Yes ○	No ○	Inconclusive* ○
Item 3	Yes ○	No ○	Inconclusive* ○
Item 4	Yes ○	No ○	Inconclusive* ○
Item 5	Yes ○	No ○	Inconclusive* ○

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

Please 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

Participant Code: U1234A
WebCode: TN9V8W

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)