



Firearms Examination Test No. 14-527 Summary Report

This test was sent to 370 participants. Each sample set consisted of three known expended cartridge cases (Item 1) test-fired from a suspect weapon and four questioned expended cartridge cases (Items 2-5). Participants were requested to examine these items and report their findings. Data were returned from 318 participants (86% response rate) and are compiled into the following tables:

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

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

Manufacturer's Information

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

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

ITEM 1 (KNOWN): Multiple magazines were loaded with ammunition totaling between 60 - 130 rounds in preparation for shooting with the Ruger P85 MKII handgun. After the ammunition was expended, the cartridge cases were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases were selected and inscribed with a "1" (three cartridge cases), then sealed into an Item 1 jewel box.

ITEMS 2, 3 and 4 (ELIMINATION): Multiple magazines were loaded with ammunition totaling between 60 - 120 rounds in preparation for shooting with the Ruger P95DC handgun. After the ammunition was expended, the cartridge cases were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases were selected and inscribed with a "2" , "3" or "4" (one cartridge case each), then sealed into their respective jewel boxes and kept together as an elimination batch.

ITEM 5 (ELIMINATION): Multiple magazines were loaded with ammunition totaling between 60 - 140 rounds in preparation for shooting with the Taurus PT 24/7 handgun. After the ammunition was expended, the cartridge cases were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of cartridge cases were selected and inscribed with a "5" (one cartridge case), then sealed into an Item 5 jewel box.

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

VERIFICATION-

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

Summary Comments

This test was designed to allow participants to assess their proficiency in a comparison of expended cartridge cases. Participants were provided with four questioned expended PMC® Bronze 9mm Luger 115 grain full metal jacket (FMJ) Centerfire ammunition cartridge cases (Items 2-5) which they were requested to compare with three known expended cartridge cases (Item 1) of the same manufacturer fired in the suspect's weapon, a Ruger P85 MKII Auto handgun (serial number 303-24518). For each sample set, the Items 2, 3 and 4 cartridge cases were fired in a different firearm from that which discharged the known expended cartridge cases (Item 1). The Item 5 cartridge case was fired in a different firearm from the one that discharged the known expended cartridge cases (Item 1) and the firearm that discharged the Items 2, 3 and 4 cartridge cases. [Refer to Manufacturer's Information for production details.]

In Table 1 Response Summary, 313 of 318 (98%) responding participants either eliminated or reported "Inconclusive" for Items 2, 3, 4, and 5 as having been fired from the same firearm as the Item 1 test-fired cartridge cases. [Many labs will not, as a matter of policy, eliminate without access to the firearm or when class characteristics match.] Three participants identified Items 2, 3 and 4 as having been fired from the same firearm as the Item 1 test-fired cartridge cases. One participant identified Item 5 and one participant identified Items 2, 3, 4 and 5 as having been fired from the same firearm as the Item 1 test-fired cartridge cases.

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

Examination Results

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

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
23XKBL	No	No	No	No	4BCPX3	No	No	No	No
2C2JZM	No	No	No	No	4DM6L9	No	No	No	No
2CB9NJ	No	No	No	No	4DW2PZ	No	No	No	No
2HYLET	No	No	No	No	4F3AKH	No	No	No	No
2NVX26	No	No	No	No	4FZYU2	No	No	No	No
2R6TAD	No	No	No	No	4HPXY4	No	No	No	No
2RP26H	No	No	No	No	4HVKMR	No	No	No	No
2UVX3K	No	No	No	No	4LZXUJ	No	No	No	No
2WGLF7	No	No	No	No	4M2LJA	No	No	No	No
2Y7HZD	No	No	No	No	4PCGMD	No	No	No	No
37V8L2	No	No	No	No	4VAKP6	No	No	No	No
38A7ZP	No	No	No	No	4Z8RTY	No	No	No	No
3A3BWN	No	No	No	No	62KL9Y	No	No	No	No
3CPYB9	No	No	No	No	62PNAD	No	No	No	No
3EV6KV	No	No	No	No	66GUEN	No	No	No	No
3U8T66	No	No	No	No	676WQ	No	No	No	No
3UNAU7	No	No	No	No	67HRXB	Inc	Inc	Inc	No
3VVGX9	No	No	No	No	6B7FC3	No	No	No	No
3W4W3T	No	No	No	No	6BXZKP	No	No	No	No
44LGRQ	No	No	No	No	6EPELQ	No	No	No	No
467GN9	Inc	Inc	Inc	No	6JKU6D	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
6N67EN	No	No	No	No	8DMREH	No	No	No	No
6PVCUE	No	No	No	No	8EAPYH	No	No	No	No
6TX6TJ	No	No	No	No	8EY6NR	No	No	No	No
6V8MCU	No	No	No	No	8KLV92	No	No	No	No
6WVNTW	No	No	No	No	8LPDQY	Inc	Inc	Inc	No
76DQ2P	No	No	No	No	8M8WUF	No	No	No	No
784VUW	No	No	No	No	8QKDVM	No	No	No	No
7E7HN3	No	No	No	No	8RZCB6	No	No	No	No
7EZN8W	No	No	No	No	92GK8X	No	No	No	No
7FGUCE	No	No	No	No	96T9BU	No	No	No	No
7L4HDB	No	No	No	Inc	97JQFV	No	No	No	No
7MUTZX	No	No	No	No	98CVW9	Inc	Inc	Inc	No
7NPWMY	No	No	No	No	98F9DP	No	No	No	No
7QJFUR	No	No	No	No	98K2L6	No	No	No	No
7T769D	No	No	No	No	9CNBBK	No	No	No	No
7U7HC7	No	No	No	Yes	9EPUYY	No	No	No	No
82BW9E	No	No	No	No	9FUY7W	No	No	No	No
83H3TM	No	No	No	No	9HFDHQ	No	No	No	No
876ZVQ	No	No	No	No	9HWRQZ	No	No	No	No
886XAT	No	No	No	No	9JJDZQ	No	No	No	No
8C92VK	No	No	No	No	9M9JWR	No	No	No	No
8D6KV2	No	No	No	No	9QLUWW	No	No	No	No
8DMDPJ	No	No	No	No	9QNRJ7	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
9TBQEG	No	No	No	No	CDHHJM	Inc	Inc	Inc	Inc
9UZAUW	No	No	No	No	CP3HZF	No	No	No	No
9X3EV3	No	No	No	No	CPUHKM	No	No	No	No
9XN2HQ	No	No	No	No	CRMBF7	No	No	No	No
9Z7T4M	No	No	No	No	CTDWNM	No	No	No	No
A9PJVF	No	No	No	No	CUEURA	No	No	No	No
AAPEZ6	No	No	No	No	CUX948	No	No	No	No
ATWGG2	No	No	No	No	CXGXEQ	No	No	No	No
AVKQG3	No	No	No	Inc	D4ZB2W	No	No	No	No
AX46K3	No	No	No	No	DBGLV4	No	No	No	No
B23NEN	No	No	No	No	DCUGVX	Inc	Inc	Inc	No
B2XVDE	No	No	No	No	DMVC48	Inc	Inc	Inc	No
B7XHCP	No	No	No	No	DW9QFW	No	No	No	No
B8GJVR	No	No	No	No	DYDFJQ	No	No	No	No
B8UDCT	No	No	No	No	EBG96A	No	No	No	No
BEYCN4	No	No	No	No	EDWGXW	No	No	No	No
BHK9X9	No	No	No	No	EEDZ9Z	No	No	No	No
BPGTEP	No	No	No	No	EJR8JX	Inc	Inc	Inc	Inc
C2WTCU	No	No	No	No	EKLRRQ	No	No	No	No
C4449X	No	No	No	No	ELN2VH	No	No	No	No
C4CMEW	No	No	No	No	ELU2G3	No	No	No	No
C99WZW	No	No	No	No	EME8C9	No	No	No	No
CCVPBP	No	No	No	No	EQJVTJ	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
EY4GQT	No	No	No	No	GZGCGQ	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	No
EYJZ96	No	No	No	No	GZP6YY	No	No	No	No
EZ7N82	No	No	No	No	H6WMH8	No	No	No	No
FAMX6T	No	No	No	No	H7AHGX	No	No	No	No
FCZHEE	No	No	No	No	H7JUDH	No	No	No	No
FDYTP4	Inc	Inc	Inc	No	H9RWH2	No	No	No	No
FG8TA4	No	No	No	No	HBJLML	No	No	No	No
FVKEAU	No	No	No	No	HBNPUJ	No	No	No	No
FWW96M	No	No	No	No	HFMU66	No	No	No	No
FZAJT4	No	No	No	No	HG39GK	No	No	No	No
G2T3QV	No	No	No	No	HG9HQW	No	No	No	No
G7G886	No	No	No	No	HJTCAR	No	No	No	No
G8GR9J	No	No	No	No	HKYWXR	No	No	No	No
G94VKQ	No	No	No	No	HRB7XF	No	No	No	No
GB4QUZ	No	No	No	No	HVAL2W	Inc	Inc	Inc	No
GK36ME	No	No	No	No	HZFTDN	No	No	No	No
GLDU2K	No	No	No	No	HZRE26	No	No	No	No
GLPV77	No	No	No	No	J4PB7P	No	No	No	No
GLWWAK	No	No	No	No	J8T2EP	No	No	No	No
GU6ENK	No	No	No	No	JD3CNV	No	No	No	No
GXGHC2	No	No	No	No	JEDTRF	No	No	No	No
GXQ72Z	No	No	No	No	JGJ7MV	No	No	No	No
GY3TTM	No	No	No	No	JH2YVK	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
					LAGNCG	No	No	No	No
JKX992	No	No	No	No	LCTBDU	No	No	No	No
JLEV9A	No	No	No	No	LDUZ3K	No	No	No	No
JR73QH	No	No	No	No	LHKEML	Yes	Yes	Yes	No
JR83LG	No	No	No	No	LJML26	No	No	No	No
JT3KWH	No	No	No	No	LJTTLE	No	No	No	No
JVMB8U	No	No	No	No	LKE8L2	No	No	No	No
JWARNB	No	No	No	No	LUNELB	No	No	No	No
JY8UWC	No	No	No	No	LWRCQC	No	No	No	No
K2PEG7	No	No	No	No	M2XBLB	No	No	No	No
KEQU2V	Inc	Inc	Inc	No	M6CJQ8	No	No	No	No
KG9JY9	No	No	No	No	MATRCL	No	No	No	No
KN2WJF	No	No	No	No	MB9R92	No	No	No	No
KNHVWD	No	No	No	No	MJA8TN	Yes	Yes	Yes	Yes
KP9RTF	No	No	No	No	MJUXQF	No	No	No	No
KPQQ27	No	No	No	No	MLZJGZ	No	No	No	No
KPXNZ9	No	No	No	No	MQCBMT	No	No	No	No
KUAQPP	No	No	No	No	MQHGNM	No	No	No	No
KWV2HH	No	No	No	No	MQKFTC	No	No	No	No
L3QH7T	No	No	No	No	MWY7KQ	No	No	No	No
L7EFVP	No	No	No	No	MY4REH	No	No	No	No
L9MLF7	No	No	No	No	N2AP66	No	No	No	No
LAFGX9	No	No	No	No	N8LZPQ	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
NAENPY	No	No	No	No	QUG9MB	No	No	No	No
NFXU8E	No	No	No	No	QVUV36	No	No	No	No
NH79CY	No	No	No	No	QVZDTV	Inc	Inc	Inc	No
NHK2FU	No	No	No	No	QX9ZFT	No	No	No	No
NHTA2N	No	No	No	No	R4KRE7	No	No	No	No
NMN7L9	No	No	No	No	R6R6YT	No	No	No	No
NMXTMM	No	No	No	Inc	R7HDMA	No	No	No	No
NRYC42	No	No	No	No	RARAYR	No	No	No	No
NUH2VJ	No	No	No	No	RGC8QL	Inc	Inc	Inc	No
NWKCW9	No	No	No	No	RMCTCU	No	No	No	No
NWVWA7	No	No	No	No	RMR3DG	Inc	Inc	Inc	Inc
PBYXD	No	No	No	No	RUERYC	No	No	No	No
PF8VYZ	No	No	No	No	RVZALH	No	No	No	No
PN9FTM	No	No	No	No	TEYXCT	No	No	No	No
PPT72Z	No	No	No	No	TG933M	No	No	No	No
Q4VK9U	No	No	No	No	TPEWV4	No	No	No	No
Q878DD	No	No	No	No	TRTY2	No	No	No	No
Q8D8T8	No	No	No	No	TVB24K	No	No	No	No
QGDP86	Inc	Inc	Inc	No	TVTY97	No	No	No	No
QGLKCW	No	No	No	No	TXBRX9	No	No	No	No
QLE9NG	No	No	No	No	TXZXK6	No	No	No	No
QPKMTM	No	No	No	No	U2Y4NW	No	No	No	No
QRQ6U4	No	No	No	No	U2Y6AU	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
UCQ7FX	No	No	No	No	X7J2NV	No	No	No	No
UDRUF9	No	No	No	No	XGXRFQ	No	No	No	No
UFPK69	No	No	No	No	XJW9BA	Yes	Yes	Yes	No
UKJJDC	No	No	No	No	XKZRCG	No	No	No	No
UMJB8X	No	No	No	No	XM2AEX	No	No	No	No
UP3WQR	No	No	No	No	XP9KHT	No	No	No	No
UPUPV4	No	No	No	No	XVRL8Z	No	No	No	No
URTL7J	No	No	No	No	XZG67A	No	No	No	No
UUGPMC	No	No	No	No	Y2QEUZ	No	No	No	No
UW2NWZ	No	No	No	No	Y8LJ3G	No	No	No	No
UXGBLM	No	No	No	No	YEA3KY	No	No	No	No
V42QR7	No	No	No	No	YFJJP3	No	No	No	No
V46ATF	No	No	No	No	YHVDYA	No	No	No	No
V9CYWG	Inc	Inc	Inc	Inc	YT6FRF	No	No	No	No
VAN3P2	No	No	No	No	YZ3RNR	No	No	No	No
VHUQZ9	No	No	No	No	Z2VH9H	Inc	Inc	Inc	No
VUMN3D	No	No	No	No	Z84FXU	No	No	No	No
WACLLE	No	No	No	No	Z986ZR	No	No	No	No
WD8LBA	No	No	No	No	ZBG4FU	No	No	No	No
WR2FW4	No	No	No	No	ZC9QRB	No	No	No	No
WRW876	No	No	No	No	ZGRNPR	No	No	No	No
WTT3AL	No	No	No	No	ZR3QKJ	No	No	No	No
WXYJYV	No	No	No	No	ZWWLMQ	No	No	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	Item 5	WebCode	Item 2	Item 3	Item 4	Item 5
ZZMPUN	No	No	No	No					

Response Summary					Participants: 318				
<i>Were any of the questioned expended cartridge cases (Items 2-5) discharged from the same firearm as the known expended cartridge cases (Item 1)?</i>									
Responses		<u>Item 2</u>	<u>Item 3</u>	<u>Item 4</u>	<u>Item 5</u>				
	Yes	4 (1.3%)	4 (1.3%)	4 (1.3%)	2 (0.6%)				
	No	297 (93.4%)	297 (93.4%)	297 (93.4%)	309 (97.2%)				
	Inc	17 (5.3%)	17 (5.3%)	17 (5.3%)	7 (2.2%)				

Conclusions

TABLE 2

WebCode	Conclusions
23XKBL	The four specimens marked #2 thru #5. They are 9mm Luger caliber discharged shells, headstamped: PMC. Compared the three shells marked #2 thru #4 against each other with positive results. The three shells marked #2 thru #4 were discharged in the same firearm. Compared test shells against the four shells marked #2 thru #5 with negative results. The four shells marked #2 thru #5 were not discharged in the same firearm that discharged the test shells. Compared the three shells marked #2 thru #4 against the shell marked #5 with negative results. The three shells marked #2 thru #4 and the shell marked #5 were not discharged in the same firearm.
2C2JZM	5.1 The cartridge cases mentioned in 3.1 marked 135786/14 B, C & D were fired in the first firearm. 5.2 The cartridge case mentioned in 3.1 marked 135786/14 E was fired in the second firearm. 5.3 The cartridge cases mentioned in 3.2 marked 786TC1 - TC2 were fired in the third firearm.
2CB9NJ	The Items #2, #3, & #4 spent 9mm caliber cartridge cases all matched each other and were discharged from the same firearm. The identifications were based on the assessment of individual characteristics observed during a microscopic examination. The Items #2, #3 & #4 spent cartridge cases were not discharged by the suspect's firearm that discharged the Item #1 test cartridge cases. The Item #5 spent 9mm caliber cartridge case was discharged by a different 9mm caliber pistol than the one that discharged the Items #2, #3 & #4 spent cartridges cases. The Item #5 spent cartridge case was not discharged by the suspect's firearm that discharged the Item #1 test cartridge cases.
2HYLET	The test fired cartridge cases in Item 1 (3 total) were microscopically examined in conjunction with the cartridge cases in Items 2, 3, 4, and 5. Based on these comparative examinations and observed class and individual characteristics, it was determined that: A) The cartridge cases in Items 2, 3, 4, and 5 had not been fired in the same firearm as the cartridge cases in Item 1. B) The cartridge cases in Items 2, 3, and 4 had all been fired in an unknown firearm. C) The cartridge case in Item 5 had been fired in a second, unknown firearm.
2NVX26	I examined the fired cartridge cases mentioned and compared the individual and class characteristics on them using a comparison microscope and found: 2.1 The cartridge cases marked Item 2 - 4 were not fired in the same firearm as the test marked Item 1. (Item 1.1 - 1.3). Thus Item 2 - 4 were fired in a second firearm. 2.2 The cartridge case mentioned and marked Item 5, was fired in a third firearm.
2R6TAD	Casings M through P (Items 2 through 5) were not fired in the submitted Ruger pistol, model P85, serial number unknown (Item 1). Casings M through O (Items 2 through 4) were fired in one firearm. Suspect weapons include 9mm Ruger pistols; however, any suspect weapon should be submitted for examination. Casing P (Item 5) was fired in a third firearm. The specific brand of the suspect weapon is unknown; however, any suspect weapon should be submitted for examination.
2RP26H	01-01-AA: Three fired 9mm Luger caliber cartridge cases reportedly test fired in a Ruger Model P85 pistol (firearm not submitted for analysis) (Item 1). The four submitted fired cartridge cases (Items 1-02-AA -- 1-05-AA) were eliminated as having been fired in the same firearm as the three submitted cartridge cases reportedly test fired in a Ruger pistol (Item 1-01-AA) due to differences in class and individual characteristics. 01-02-AA: One fired 9mm Luger caliber cartridge case (Item 2). 01-03-AA: One fired 9mm Luger caliber cartridge case (Item 3). 01-04-AA: One fired 9mm Luger caliber cartridge case (Item 4). The three submitted fired cartridge cases (Items 1-02-AA -- 01-04-AA) were identified as having been fired in the same firearm due to consistent and reproducible marks. Items 1-02-AA - 1-04-AA were eliminated

TABLE 2

WebCode	Conclusions
	<p>as having been fired in the same firearm as three submitted cartridge cases reportedly test fired in a Ruger pistol (Item 1-01-AA) and the other submitted fired cartridge case (Item 1-05-AA) due to differences in class and individual characteristics. 01-05-AA: One fired 9mm Luger caliber cartridge case (Item 5). The submitted fired cartridge case (Item 1-05-AA) was eliminated as having been fired in the same firearm as the three cartridges cases reportedly test fired in a Ruger pistol (Item 1-01-AA) and the three other submitted fired cartridge cases (Items 1-02-AA - 1-04-AA) due to differences in class and individual characteristics.</p>
2UVX3K	<p>Sub #1-2 through Sub #1-4 were examined and microscopically compared. Sub #1-2 through Sub #1-4 were positively identified as being fired in the same firearm. Sub #1-2 through Sub #1-4 were microscopically compared to Sub #1 (known test fires) and were eliminated as having been fired in the same firearm as Sub #1 test fires. Sub #1-5 was examined and microscopically compared to Sub #1. The comparative examination eliminated Sub #1-5 as having been fired in the same firearm as Sub #1. Sub #1-5 was also microscopically compared to Sub #1-2 through Sub #1-4, Sub #1-5 was eliminated as having been fired in the same firearm as Sub #1-2 through Sub #1-4.</p>
2WGLF7	<p>See attached report. [No report attached]</p>
2Y7HZD	<p>Item 1 was compared to items 2, 3, 4 and 5. The fired evidence in question was not fired with the suspect firearm. Macroscopic comparison of the items 2, 3, 4 and 5 questioned cartridge cases to the item 1 known fired cartridge cases produced agreement of class characteristics, but disagreement of individual characteristics.</p>
37V8L2	<p>I examined the fired cartridge cases marked Items 1 - 5 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope and found that the fired cartridge cases were fired in different firearm as follows: 1. Item 1 [three (3) 9mm Parabellum fired cartridge cases] were fired in the 1st firearm. 2. Items 2, Item 3 and Item 4 [three (3) 9mm Parabellum fired cartridge cases] were fired in a second firearm. 3. Item 5 [one (1) 9mm Parabellum fired cartridge case] was fired in a third firearm. The fired cartridge cases marked as Items 2 - 5 were not fired in the same firearm as the fired cartridge cases marked as Item 1.</p>
38A7ZP	<p>I microscopically compared Items 1A, 1B, and 1C to each other. I identified Items 1A, 1B, and 1C as being fired in the same firearm based on sufficient agreement of individual characteristics within the firing pin aperture shear marks and firing pin impression. I microscopically compared Items 2, 3, and 4 to Items 1A, 1B, and 1C. Although Items 2, 3, and 4 have the same class characteristics as Items 1A, 1B, and 1C, based on significant disagreement of individual characteristics within the firing pin aperture shear marks, firing pin impression, and breech face marks, Items 2, 3, and 4 can be eliminated as being fired in the same firearm as Items 1A, 1B, and 1C. I microscopically compared Items 2, 3 and 4 to each other. I identified Items 2, 3, and 4 as being fired in a second firearm based on sufficient agreement of individual characteristics within the firing pin aperture shear marks, firing pin impression, and breechface marks. I microscopically compared Item 5 to 1C and Item 2. Based on different class characteristics, Item 5 can be eliminated as being fired in the same firearm as Item 1C or Item 2. Item 5 was fired in a third firearm. Sufficient agreement means the quantity and quality of the agreement of toolmarks produced by the firearm exceed the agreement of toolmarks produced by different firearms, such that the likelihood another firearm could have produced these marks is so remote as to be considered practically impossible. The above conclusions include my opinions and interpretations.</p>
3A3BWN	<p>Item 1 consisted of three fired 9 mm Luger cartridge cases marketed by PMC (headstamp:PMC 9MM Luger) reportedly discharged from the suspect's weapon (known). Item 2 was a fired 9 mm Luger cartridge case marketed by PMC (headstamp:PMC 9MM Luger) reportedly</p>

TABLE 2

WebCode	Conclusions
	<p>recovered from the parking lot (questioned). Item 2 was compared to the test fired cartridge cases from the suspect's weapon (Item 1) using a comparison microscope. Significant microscopic differences were observed to conclude that Item 2 was not discharged from the same firearm as the known cartridge cases (Item 1). Item 3 was a fired 9 mm Luger cartridge case marketed by PMC (headstamp:PMC 9MM Luger) reportedly recovered from the parking lot (questioned). Item 3 was compared to the test fired cartridge cases from the suspect's weapon (Item 1) using a comparison microscope. Significant microscopic differences were observed to conclude that Item 3 was not discharged from the same firearm as the known cartridge cases (Item 1). Item 4 was a fired 9 mm Luger cartridge case marketed by PMC (headstamp:PMC 9MM Luger) reportedly recovered from the flower pot (questioned). Item 4 was compared to the test fired cartridge cases from the suspect's weapon (Item 1) using a comparison microscope. Significant microscopic differences were observed to conclude that Item 4 was not discharged from the same firearm as the known cartridge cases (Item 1). Item 5 was a fired 9mm Luger cartridge case marketed by PMC (headstamp:PMC 9mm Luger) reportedly recovered from the grass (questioned). Item 5 was compared to the test fired cartridge cases from the suspect's weapon (Item 1) using a comparison microscope. Class differences (firing pin) were observed to conclude that Item 5 was not discharged from the same firearm as the known cartridge cases (Item 1).</p>
3CPYB9	<p>Items 2, 3, and 4 were not fired in the suspect firearm (the pistol used to produce the Item 1 known cartridge cases). However, Items 2, 3, and 4 were identified as having been fired in the same unknown firearm. Item 5 was not associated with any of the other submitted cartridge cases. Item 5 was neither fired in the suspect firearm (the pistol used to produce the Item 1 known cartridge cases) nor the unknown firearm used to produce Items 2, 3, and 4.</p>
3EV6KV	<p>These cartridge cases (Items 2 - 5) have been compared microscopically with the test fired cartridge cases, Item 1. Items 2, 3, and 4 were identified as having been fired in the same firearm based on the agreement of class and individual characteristics. However, based on the difference of class and individual they were not fired in the same firearm as the tests, Item 1. Based on the difference of class and individual characteristics Item 5 was not fired in the same firearm as Items 2 - 4 or the tests, Item 1.</p>
3U8T66	<p>Items #2, #3, and #4 were fired in the same firearm: however, that firearm was neither the firearm that fired Item #1 nor the firearm that fired Item #5. Item #5 was not fired in either of the firearms that fired Item #1 or Items #2, #3, and #4.</p>
3UNAU7	<p>"See attached report." [No report attached]</p>
3VWX9	<p>The test fired cartridge cases, specimen #1, were compared to the 9mm caliber fired cartridge cases, specimens #2 through #5. It was determined that specimens #2 through #5 were not fired in the Ruger pistol due to differences in the markings from the breech face, firing pin impression, and aperture. Further examination revealed the specimens #2 through #5 were fired in two separate weapons. Specimens #2, #3, and #4 were fired in the same weapon. Specimen #5 was fired in a different weapon.</p>
3W4W3T	<p>In my opinion, following is microscopical comparison of firing marks, there is significant disagreement of individual characteristic markings, to conclusively determine that Items 2, 3, 4 & 5 were not fired in the same firearm as the cartridge cases contained in Item 1. Furthermore, in my opinion, following a microscopical comparison of firing marks, there is sufficient agreement of class and individual characteristic markings to conclusively determine that the cartridge cases contained in Items 2, 3 & 4 were fired in the same firearm. In my opinion, following a microscopical comparison of firing marks, there is significant disagreement of individual characteristic markings to conclusively determine that the cartridge case contained in Item 5 was not fired in the same firearm as the cartridge cases contained in Items 2, 3 & 4.</p>

TABLE 2

WebCode	Conclusions
44LGRQ	<p>3. On 2014-08-07 during the performance of my official duties I received a sealed evidence bag with number PAD000580359 from Case Administration of the Ballistics Section, containing the following: 3.1 Four (4) 9mm Parabellum calibre fired exhibit cartridge cases marked by me "146863/14" each and "2" to "5" individually. 3.2 Three (3) 9mm Parabellum calibre fired test cartridge cases marked by me 1TC1, 1TC2 and 1TC3 respectively. 4. The intention and scope of this forensic examination comprise the following: 4.1 The identification and examination of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1 and 3.2 and compared the individual and class characteristic markings transferred to them by firearm components during the firing process using a comparison microscope and found: 5.1 The cartridge cases mentioned in paragraph 3.1 marked "146863/14" each and "2" to "4" individually were fired in the same (one (1)) firearm. 5.2 The cartridge case mentioned in paragraph 3.1 marked "146863/14 5" was not fired in the same firearm as the cartridge cases mentioned in paragraph 5.1 (a 2nd firearm). 5.3 None of the exhibit cartridge cases mentioned in paragraph 3.1 were fired in the firearm that discharged the test cartridge cases mentioned in paragraph 3.2.</p>
467GN9	<p>The cartridge cases in Items 2, 3 and 4 bear class characteristics consistent with the gun that produced the test fired cartridge cases in Item 1. However, no significant similarities in individual characteristics observed. The cartridge case in Item 5 was not fired in the gun that produced the test fired cartridge cases in Item 1.</p>
4BCPX3	<p>See attached report. [No report attached]</p>
4DM6L9	<p>The test cartridge cases marked Item 1 were fired in the same firearm. The cartridge cases marked Item 2-4 were fired in the same firearm. However they were not fired in the same firearm as the test cartridge cases marked Item 1. The cartridge case marked Item 5 was not fired in the same firearm as the test cartridge cases marked Item 1 and cartridges marked Item 2-4 (unknown second firearm).</p>
4DW2PZ	<p>1) Examinations showed Items 2, 3 and 4 were discharged within the same unknown firearm. 2) Examinations showed Items 2, 3 and 4 were not discharged within the same firearm as Item 1 due to differences in individual characteristics. 3) Examinations showed Item 5 was not discharged within the same firearm as Item 1 due to differences in class and individual characteristics. 4) Examinations showed Item 5 was not discharged within the same unknown firearm as Items 2, 3 and 4 due to differences in class and individual characteristics.</p>
4F3AKH	<p>Microscopic comparison of the Sub #001-2 through Sub #001-5 evidence cartridge cases with Sub #001-1 test fires revealed disagreement of individual characteristics, specifically in the breech face marks, primer shear marks, and firing pin impressions. These cartridge cases were eliminated as having been fired in the same firearm as the Sub #001-1 test fires. Microscopic comparison of the Sub #001-2 through Sub #001-4 evidence cartridge cases revealed agreement of unique breech face marks, primer shear marks, and firing pin impressions across the primer surfaces, confirming that these cartridge cases were fired in the same firearm at some point in time prior to this examination. Microscopic comparison of the Sub #001-2 through Sub #001-4 evidence cartridge cases with the Sub #001-5 evidence cartridge case revealed disagreement of individual characteristics, specifically in the breech face marks and firing pin impressions. These cartridge cases were eliminated as having been fired in the same firearm as the Sub #001-5 cartridge case.</p>
4FZYU2	<p>The cartridge cases contained in Items 2-5 were microscopically compared to the cartridge cases contained in Item 1 with the following conclusions: Items 2-4 were all fired in the same firearm and were not fired in the same firearm that fired the cartridge cases contained in Items</p>

TABLE 2

WebCode	Conclusions
	1 and 5. The Item 5 cartridge case was fired in a third 9mm Luger caliber firearm.
4HPXY4	A/ The discharged cartridge casings mentioned in Items 1-2, 1-3 and 1-4 were all fired by the same unknown weapon capable of chambering and firing 9mm Luger caliber ammunition. They were not fired by the recovered weapon. B/ The discharged cartridge casing mentioned in Item 1-5 was fired an unknown weapon capable of chambering and firing 9mm Luger caliber ammunition. It was not fired by the recovered weapon or the weapon that fired Items 1-2, 1-3, and 1-4.
4HVKMR	Microscopic comparison conducted with the following results: 1. FCC 4, 5 and 6 (Items 2, 3 & 4) were fired in the same firearm, however, they were not fired in the suspect Ruger P85 (different individual characteristic markings). 2. FCC 7 (Item 5) was not fired in the suspect Ruger P85 or the FCC 4 group (different individual characteristic markings).
4LZXUJ	The four expended cartridge cases (Items 2, 3, 4 and 5) were compared one to the others to determine common origin and as a result of microscopic comparisons it was established that: The four cartridge cases (Items 2, 3, 4 and 5) were not fired by the suspect's firearm Item 1. The cartridge cases Items 2, 3 and 4, were fired by using a second firearm. The cartridge case Item 5, was fired by using a third firearm.
4M2LJA	Items 1, 2, 3, 4, and 5 were examined and are as described above. Microscopic examination and comparison of Items 2, 3, and 4 revealed that there was agreement of combinations of individual and all discernible class characteristics. It is concluded that Items 2, 3, and 4 were fired in same firearm. Microscopic examination and comparison of Items 2, 3, and 4 to Item 1, the test fired cartridge cases, revealed agreement of all discernible class characteristics and disagreement of individual characteristics. It is concluded that Items 2, 3, and 4 were eliminated as having been fired in the same firearm that fired Item 1 (Ruger P85). Microscopic examination and comparison of Item 5 to Items 1, 2, 3, and 4 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Item 5 was eliminated as having been fired in the same firearm that fired Item 1 (Ruger P85) or Items 2, 3, and 4.
4PCGMD	Casings M through O (Items 2 through 4) were fired in one firearm. Items 2 through 4 were not fired in the same firearm as the submitted test fires (Item 1), based on differences in individual characteristics. Casing P (Item 5) was not fired in the same firearms as Items 1 through 4, based on differences in class characteristics.
4VAKP6	Test cartridge cases marked 141375/141ATC, 1BTC, ACTC = Positive. Exhibit cartridge cases marked 141375/142A1, 3A2 and 4A3 respectively were fired in one firearm. Exhibit marked 141375/145A4 was fired in a third firearm.
4Z8RTY	Results and Conclusions: Cartridge Case Analysis: Methodology - Comparison Microscopy. Items 1A, 1B and 1C, the cartridge cases identified to be test fired from suspect's firearm, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 2, 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 2, 3 and 4, the cartridge cases, were not fired in the same firearm as Items 1A, 1B and 1C, the cartridge cases identified to be test fired from suspect's firearm, based upon different individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 1A, 1B and 1C, the cartridge cases identified to be test fired from suspect's firearm: or Items 2, 3 and 4, the cartridge cases based upon different class and individual microscopic characteristics.
62KL9Y	Cartridge Case Analysis. Methodology - Comparison Microscopy. Items 2, 3, and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual

TABLE 2

WebCode	Conclusions
	microscopic characteristics. A reference from this group will be entered into NIBIN. Items 2, 3, 4, and 5, the cartridge cases, were not fired in Item 1, the Ruger pistol, based upon different individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 2, 3, and 4, the cartridge cases, based upon different individual microscopic characteristics.
62PNAD	The cartridge cases marked 135768/14 "B-D" were fired in the first firearm. The fired cartridge case marked 135768/14 "E" was fired in the second firearm. The cartridge cases marked 135793/14 "B-E" are negative to tests marked 793TC1 - TC3.
66GUEN	A microscopic examination and comparison of the above evidence revealed the following: Cartridge Casings (1.1-1.3) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breechface Impressions. Cartridge Casings (2,3,4) were fired from a SECOND gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breechface Impressions. Cartridge Casing (5) was fired from a THIRD gun based on sufficient disagreement of individual characteristics.
676VWQ	3. On 2014-08-04 during the performance of my official duties I received a sealed evidence bag with number PAD000580345 from Case Administration of the Ballistics Section, containing the following: 3.1 Three (3) 9mm Parabellum calibre fired cartridge cases marked by me "146701/14" and also "1A", "1B" and "1C" respectively. 3.2 Four (4) 9mm Parabellum calibre fired cartridge cases marked by me "146701/14" and also "2", "3", "4" and "5" respectively. 4. The intention and scope of this forensic examination comprise the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1 and 3.2 compared the individual and class characteristic markings on them, using a comparison microscope and found: 5.1 The cartridge cases mentioned in paragraph 3.2 marked "146701/14" each and also "2", "3" and "4" respectively, were fired in the same firearm. 5.2 The cartridge case mentioned in paragraph 3.2 marked "146701/14 5" was not fired in the firearm that discharged the cartridge cases mentioned in paragraph 5.1. 5.3 The cartridge cases mentioned in paragraphs 5.1 and 5.2 were not fired in the firearm that discharged the cartridge cases mentioned in paragraph 3.1.
67HRXB	Items 1 through 5 are 9mm Luger cartridge cases bearing the headstamp of PMC. The Item 2, Item 3 and Item 4 cartridge cases were identified as having been fired in the same firearm. Nothing was found to indicate that these cartridge cases were fired in the firearm represented by the Item 1 cartridge cases. The Item 5 cartridge case was eliminated as having been fired from the same firearm(s) as the Item 1 through Item 4 cartridge cases.
6B7FC3	The Items 2, 3 and 4 cartridge cases were discharged in one firearm. The Item 5 cartridge case was discharged in a second firearm. None of the above listed items were discharged in the same firearm as the Item 1 cartridge cases (Ruger P85 pistol).
6BXZKP	All received cartridge cases items (2-5) are 9 mm. Recovered cartridge cases items (2-4) we're[sic] fired from one firearm. Recovered cartridge case item 5 was fired from different firearm. It is concluded that all recovered cartridge cases items (2-5) were fired from two un seized firearms, and not fired from the seized firearm Ruger P85.
6EPELQ	Microscopic comparison was conducted with the following results: Items #2, 3, 4 were negative when compared against Item #1, however were fired in the same firearm (not submitted). Item #5 was negative when compared with both Item #1 and the Item #2 group.
6JKU6D	Casings M Through O (Item 2 through Item 4) were not fired in the submitted 9mm pistol (Item 1), based on differences in individual characteristics. Casing P (Item 5) was not fired in the submitted 9mm pistol (Item 1) based on differences in class characteristics. Casings M through

TABLE 2

WebCode	Conclusions
	<p>○ (Item 2 through Item 4) were fired in a second 9mm pistol. Suspect weapons include 9mm Ruger pistols; however, any suspect weapon should be submitted. Casing P (Item 5) was fired in a third 9mm pistol. Suspect weapons include 9mm Taurus pistols; however, any suspect weapon should be submitted.</p>
6N67EN	<p>3. On 2014-08-07 during the performance of my official duties I received a sealed evidence bag with number PAD000580358 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) white jewel box which is sealed with red evidence seal tape, containing the following: 3.1.1 One (1) smaller white jewel box marked with "Test No. 14-527" and "Item 1", containing the following: 3.1.1.1 Three (3) 9mm Parabellum calibre fired cartridge cases representing the tests of the seized 9 mm Parabellum calibre Ruger P85 semi-automatic pistol[sic], already marked with "1" each. I marked the cartridge cases with "1TC1", "1TC2" and "1TC3" respectively. 3.1.2. One (1) smaller white jewel box marked with "Test No. 14-527" and "Item 2", containing the following: 3.1.2.1 One (1) 9mm Parabellum calibre fired cartridge case, already marked with "2". I marked the cartridge case with "146869/14 2". 3.1.3 One (1) smaller white jewel box marked with "Test No. 14-527" and "Item 3", containing the following: 3.1.3.1 One (1) 9mm Parabellum calibre fired cartridge case, already marked with "3". I marked the cartridge case with "146869/14 3". 3.1.4 One (1) smaller white jewel box marked with "Test No. 14-527" and "Item 4", containing the following: 3.1.4.1 One (1) 9mm Parabellum calibre fired cartridge case, already marked with "4". I marked the cartridge case with "146869/14 4". 3.1.5 One (1) smaller white jewel box marked with "Test No. 14-527" and "Item 5", containing the following: 3.1.5.1 One (1) 9mm Parabellum calibre fired cartridge case, already marked with "5". I marked the cartridge case with "146869/14 5". 4. The intention and scope of this forensic examination comprise the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1.2.1, 3.1.3.1, 3.1.4.1 and 3.1.5.1 and compared the individual and class characteristics markings on them using a comparison microscope and found: 5.1 The cartridge cases mentioned in paragraphs 3.1.2.1, 3.1.3.1 and 3.1.4.1 were fired in the same firearm, a first weapon. 5.2 The cartridge case mentioned in paragraph 3.1.5.1 was fired in a second firearm. 6. I examined the fired cartridge cases mentioned in paragraphs 3.1.1.1, 3.1.2.1, 3.1.3.1, 3.1.4.1, and 3.1.5.1 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope and found: 6.1 The cartridge cases mentioned in paragraphs 3.1.2.1, 3.1.3.1, 3.1.4.1 and 3.1.5.1 were not fired in the firearm refer to in paragraph 3.1.1.1 and represented by the tests as mentioned in paragraph 3.1.1.1.</p>
6PVCUE	<p>Microscopic examination and comparison of the cartridge cases (Items 1, 2, 3, 4 and 5) reveals sufficient evidence to conclude that the cartridge cases Items 2, 3, 4 and 5, were not fired in the suspect's weapon Item 1 (Pistol Ruger P85). The four expended cartridge cases (Items 2, 3, 4 and 5) were compared one the others to determine common origin. The three cartridge cases (Items 2, 3 and 4) were fired by the same firearm, different from that of the suspect's (Item 1). The submitted Item 5 was fired from the second firearm different from that of the suspect's (Item 1) and different from the firearm that expended Items 2, 3 and 4.</p>
6TX6TJ	<p>The fired cartridge cases received from Item 1 to Item 5 were fired in different firearms as follows: The fired cartridge case marked Item 5, 3 and 4 were fired in the same firearm but not with the cartridge case marked Item 1 and Item 5.[sic] The cartridge case, marked Item 5 was fired in different firearm from cartridge cases mentioned in Item 1 and Item 2, 3 and 4.</p>
6V8MCU	<p>A microscopic examination and comparison of the above evidence revealed the following: Cartridge casings (2-4) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the firing pin and breechface impressions. Cartridge casing (5)</p>

TABLE 2

WebCode	Conclusions
	was fired from a DIFFERENT gun than Cartridge casings (2- 4) based on sufficient disagreement of individual characteristics. Cartridge casings (2-4) and Cartridge casing (5) were fired from DIFFERENT guns than the submitted firearm (Test Fires marked 1) based on sufficient disagreement of individual characteristics.
6WVNTW	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
76DQ2P	Cartridge caseings[sic] (2,3,4) were discharged from the SAME gun, based on sufficient agreement of Breachface[sic] and Firing Pin Impressions. Cartridge case (5) was fired from a SECOND gun. Cartridge casings (2,3,4) and (5) were fired from DIFFERENT guns then Test Fires (1,1,1) based on sufficient disagreement of individual characteristics.
784VUW	The Items 2, 3, 4 and 5 cartridge cases were not fired in the same firearm as the Item 1 cartridge cases. The Items 2, 3, and 4 cartridge cases were identified as having been fired in the same unknown firearm. The Item 5 cartridge case was fired in a different unknown firearm than Items 2, 3 and 4 cartridge cases.
7E7HN3	The Item 1 cartridge cases were not fired in the firearm that fired Items 2, 3, 4 or 5. The Item 2, 3 and 4 cartridge cases were identified, within the limits of practical certainty [sic], as having been fired in the same firearm. The Item 5 cartridge case was neither fired in the firearm that fired the Item 1 cartridge cases, nor the firearm that fired the Item 2, 3 and 4 cartridge cases. Three (3) firearms are represented by the submitted cartridge cases.
7EZNBW	In my opinion test fired cartridge cases from the recovered Ruger P85 pistol (Item 1) could be microscopically matched. These cartridge cases did not match those in Items 2, 3 and 4 although the gross marks were similar. This indicated that 2 - 4 were all fired in the same gun (possibly Ruger) which was of similar manufacture to the gun that fired Item 1. Item 5 was a non match to Items 1 to 4. Therefore, three guns were used to produce Items 1 to 5.
7FGUCE	Based on the differences in the breech face marks and firing pin impressions, the four questioned cartridge cases marked "Item 2" to "Item 5" were not fired in the same firearm as the three known cartridge cases marked "Item 1". Based on the agreement of class characteristics and sufficient agreement of individual characteristics, the three questioned cartridge cases marked "Item 2" to "Item 4" were fired in the same unknown firearm.
7L4HDB	The three, fired casings, Items 2, 3 and 4, were eliminated as having been fired in the suspect's weapon, Item 1, based on a difference in breech face marks (coarse versus fine respectively). The fired casing, Item 5, was consistent in all observable class characteristics (fine, parallel breech face marks) as the suspect's weapon, Item 1. While there is some disagreement of microscopic markings, the markings present are insufficient for elimination. The results are inconclusive.* The three fired casings, Items 2, 3 and 4 were each identified as having been fired in the same firearm. The fired casing, Item 5, was eliminated as having been fired in the same firearm as the three, fired casings, Items 2, 3 and 4, based on a difference in breech face marks (fine versus coarse, respectively).
7MUTZX	The hypothesis that cartridge cases n° 2,3 and 4 have been fired using the same weapon, called W1, is strongly supported. The hypothesis that cartridge case n°5 has been fired using a

TABLE 2

WebCode	Conclusions
	weapon called W2, different from W1, is strongly supported. The hypothesis that the seized weapon, which fired the known expended cartridge cases (Item 1), is different from W1 and W2 is strongly supported.
7NPWMY	As a result of physical and microscopic examination of the test specimens fired from the recovered Ruger P85 pistol and the submitted evidence, it is my opinion that; A/ The three (3) 9mm caliber discharged cartridge casings mentioned in Items 1-2, 1-3, and 1-4, were all fired from the same unknown weapon capable of chambering and firing 9mm caliber ammunition. These items were not fired from the recovered Ruger P85 pistol. B/ The one (1) 9mm caliber discharged cartridge casing mentioned in Item 1-5 was fired from an unknown weapon capable of chambering and firing 9mm caliber ammunition. This item was not fired from the recovered Ruger P85 pistol.
7QJFUR	The submitted cartridge cases were microscopically examined and compared. Through microscopic comparisons it was determined that the cartridge cases, Items 2, 3 and 4, were fired from the same firearm (firearm#1). It was also determined that the cartridge case, Item 5, was fired from a different firearm (firearm #2) and not fired from firearm #1. The cartridge cases from the suspect's firearm, Item 1, were microscopically compared to the four cartridge cases, Items 2, 3, 4 and 5. It was determined that the cartridge cases, Items 2, 3, 4 and 5, were not fired from the suspect's firearm.
7T769D	Microscopic examination and comparison reveal that the cartridge cases, Items 2-5, were not fired in the same firearm as the cartridge cases, Item 1. Microscopic examination and comparison reveal that the cartridge cases, Items 2-4, were not fired in the same firearm as the cartridge case, Item 5. Microscopic examination and comparison of the cartridge cases, Items 2, 3, and 4, reveal that they were fired in the same firearm, and are consistent with being fired in Ruger 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination of the cartridge case, Item 5, did not reveal any unique characteristics that could be used to develop a list of possible firearms in which it was fired.
7U7HC7	I examined the fired cartridge cases mentioned in 3.1 and 3.2 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope and found: 5.1 The cartridge case mentioned in 3.2 marked 141358/14 (5) was fired in the firearm that fired the tests cartridge cases mentioned in 3.1. 5.2 The cartridge cases mentioned in 3.2 141358/14 (2), (3) and (4) were fired in the second firearm.
82BW9E	Four of the submitted fired cartridge cases (Items 01-02, 01-03, 01-04, and 01-05) were eliminated from having been fired in the same firearm as the three cartridge cases reportedly test fired in a Ruger pistol (Item 01-01). Three of the submitted fired cartridge cases (Items 01-02, 01-03, and 01-04) were identified as having been fired in the same unknown firearm. One of the submitted fired cartridge cases (Item 01-05) was eliminated from having been fired in the same firearm as three of the other submitted fired cartridge cases (Items 01-02, 01-03, and 01-04).
83H3TM	None of the recovered cartridge cases items 2 - 4 was fired in the Ruger pistol Item 1; it was not used to fire these items. Two guns were discharged during the incident, both SLP's. Gun (1) fired Items 2-4 and gun (2) fired Item 5.
876ZVQ	(Items 2 - 4) were fired in the same firearm not (Item 1). (Item 5) was not fired in (Item 1) or the same firearm as (Item 2 - 4).
886XAT	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

TABLE 2

WebCode	Conclusions
	determined that the cartridge cases in Items 2, 3, 4 and 5 bear no similar individual characteristics to link them with those in Item 1. The fired cartridge cases in Items 2, 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 2, 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 9 mm caliber firearm than those in Items 2, 3 and 4.
8C92VK	Examinations under a comparison microscopic LEICA FSC showed that the four expended cartridges cases "item 2", "item 3", "item 4" and "item 5" were not fired from the Ruger P85 seized from the suspect.
8D6KV2	A microscopic examination and comparison of submitted Items #2,3,4,5 to test expended casings fired from the submitted 9mm Ruger Pistol, Item #1, revealed the following: Items #2,3,4 were fired from one gun. Item #5 was fired from one other gun. None of the submitted casings fired from the submitted 9mm Ruger Pistol.
8DMDPJ	The four (4) expended cartridge cases in Items 2, 3, 4, and 5 were determined not to have been fired in the same firearm as the known expended cartridge cases in Item 1.
8DMREH	The suspect's firearm, represented by the known cartridge cases submitted as Item 001-1, did not discharge the questioned cartridge cases submitted as Items 001-2, 001-3, 001-4, & 001-5.
8EAPYH	Microscopic examination & comparison of the fired 9mm caliber cartridge cases, Items 1 - 5, revealed that they were fired in three separate weapons. Further examination revealed the following: All elements of Item 1 were fired in the same weapon. Items 2, 3, & 4 were fired in a second weapon. Item 5 was fired in a third weapon.
8EY6NR	Conclusions: Microscopic comparison was conducted with the following results: FCC-1, FCC 2 and FCC-3 were fired in the same firearm, however not P-1. FCC-4 was not found in the same firearm as the FCC-1 group or P-1.
8KLV92	The Item 1 test fired cartridge cases were microscopically compared to the Item 2 through 5 cartridge cases. Based on differences in individual characteristics, Items 2 through 4 are eliminated as having been fired by the gun that fired the Item 1 test cartridge cases. Based on differences in class characteristics, the Item 5 cartridge case are eliminated as having been fired by the gun that fired the Item 1 test cartridge cases. Additional Information - Items 2 through 4 were identified as having been fired by the same unknown firearm. These cartridge cases exhibit class characteristics known to be produced by Ruger firearms. This is not meant to be an all inclusive list; therefore, all 9mm Luger caliber firearms recovered during the course of this investigation should be submitted for comparison. Based on differences in class characteristics, Item 5 can be eliminated as having been fired by the same gun that fired the Items 2 through 4 cartridge cases. The possible make of firearm that fired Item 5 is unknown. Items 2 through 4 represent one unknown firearm. Item 5 represents a second unknown firearm.
8LPDQY	The class characteristics match and differences in the individual characteristics have been found. E.g.: - different traces at the firing pin - differences in the contour of the firing pin bore. The examination, however, raised some doubt because it could not be safely assumed that the differences were not caused by changes (replacement of the firing pin/deliberate alteration at the bolt face) in the firearm components involved.
8M8WUF	Items 2, 3, 4 and 5 are eliminated from having been fired in Item 1. Items 2, 3 and 4 are identified as having been fired in the same unknown gun. Item 5 is identified as having been fired in a 2nd unknown firearm.

TABLE 2

WebCode	Conclusions
8QKDVM	Fired cartridge cases from Item 1 marked 157TCA1-TCC1 were positive with each other - Firing pin marks, breechface marks correspond (1st firearm). Fired cartridge cases from Item 2, 3, 4 marked 157948/14D2, E3, F4 were fired in the same firearm - firing pin marks breech face marks correspond (2nd firearm). Fired cartridge case from Item 5 marked 157948/14 D5 was fired in the third firearm - Different class characteristics from the above fired cartridge cases marked 157TCA1-TCC3, 157948/14D2-F4 (3rd firearm).
8RZCB6	I examined the cartridge cases labelled Items 1 to 5 and compared the individual and class characteristics markings on them using a comparison microscope and found: 2.1 The fired cartridge cases labelled Items 2 to 5 were not fired in the same firearm as the cartridge cases labelled Item 1.
92GK8X	[No Conclusions Reported.]
96T9BU	Results and Conclusions: Cartridge Case Analysis. Methodology - Comparison Microscopy. Items 1A, 1B and 1C, the cartridge cases identified to be discharged from the suspect's weapon, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 2, 3 and 4, the cartridge cases, were fired in the same firearm based upon corresponding class and individual microscopic characteristics. Items 2, 3 and 4, the cartridge cases, were not fired in the same firearm as Items 1A, 1B and 1C, the cartridge cases identified to be discharged from the suspect's weapon, based upon different individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 1A, 1B and 1C, the cartridge cases identified to be discharged from the suspect's weapon, based upon different class and individual microscopic characteristics. Item 5, the cartridge case, was not fired in the same firearm as Items 2, 3 and 4, the cartridge cases, based upon different class and individual microscopic characteristics.
97JQFV	The characteristic marks on the recovered cartridge cases Item 2, Item 3, Item 4 and Item 5 did not match with the characteristics marks on the all three expended cartridge cases discharged from the suspect's weapon (Item 1). Hence I am of the opinion that all of the recovered cartridge cases (Item 2, Item 3, Item 4 and Item 5) were not fired by the Ruger handgun.
98CVW9	Items 2, 3 and 4 were fired in the same unknown firearm. We are unable to determine if Items 2, 3, and 4 were fired in the same firearm as the Item 1 cartridge cases. Items 2, 3, 4 and test fired cartridge cases obtained from the suspect firearm displayed agreement of all discernible class characteristics and some agreement of individual characteristics, but insufficient for an identification. The Item 5 fired cartridge case was not fired in the same firearm as the Item 1 cartridge cases, or in the same unknown firearm that Items 2, 3, and 4 were fired in.
98F9DP	Cartridge casings (2, 3, and 4) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breechface Impressions. Cartridge casings (2, 3, 4, and 5) were fired from DIFFERENT guns than the gun that produced testfires (1.1, 1.2, and 1.3) based on sufficient disagreement of individual characteristics. Cartridge casings (2 and 5) were fired from DIFFERENT guns based on sufficient disagreement of individual characteristics. Cartridge casings (1.1 and 2) were fired from DIFFERENT guns based on sufficient disagreement of individual characteristics.
98K2L6	None of the fired cartridge cases contained in Items 2 to 5 had been fired by the pistol used to fire the fired cartridge cases contained in Item 1.
9CNBBK	The Q-1 through Q-3 cartridge cases were fired in the same firearm. The Q-1 through Q-3 and the Q-4 cartridge cases were not fired in the same firearm. The T-1 through T-3 and Q-1 through Q-3 cartridge cases were not fired in the same firearm. The T-1 through T-3 and the Q-4 cartridge cases were not fired in the same firearm.

TABLE 2

WebCode	Conclusions
9EPUYY	MICROSCOPIC COMPARISON EXAMINATIONS OF EVIDENCE CARTRIDGE CASES ITEM 2, ITEM 3, ITEM 4 AND ITEM 5 WITH ITEM 1 TEST FIRED CARTRIDGE CASES REVEALED; ITEM 2, ITEM 3 AND ITEM 4 WERE FIRED WITH THE SAME UNKNOWN FIREARM. THEY WERE NOT FIRED WITH THE SAME FIREARM AS THE TEST FIRED CARTRIDGE CASES ITEM 1 DUE TO DIFFERENCES IN THE MICROSCOPIC MARKS ON THE BREECH FACE AND FIRING PIN IMPRESSIONS. ITEM 2, ITEM 3 AND ITEM 4 WERE NOT FIRED WITH THE SAME FIREARM AS ITEM 5 DUE TO DIFFERENCES IN THE MICROSCOPIC MARKS ON THE BREECH FACE AND FIRING PIN IMPRESSIONS. ITEM 5 WAS NOT FIRED WITH THE SAME FIREARM AS THE TEST FIRED CARTRIDGE CASES ITEM 1 DUE TO DIFFERENCES IN THE MICROSCOPIC MARKS ON THE BREECH FACE AND FIRING PIN IMPRESSIONS. SHOULD SUSPECT FIREARMS BECOME AVAILABLE PLEASE SUBMIT
9FUY7W	Item 1, test fires, is three (3) discharged cartridge cases fired from a 9mm caliber, Ruger made, model P85 with an unknown serial number. Items 2, 3, and 4, discharged cartridge cases, were fired from a second firearm. Item 5, discharged cartridge case, was fired from a third firearm.
9HFDHQ	The cartridge cases in Items 2, 3, 4 and 5 (questioned) were microscopically compared to Item 1 (known). It was determined that the cartridge cases in Items 2, 3, 4 and 5 (questioned) were not fired in the same firearm as the cartridge cases in Item 1 (known).
9HWRQZ	Microscopic examination and comparison of the cartridge cases, Item 1A, reveal that they were fired in the same firearm. Microscopic examination and comparison reveal that the cartridge cases, Items 1B-1D, were not fired in the same firearm as Item 1A. Microscopic examination and comparison of the cartridge cases, Items 1B-1D, reveal that they were fired in the same firearm, and are consistent with being fired in Ruger 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination and comparison reveal that the cartridge case, Item 1E, was not fired in the same firearms as Items 1A-1D. Microscopic examination of the cartridge case, Item 1E, reveals that it is consistent with being fired in Taurus 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list.
9JJDZQ	The three (3) cartridge cases (Item 1) possessed similar and reproducible firing pin impressions and breechface markings, thus they were identified as having been discharged in the same know firearm. The cartridge cases, Items 2, 3 and 4 were identified as having been fired in the same firearm, however because of differences in firing pin impressions and breechface markings, these cartridge cases could not have been discharged in the same known firearm which discharged the three (3) cartridge cases (Item 1). Based on differences in firing pin impressions and breechface markings the cartridge case, Item 5 was eliminated as having been discharged in the same known firearm as the three (3) cartridge cases, Item 1 or in the firearm which discharged the cartridge cases, Items 2, 3 and 4.
9M9JWR	None of the submitted unknown cartridge cases (items 2-5) were fired in the suspect's firearm. Items 2, 3 and 4 were all fired in the same firearm. These identifications to each other were established by having sufficient agreement of unique surface contours. Item 5 was fired in a different firearm, not the suspect's and not the firearm which fired item 2, 3 and 4. Sufficient differences exist between item 5 and and[sic] the rest of the submitted cartridge cases to eliminate it from the suspect's firearm and the firearm which fired items 2, 3 and 4.
9QLUWW	Comparisons were conducted using the Leica FSC comparison microscope in relation to the firing pin, breech face, extractor, ejector and magazine loading markings imparted to their surface area. Based on significant differences in individual firearm produced markings, the cartridge cases (Item 2, 3, 4 and 5) were not fired in the firearm that fired the three cartridge cases (Item 1).

TABLE 2

WebCode	Conclusions
9QNRJ7	Item #2: The cartridge case was compared to the test-fired exemplars, Item #1, obtained from the Ruger, model P85 firearm. Differences in the individual firing pin, firing pin aperture and breech face signatures were observed to conclude that the cartridge case was not fired within the firearm. Item #3: Same result and conclusion as Item #2. Item #4: Same result and conclusion as Item #2. Item #5: Same result and conclusion as Item #2.
9TBQEG	The test fired and evidence cartridge cases were examined and microscopically inter-compared, with the following results: All of the evidence cartridge cases were eliminated as having been fired in the same firearm as the test fired cartridge cases. Items 2, 3, and 4 were identified as having been fired in a second firearm. Item 5 was fired in a third firearm.
9UZAUW	Items 2, 3, and 4 were fired in the same firearm, however; not in the firearm that fired item #1.
9X3EV3	Item 1 is three cartridge cases reported to have been test fired in a 9mm Luger (9x19mm) Ruger pistol, Model P85. Items 2 through Item 5 are 9mm Luger cartridge cases that bear the headstamp of PMC ammunition. The Item 2 through Item 4 cartridge cases were identified as having been fired in the same firearm. However, due to a discernable difference in class characteristics, the Item 2 through Item 4 cartridge cases were eliminated as having been fired in the Item 1 pistol. The Item 5 cartridge case was eliminated as having been fired in the Item 1 pistol. The Item 5 cartridge case was eliminated as having been fired in the Item 1 pistol and the firearm that fired the Item 2 through Item 4 cartridge cases due to a discernable difference in class characteristics.
9XN2HQ	The cartridge cases in Item 1 (known firearm) were microscopically examined in conjunction with the cartridge cases in Items 2, 3, 4, and 5. Based on these comparative examinations it was determined that: A. The cartridge cases in Items 2, 3, 4, and 5 had not been fired in Item 1 firearm based on differences in individual characteristics[sic]. B. Items 2, 3, and 4 had all been fired in the same unknown firearm. C. Item 5 had been fired in a second unknown firearm.
9Z7T4M	None of the expended cartridge cases (Item 2-5) were not discharged from the same firearm as the Known expended cartridge case (Item 1). [sic]
A9PJVF	Items 1B - 1E were eliminated as having been fired in the same firearm as Items 1A1 - 1A3 due to disagreement of individual characteristics. Items 1B - 1D were identified as having been fired in the same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Item 1E was eliminated as having been fired in the same unknown firearm as Items 1B - 1D due to disagreement of individual characteristics.
AAPEZ6	Expended cartridge cases marked as item 2, 3, 4 were shot with the same pistol. The case marked as item 5 comes from the cartridge shot with another pistol.
ATWGG2	I made a microscopic examination of test fired discharged cartridge cases (Item 1) and the exhibit discharged cartridge cases (Items 2 - 5) using a comparison microscope. This type of examination allows two objects to be viewed simultaneously so that microscopic marks caused by firing can be compared and assessed. As a result of this examination I found that none of the exhibit cartridge cases had been fired by the submitted firearm.
AVKQG3	The Items 2, 3 & 4 cartridge cases were microscopically compared to the Item 1 test fires and eliminated as having been fired in the same firearm due to differences in individual characteristics. Furthermore, Items 2, 3 & 4 were identified as having been fired in the same unknown firearm. The Item 5 cartridge case was compared to Items 1, 2, 3 & 4 cartridge cases with inconclusive results however, differences indicate a different firearm was used.

TABLE 2

WebCode	Conclusions
AX46K3	Comparison microscope examinations were conducted on the evidence listed above. The findings of this examiner are the following: 1. Exhibits 1 through 5 are all 9mm Luger caliber fired cartridge cases manufactured for PMC. 2. Exhibits 2 through 5 were not fired in the same firearm as tests from exhibit 1. 3. Exhibits 2 through 4 were fired in the same firearm, a second 9mm Luger caliber firearm. 4. Exhibits 5 was fired in a third 9mm Luger caliber firearm, different from the one from exhibit 1 and exhibits 2 through 4.
B23NEN	Specimens QC1-4 (Items 2-5, respectively) were compared microscopically with each other and Specimens KC1-3 (Item 1) with the following results: - QC1-4 (Items 2-5) were Eliminated from being fired in the same firearm as KC1-3 (Item 1) due to observed differences in the firing pin and breech face characteristics. - QC1-3 (Items 2-4) were Identified for being fired in the same firearm that is not yet identified due to the sufficient quantity and quality of matching firing pin and breech face characteristics. - QC4 (Item 5) was Eliminated from being fired in the same firearm as QC1-3 (Items 2-4) due to observed differences in the firing pin and breech face characteristics.
B2XVDE	Items 2 - 4 were identified as having been fired in the same unknown firearm based on the agreement of a combination of individual characteristics and all discernible class characteristics. Items 2 - 5 were eliminated as having been fired in the same firearm as Item 1 due to the disagreement of individual characteristics. Items 2 - 4 were eliminated as having been fired in the same unknown firearm as Item 5 due to disagreement of individual characteristics.
B7XHCP	Items 2 through 5 (four 9mm Luger caliber cartridge cases) were fired in a different firearm than Item 1 (three 9mm Luger caliber cartridge cases said to be from a recovered pistol). Items 2, 3 and 4 were fired in the same firearm. Item 5 was fired in a different firearm than Items 2 through 4.
B8GJVR	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
B8UDCT	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
BEYCN4	The cartridge cases (Item 2, 3 and 4) marked 135768/14 "A-C" were fired in the first firearm but negative to tests (Item 1). The fired cartridge case (Item 5) marked 135768/14 "D" was fired in the second firearm but negative to tests (Item 1).
BHK9X9	TC-1, TC-2 and TC-3 (Item 1) were not fired in the same firearm as QC-1, QC-2, QC-3 or QC-4 (Items 2,3,4 and 5). QC-1, QC-2 and QC-3 (Items 2,3 and 4) bear marks consistent with having been fired in the same firearm, firearm unknown. QC-4 was not fired in

TABLE 2

WebCode	Conclusions
	the same firearm as TC-1, TC-2, TC-3, QC-1, QC-2 or QC-3 (Items 1, 2, 3 or 4).
BPGTEP	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
C2WTCU	Items 2, 3, 4, and 5, the cartridge cases, were not fired in the same firearm as Item 1, the cartridge cases, based upon different individual microscopic characteristics. Items 2, 3, and 4, the cartridge cases were fired in the same firearm based upon corresponding class/individual microscopic characteristics. Items 2, 3 and 4, the cartridge cases, were not fired in the same firearm as Item 5, the cartridge case, based upon different individual microscopic characteristics.
C4449X	Microscopic examination and comparison of the cartridge cases, Items 2, 3, and 4, reveal that they were fired in the same firearm, and are consistent with being fired in Ruger and Taurus 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination and comparison reveal that the cartridge cases, Items 2, 3, and 4, were not fired in the same firearm as either Items 1 or 5. Microscopic examination and comparison reveal that the cartridge cases, Item 1, were not fired in the same firearm as the cartridge case, Item 5. Microscopic examination of the cartridge case, Item 5, reveals that it is consistent with being fired in Ruger and Taurus 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all- inclusive list.
C4CMEW	Items 2 - 5 were not fired in the same firearm that fired the Item 1 cartridge cases.
C99WZW	Three firearm were used to fire the exhibits.
CCVPBP	Item 1 (three fired cartridge cases) were identified as having been fired in the same firearm. Item(s) 2, 3 and 4 were identified as having been fired in the same firearm. Item(s) 2, 3 and 4 were eliminated as having been fired from the firearm that fired Item 1. Item 5 was eliminated as having been fired from the firearm that fired Item 1. Item 5 was eliminated as having been fired from the firearm that fired Item(s) 2, 3 and 4.
CDHHJM	Items 2,3 and 4 were fired in a single firearm. Items 2, 3, 4, and 5 were niether ideintified nor eliminated as having been in the firearm that fired item 1. Item 5 was neither identified nor elimianted as having been fired in the firearm that fired items 2, 3, and 4. [sic]
CP3HZF	The Q-1 through Q-3 cartridge cases (Items 2 through 4) were fired in the same firearm, but not in the firearm that fired the T-1 through T-3 cartridge cases (Item 1). The Q-4 cartridge case (Item 5) was not fired in the same firearm as the T-1 through T-3 cartridge cases (Item 1) or the same firearm as the Q-1 through Q-3 cartridge cases (Items 2 through 4).
CPUHKM	Three expended cartridge cases discharged from the suspect's weapon (known) were fired in the same/first firearm (Item 1). Three expended cartridge cases, that is the first and second expended cartridge cases recovered from the parking lot and also the one expended cartridge case recovered from the flower pot, were fired in a second firearm (Item 2, Item 3 and Item 4). The one expended cartridge case recovered from the grass was fired in a third firearm (Item 5).
CRMBF7	The questioned expanded cartridge cases marked Item 2, Item 3 and Item 4 respectively, are

TABLE 2

WebCode	Conclusions
	positive to each other; i.e. they have been discharged from one firearm. The questioned expanded cartridge case marked Item 5 is negative to Items 2, 3 and 4 i.e. it was not discharged by the firearm that discharged Items 2, 3 and 4. Therefore, Item 5 was fired in a second firearm. The known expanded cartridge cases, marked Item 1 are negative to all the unknown expanded cartridge cases i.e. the unknown expanded cartridge cases marked Items 2, 3, 4 and 5 were not fired from the suspects weapon. [sic]
CTDWNM	I examined the fired cartridge cases 3.1 to 3.5 and compared the individual and class characteristic markings transferred to them by firearm components during the firing process using a comparison microscope and found: The cartridge cases mentioned in 3.2 to 3.5 marked 2, 3, 4 and 5 were not fired in the firearm that fired the cartridge cases mentioned in 3.1 marked 1A, 1B and 1C. The cartridge cases mentioned in 3.2 to 3.4 marked 2, 3 and 4 were fired in the same firearm. The cartridge case mentioned in 3.5 marked 5 was fired in a second firearm.
CUEURA	The Item 2, 3 and 4 cartridge cases are all identified, with practical certainty, as having been fired in the same unknown firearm. The Item 2, 3 and 4 cartridge cases are eliminated as having been fired in the same firearm that fired the Item 1 cartridge cases. The Items 2, 3 and 4 cartridge cases are eliminated as having been fired in the same firearm that fired the Item 5 cartridge case. The Item 5 cartridge case is eliminated as having been fired in the same firearm that fired the Item 1 cartridge cases.
CUX948	Microscopic examination and comparison of the cartridge cases, Items 1B, 1C, and 1D, reveal that they were fired in the same firearm, and are consistent with being fired in Ruger 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination and comparison reveal that the cartridge cases, Items 1B, 1C, and 1D, were not fired in the same firearm as the cartridge case, Item 1E. Microscopic examination and comparison reveal that the cartridge cases, Items 1B, 1C, 1D, and 1E, were not fired in the same firearm as the cartridge cases, Item 1A. Microscopic examination of the cartridge case, Item 1E, did not reveal any unique characteristics that could be used to develop a list of possible firearms in which it was fired. The cartridge case, Item 1E, is suitable for comparison to a firearm should one be recovered during the investigation.
CXGXEQ	The Items 2-4 cartridge cases were fired in one unknown firearm. The Item 5 cartridge case was fired in a second unknown firearm. The Items 2-5 cartridge cases were not fired in the suspect firearm used to produce the Item 1 test fired cartridge cases.
D4ZB2W	The Items 2 - 4 cartridge cases were fired from the same firearm, however not the same firearm that fired the Item 1 test fires. The Item 5 cartridge cases was fired in a third firearm
DBGLV4	Microscopic examination and comparison reveal that the cartridge cases, Item 1, were fired in the same firearm. Microscopic examination and comparison reveal that the cartridge cases, Items 2- 4, were fired in the same firearm. Microscopic examination and comparison reveal that the cartridge cases, Items 2- 4, were not fired in the same firearm as the cartridge cases, Item 1. Microscopic examination and comparison reveal that the cartridge case, Item 5, was not fired in the same firearm as the cartridge cases, Item 1. Microscopic examination and comparison reveal that the cartridge case, Item 5, was not fired in the same firearm as the cartridge cases, Items 2-4. Microscopic examination of the cartridge cases, Items 2-4, reveals that they are consistent with being fired in Ruger 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination of the cartridge case, Item 5, reveals that it is consistent with being fired in Smith & Wesson 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list.

TABLE 2

WebCode	Conclusions
DCUGVX	The cartridge case in Item 5 was not fired in the same gun that fired the cartridge cases in Item 1. The cartridge cases in Items 2, 3 & 4 bear class characteristics consistent with the cartridge cases in the Item 1; However no significant similarities in individual characteristics were observed.
DMVC48	Submission 001-2 through Submission 001-4 were fired from the same firearm, at some point prior to this examination. 2. Submission 001-2 through Submission 001-4 could have come from the same firearm as Submission 001-1 based on shared class characteristics; however there were no significant individual similarities to suggest that it was. 3. Submission 001-5 was eliminated as having come from the same firearm of either Submission 001-1 or Submission 001-2 through Submission 001-4. There was a difference in the firing pin class characteristics as well as the breech face characteristics.
DW9QFW	1. None of the received cartridge cases in the scene was fired from the suspect's weapon. 2. The Item 2, Item 3 and Item 4 were fired from the same weapon.
DYDFJQ	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
EBG96A	Items # 2, 3 & 4 (three PMC 9mm Luger fired cartridge cases) were examined on 07/11/2014. Items #2, 3 & 4 (three PMC 9mm Luger fired cartridge cases) were positively identified as having been fired in the same firearm. Items # 2, 3 & 4 (three PMC 9mm Luger fired cartridge cases) were eliminated as having been fired in Item #1 (Ruger pistol). Items #2, 3, & 4 (three PMC 9mm Luger fired cartridge cases) were eliminated as having been fired in the same firearm as Item #5 (one PMC 9mm Luger fired cartridge case). Item #5 (one PMC 9mm Luger fired cartridge case) was examined on 07/11/2014. Item #5 (one PMC 9mm Luger fired cartridge case) was eliminated as having been fired in Item #1 (Ruger pistol). Item #5 (one PMC 9mm Luger fired cartridge case) was eliminated as having been fired in the same firearm as Items #2, 3 & 4 (three PMC 9mm Luger fired cartridge cases).
EDWGXW	In this lab used comparison microscope to compare with Item 1 and Item 2, 3, 4, 5. The result is that Items 2, 3, 4, 5 firing pin marks are different from Item 1 firing pin marks.
EEDZ9Z	The below listed spent cartridge cases were microscopically examined and compared with each other. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that the below listed spent cartridge cases were fired by the same firearm. Further, these spent cartridge cases were microscopically examined and compared with test cartridge cases fired by the Ruger Model P85 9MM Luger pistol, Test # 14-527 Lab Evidence # 001-A1. It is my opinion that the below listed spent cartridge cases were not fired by this firearm. Lab Evidence # -Test # - Item Description: 001-A2 - 14-527 - Spent PMC 9MM Luger cartridge case, 001-A3 - 14-527 - Spent PMC 9MM Luger cartridge case, 001-A4 - 14-527 - Spent PMC 9MM Luger cartridge case. The below listed spent cartridge case was microscopically examined and compared with test cartridge cases fired by the Ruger Model P85 9MM Luger pistol, Test # 14-527 Lab Evidence # 001-A1. It is my opinion that this spent cartridge case was not fired by this firearm. Further, this spent cartridge case was microscopically examined and compared with the 3 spent PMC 9MM Luger cartridge cases, Test # 14-527 Lab Evidence # 001-A2 001-A3, and 001-A4. It is my opinion that this spent

TABLE 2

WebCode	Conclusions
	cartridge case was not fired by the same firearm that fired these 3 spent cartridge cases. Lab Evidence # - Test # - Item Description: 001-A5 - 14-527 - Spent PMC 9MM Luger cartridge case.
EJR8JX	Items 2, 3 & 4 were all fired in the same firearm. Items 2, 3 & 4 could not be identified or eliminated as having been fired from the same firearm as the discharged cartridge cases in Item 1. Item 5 could not be identified or eliminated as having been fired in the same firearm as the discharged cartridge cases in Item 1 or Items 2, 3 & 4.
EKLRRQ	Items 2, 3, and 4, the cartridge cases, were not fired in the same firearm as Item 1, the cartridge cases, based upon different individual microscopic characteristics. Item 5, the cartridge cases, was not fired in the same firearm as Item 1, the cartridge cases, based upon different class and individual microscopic characteristics. Item 2, 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 2, 3 or 4, the cartridge cases, based upon different class and individual microscopic characteristics.
ELN2VH	In my opinion items 2,3,4 and 5 were fired from a different gun
ELU2G3	1. Examinations showed Items 2, 3 and 4 were discharged within the same unknown firearm. 2. Examinations showed Items 2, 3 and 4 were not discharged within the Ruger P85 due to differences in individual characteristics. 3. Examinations showed Items 2, 3 and 4 were not discharged within the same firearm as Item 5 due to differences in class and individual characteristics. 4. Examinations showed Item 5 was not discharged within the Ruger P85 due to differences in class and individual characteristics.
EME8C9	The submitted expended cartridge cases were microscopically examined in conjunction with each other. It is our conclusion that Items 2, 3, 4 and 5 were not fired in the suspect's firearm Item 1. The submitted Items 2, 3 and 4 were fired by the same firearm different from that the suspect's weapon. The submitted Item 5 was fired from a second firearm.
EQJVTJ	Items 2, 3, and 4 were eliminated as having been fired in the same firearm as the Item 1 test fires due to significant differences in individual characteristics. (Unknown Firearm A). Items 2, 3, and 4 were identified as having been fired in the same unknown firearm. (FPI, BFM, FP Aperture Shear). Item 5 was eliminated as having been fired in the same firearm as the Item 1 test fires due to significant differences in class characteristics. (Unknown Firearm B). Item 5 was eliminated as having been fired in the same unknown firearm as Items 2, 3, and 4 due to significant differences in class characteristics.
EY4GQT	Item 2 compared to Items 1: The results from the comparisons extremely strongly support that the cartridge case in Item 2 not been fired in the same firearm as the cartridge cases in Item 1. Item 3 compared to Items 1: The results from the comparison extremely strongly supports that the cartridge case in item 3 has not been fired in the same firearm as cartridge cases in Item 1. Item 4 compared to Items 1: The results frpm[sic] the comparison extremely strongly supports that the cartridge case in Item 4 has not been fired in the same firearm as the cartridge cases in Item 1. Item 5 compared to Items 1: The results from the comparison extremely strongly supports that the cartridge case in Item 5 has not been fired in the same firearm as the cartridge cases in Item 1. Items 2 through 5 compared to each other: The results from the comparison extremely strongly supports that the cartridges in Items 2, 3 and 4 have been fired in the same firearm. The results from the comparison also extremely strongly supports that the cartridge case in Item 5 has not been fired in the same firearm as the cartridge cases in Items 2, 3 and 4.
EYJZ96	The Items 2 through 5 cartridge cases were compared to the Item 1 cartridge cases reportedly discharged from the Ruger P85 pistol. The Items 2 through 5 cartridge cases were eliminated

TABLE 2

WebCode	Conclusions
	as having been discharged by the same firearm that discharged the Item 1 cartridge cases based on differences observed in their individual and class characteristics during a microscopic comparison.
EZ7N82	The cartridge cases mentioned in 3.1 marked 135781/14 A1, B1, and C were fired in the first firearm. The cartridge cases mentioned in 3.1 marked 135781/14 "2, 3 and 4" were fired in the second firearm. The cartridge case mentioned in 3.1 marked 135781/14 "5" was fired in the third firearm.
FAMX6T	(1) A microscopic comparative examination of Items 2, 3 and 4 against each other disclosed that Items 2, 3 and 4 were fired in the same firearm, however they were not fired from Item #1, due to the differences in individual characteristics. 2) Item #5 was fired in a different firearm that Item #1, 2, 3 and 4 due to differences in individual/class characteristics.
FCZHEE	The four 9mm cartridge cases (Items 2, 3, 4 and 5) were not fired in the same firearm as Item 1. Three of the 9mm cartridge cases (Items 2, 3 and 4) were fired in the same firearm. These three cartridge cases (Items 2, 3 and 4) were not fired in the same firearm as Item 5.
FDYTP4	The unknown cartridge cases (01-02, 01-03, 01-04) were neither identified to nor eliminated from being fired in the same firearm as the known cartridge cases (01-01) due to agreement of all discernible class characteristics with disagreement of individual characteristics, but insufficient for an elimination. The unknown cartridge case (01-05) was not fired in same firearm as the known cartridge cases (01-01) or the remaining three unknown cartridge cases (01-02 through 01 - 04). It was eliminated due to class characteristics differences. The three cartridges cases (01-02, 01-03, 01-04) were fired in the same unknown firearm. The remaining cartridge case (01-05) was fired in a different firearm and was eliminated due to class characteristic differences.
FG8TA4	The cartridge cases marked 135800/14 "B, C, D" were fired in a second firearm; The fired cartridge cases marked 135800/14 "E" was fired in a third firearm.
FVKEAU	Item 1B (#2), item 1C (#3), item 1D (#4) and item 1E (#5) were all eliminated as having been fired by the same firearm that fired item 1A (#1) based on the disagreement of individual characteristics. However, similar class characteristics were noted. Items 1B through 1D (#2-#4) were all fired by the same firearm based on the agreement of class and individual characteristics. Item 1E (#5) was eliminated as having been fired by the same firearm that fired items 1B through 1D (#2-#4).
FWW96M	The striations of the breech face, fire pin and Ejector in Item (1) is different from Item (2), (3), (4), and (5).
FZAJT4	The cartridge cases in Exhibit 1 were compared microscopically with each other. They were fired in the same firearm. The cartridge cases were also compared microscopically with Exhibits 2, 3, 4 and 5. These cartridge cases were not fired in the same firearm as the cartridge cases in Exhibit 1. The cartridge cases in Exhibits 2, 3, 4 and 5 were all compared microscopically with each other. Exhibits 2, 3 and 4 were fired in the same firearm. Exhibit 5 was not fired in the same firearm.
G2T3QV	Items 1 to 5 were fired cartridge cases in 9mm Luger calibre. Microscopic examination showed that the cartridge cases in Items 2, 3, 4 and 5 were not discharged in the firearm in which the cartridge cases in Item 1 were discharged.
G7G886	Submissions #1-1A, #1-1B, and #1-1C underwent direct microscopic comparison and were all positively identified as having been fired in the same firearm. Submissions #1-2, #1-3, and #1-4 underwent direct microscopic comparison and were all positively identified as having been fired in the same firearm. Direct microscopic comparison of submission #1-5 to

TABLE 2

WebCode	Conclusions
	submissions #1-1 and #1-2, #1-3, #1-4 showed submission #1-5 was produced by a different firearm. Submissions #1-2, #1-3, #1-4, and #1-5 can be eliminated as having been fired in the same firearm as submission #1-1.
G8GR9J	Cartridge cases received were fired in three firearms.
G94VKQ	See attached report. [No report attached]
GB4QUZ	The fired cartridge cases in Items 2, 3, 4, and 5 were not fired in/from the same firearm as Item 1. The fired cartridge cases in Items 2, 3 and 4 were fired in/from the same unknown firearm. The fired cartridge case in Item 5 was fired in/from a different unknown firearm as Items 2, 3, and 4.
GK36ME	The fired cartridge cases marked 157922/14 A to C respectively by me were fired in the same firearm, 1st firearm, breech face, firing pin and chamber marks +ve (id), but were not fired in the same firearm as with tests marked 922TC1 to TC3 respectively by me, different class and individual characteristics. Fired cartridge case marked 157922/14D was fired in the second firearm, negative with cartridge cases marked 157922/14 A to C and with tests marked 922TC1 to TC 3 respectively by me, different individual characteristics.
GLDU2K	Four expended cartridge cases recovered from the crime scene are fired using two different firearms. Unknown firearm 1 (Item, Item 3 and Item 4). Unknown firearm 2 (Item 5). And these two unknown firearms are not related with the recovered firearm in other words the recovered firearm is not used in crime scene. [sic]
GLPV77	The submitted fired cartridge cases, Items 2, 3 and 4 were fired in the same firearm. The submitted fired cartridge cases, Items 2, 3, and 4, were not fired in the same firearm as the submitted test fired cartridge cases, Item 1, or the submitted fired cartridge case Item 5. The submitted fired cartridge case, Item 5, was not fired in the same firearm as the submitted test fired cartridge cases, Item 1. The submitted fired cartridge cases, Items 2, 3, 4, and 5, are consistent with having been fired in a 9mm Luger caliber firearm that produces a breech face impression that has considerable flow around the firing pin impression. A list of possible firearm manufacturers would include but not be limited to the following: Ruger, Taurus, Beretta, Kel-Tec, FEG, Walther, Mauser, Tanfoglio, Smith and Wesson, Jimenez, KBl, Heritage, and Helwan firearms.
GLWWAK	Known test fired cartridge cases, items 1 (1, 2, 3) were compared to items 2, 3, 4 and 5 (four fired cartridge cases). Based on class characteristic differences, the Ruger pistol, model P85 can be eliminated as having fired items 2, 3, 4 and 5. There are sufficient individual characteristics present to identify items 2, 3 and 4 as having been fired in the same unknown firearm; however, based on class characteristic differences, eliminated from being fired in the same firearm as item 5. Items 2, 3 and 4 exhibit characteristics commonly found on cartridge cases that have been fired in Ruger firearms.
GU6ENK	Item: 1 Three fired 9mm Luger caliber cartridge cases "...from the suspect's weapon..." Item: 2 One fired 9mm Luger caliber cartridge case "First...recovered from the parking lot..." Item: 3 One fired 9mm Luger caliber cartridge case "Second...recovered from the parking lot..." Item: 4 One fired 9mm Luger caliber cartridge case "...recovered from the flower pot..." Item: 5 One fired 9mm Luger caliber cartridge case "...recovered from the grass..." RESULTS: The three fired cartridge cases submitted as Item 1, the Item 2 fired cartridge case, the Item 3 fired cartridge case, the Item 4 fired cartridge case, and the Item 5 fired cartridge case were all microscopically compared with each other. From these comparisons, the following conclusions were reached: The three fired cartridge cases submitted as Item 1 were all fired by the same (one) firearm, and they may be suitable for identification with that specific firearm and/or

TABLE 2

WebCode	Conclusions
	another fired cartridge case or cartridge cases. Items 2, 3, and 4 were all fired by a second firearm, and they may be suitable for identification with that specific firearm and/or another fired cartridge case or cartridge cases. Item 5 was fired by a third firearm, and it may be suitable for identification with that specific firearm and/or another fired cartridge case or cartridge cases. The Item 1 cartridge cases were not fired by the firearm that fired Items 2, 3, and 4 or by the firearm that fired Item 5. Items 1 – 5 were not entered into the Integrated Ballistics Identification System (IBIS) as they did not meet the current criteria for entry.
GXGHC2	Three of the 9mm Luger caliber cartridge cases (1A, 1B, 1C) were fired in the same firearm. Another three 9mm Luger caliber cartridge cases (2, 3, 4) were fired in the same firearm. However, these three 9mm Luger caliber cartridge cases (2, 3, 4) were not fired in the same firearm as were the first three 9mm Luger caliber cartridge cases (1A, 1B, 1C). One of the 9mm Luger caliber cartridge cases (5) was not fired in the same firearm as were any of the other six 9mm Luger caliber cartridge cases (1A, 1B, 1C, 2, 3, 4).
GXQ72Z	The cartridge cases marked "1" were fired in the first firearm. The fired cartridge case marked "2-4" was fired in the second firearm. The cartridge cases marked "5" were fired in the third firearm.
GY3TTM	The submitted Items #2, #3 and #4 were microscopically examined and compared to each other and were positively identified as having been fired in the same firearm. The submitted Items #2, #3 and #4 were microscopically examined and compared to Item #1 test fires; They were eliminated as having been fired in the submitted firearm. The submitted Item #5 was microscopically examined and compared to the submitted Items #2, #3 and #4. The submitted Item #5 was microscopically examined and compared to Item #1 test fires. It was eliminated as having been fired in the submitted firearm.
GZGCGQ	[No Conclusions Reported.]
GZP6YY	Examinations showed that Item 2, Item 3, Item 4, and Item 5 were not discharged within the same firearm as Item 1. Examination showed that Item 2, Item 3, and Item 4 were discharged within the same unknown firearm, not the firearm in which Item 1 was discharged. Examinations showed that Item 5 was not discharged within the same unknown firearm in which Item 2, Item 3, and Item 4 was discharged.
H6WMH8	The questioned expended cartridge cases (Items 2-5) weren't fired in the suspect's weapon. Otherwise the questioned expended cartridge cases from items 2, 3 and 4 were fire in a same firearm and the cartridge case from item 5 was fired in a third one. So, two differents firearms were used to fire the expended cartridge cases recovered from the crime scene which are differents from the seized weapon. [sic]
H7AHGX	Casings M through O (Item 2 through Item 4) were not fired in the submitted 9mm Ruger pistol(Item 1), model P85, based on differences in individual characteristics. Casing P(Item 5) was not fired in the submitted 9mm Ruger pistol (Item 1), model P85, based on differences in class characteristics. Casings M through O (Item 2 through Item 4) were fired in a second 9mm firearm, a suspect weapon is unknown at this time, however any suspect weapon should be submitted to the laboratory for examination. Casing P(Item 5) was fired in a third 9mm firearm, a suspect weapon is unknown at this time, however any suspect weapon should be submitted to the laboratory for examination.
H7JUDH	The characteristic marks on Item 2, Item 3, Item 4 and Item 5 were dissimilar to the Item 1. Hence, I am of the opinion that the Item 2, Item 3, Item 4 and Item 5 were not discharged using Ruger P85 that discharged Item 1.
H9RWH2	The cartridge cases marked 135796/14 "B-D" were fired in the first firearm but negative to tests

TABLE 2

WebCode	Conclusions
	(Item 1). The fired cartridge case marked 135796/14 "e" was fired in the second firearm but negative to test (Item 1).
HBJLML	The known cartridge cases Item 1 and the questioned cartridge cases Item 2, 3, 4 and 5 have different individual markings, so it is undoubtedly proved, that the cartridge cases Item 2, 3, 4 and 5 were not fired in the same firearm as the cartridge cases Item 1. The questioned cartridge cases Item 2, 3 and 4 have with each other matching individual markings, so it is undoubtedly proved, that these cartridge cases were fired in the same firearm.
HBNPUJ	Items 2, 3, 4 and 5 (questioned fired cartridge cases) were microscopically compared to Item 1 (known fired cartridge cases). Items 2, 3 and 4 were fired in the same firearm due to sufficient agreement of class and individual characteristics. Items 2, 3 and 4 were not fired in the same firearm as Item 1 due to agreement of class characteristics, but disagreement of individual characteristics. Item 5 was not fired in the same firearm as Items 2, 3 and 4 or Items 1 due to a difference in class and individual characteristics.
HFMU66	The cartridge cases marked 135791/14 "A-C" were fired in the first firearm. The fired cartridge case marked 135791/14 "D-F" was fired in the second firearm. The cartridge cases marked 135793/14 "G" was fired in the third firearm.
HG39GK	On examination and comparison, I found that Item 2-5, were not fired from the same firearm as the expended cartridges, Item 1. Microscopic examination an comparison of the expended cartridges, Item 2-4, reveal that they were fired from the same firearm. Microscopic examination and comparison reveal that the expended cartridges, Item 5 , was not fired from the same firearms as the expended cartridges, Item 2-4
HG9HQW	1. Examinations showed Items 2, 3, 4, and 5 were not discharged within the same firearm as Item 1. 2. Examinations showed Items 2, 3, and 4 were discharged within one unknown firearm. 3. Examinations showed Item 5 was discharged within a second unknown firearm.
HJTCAR	A microscopic examination was performed on the cartridge cases received. There was sufficient firing detail present to suggest that cartridges 2, 3 and 4 had been fired from the same weapon although not from the recovered Ruger firearm. The firing detail present on Cartridge case 5 suggests it had been fired from a third weapon. In conclusion three (3) weapons have been utilised[sic] to discharge the submiited[sic] cartridge cases as below:- Weapon A - discharged cartridge cases 1 Weapon B - discharged cartridge cases 2, 3 and 4 Weapon C - discharged cartridge case 5
HKYWXR	The expended cartridge cases (Items 2-5) were not discharged from the suspect's weapon, and the expended cartridge cases (Items 2, 3, 4) were discharged from the same firearm.
HRB7XF	Items 1.1 - 1.5 were compared microscopically. Items 1.2 - 1.4 have agreement in class characteristics & sufficient agreement of individual characteristics. These cartridges cases were fired in the same firearm. Based on different individual characteristics Items 1.1 did not fire Items 1.2 - 1.4. Based on different class characteristics Item 1.5 is eliminated has having been fired in the same firearm as Items 1.2 - 1.4 & Item 1.1.
HVAL2W	Items 2, 3 and 4 were fired in the same firearm based on matching class and individual characteristics including matching aperture shearing, breechface marks and firing pin impression marks. Items 2, 3 and 4 were unable to identified or eliminated from Item 1 based on matching class, but insufficient amount of individual characteristics in a pattern.[sic] Item 5 was not fired in the same firearm as Item 1 based on difference in class characteristics, including firing pin impression.
HZFTDN	1. Cartridge cases (Items 2, 3, 4, 5) were not discharged from the same firearm as cartridge cases (Item 1). 2. Cartridge cases (Item 2, 3, 4) were discharged from the same firearm. 3.

TABLE 2

WebCode	Conclusions
	Cartridge cases (Items 2, 3,4) were not discharged from the same firearm as cartridges cases (Item 5).
HZRE26	Four of the cartridge cases (Items 2, 3, 4 and 5) were microscopically compared and the[sic] exists sufficient individualizing detail to identify a suspect's firearm Item 1 (pistol Ruger P85) haven't been used to fire them. The three cartridge cases (Items 2, 3 and 4) were fired in one firearm different suspect's firearm (Item 1). The cartridge case (Item 5) was fired in the other firearm different suspect's firearm (Item 1) and different from the firearm expended Items 2, 3 and 4.
J4PB7P	I examined the fired cartridge cases marked as Items 1 - 5 and compared the individual and class characteristics markings on them using a comparison microscope and found: The cartridge cases marked as Items 2 - 4 were fired in a first firearm. The cartridge case marked as Item 5 was fired in a second firearm. The cartridge cases marked as Items 2 - 5 were not fired in the same firearm as the cartridge cases marked Item 1. (Therefore a third firearm).
J8T2EP	Microscopic examination and comparison of the test fired cartridge cases, Item 1, with the cartridge cases from the scene, Items 2 - 5 reveals that the firearm that fired the Item 1 cartridge cases did not fire any of the cartridge cases from the scene. The Items 2, 3, and 4 cartridge cases were fired from one firearm, and the Item 5 cartridge case was fired from a different firearm. Class characteristics on these cartridge cases are not specific enough to provide a list of possible firearm manufacturers/origins from which these cartridge cases may have been fired.
JD3CNV	Examinations showed Items 2 through 5 were not discharged within the same firearm as Item 1. Examinations showed Items 2 through 4 were discharged within the same unknown firearm. Examinations showed Item 5 was discharged within a second unknown firearm.
JEDTRF	Microscopic comparison was conducted with the following results. Items #2 ,3 & 4 (FCC's #1, 2 & 3) were all fired in the same firearm not submitted. Item #5 (FCC #4) was not fired in pistol P-1 or same firearm as Item's 2, 3 or 4. Items #2 thru 5 (FCC's #1 thru 4) were not fired in Item #1. (Pistol P-1 Ruger model P85).
JGJ7MV	Item 1 consists of three 9mm Luger (9x19mm) cartridge cases that bear the headstamp of PMC ammunition. Items 2, 3, 4 are 9 mm Luger (9x19mm) cartridge cases that bear the headstamp of PMC ammunition. The Item 2, 3 and 4 cartridge cases were identified as having been fired in the same firearm. The Item 2, 3 and 4 cartridge cases were eliminated as having been fired in the same firearm as the Item 1 cartridge cases due to differences in class characteristics. Item 5 is a 9mm Luger (9x19mm) cartridge cases that bear the headstamp of PMC ammunition. The Item 5 cartridge case was eliminated as having been fired in the same firearm as Item 1, 2, 3, and 4 cartridge cases due to differences in class characteristics.
JH2YVK	Cartridges cases Items 2-4 were fired in/from the same firearm, but not the firearm that fired the Item 1 cartridge cases or the Item 5 cartridge case. Cartridge case Item 5 was fired in/from a second firearm, but not the firearm that fired the Item 1 cartridge cases or the Items 2-4 cartridge cases.
JKX992	The four expended cartridge cases (Items 2, 3, 4 and 5) were compared one to the others to determine common origins. The cartridge cases (Items 2, 3, 4 and 5) were not fired by the suspect's firearm Item 1. The cartridge cases Items 2, 3 and 4 were fired using another firearm different suspect's weapon Item 1. The cartridge case Item 5 was fired from the second firearm different suspect's firearm Item 1 and different weapon fired Items 2, 3 and 4.
JLEV9A	The cartridge cases identified above as items 2 through 5 were microscopically compared to one another. The comparison disclosed that item 2, 3, and 4 were fired in the same firearm. Item 5 was not fired in the same firearm that fired items 2, 3, and 4. Items 2, 3, and 4 were

TABLE 2

WebCode	Conclusions
	microscopically compared to the test-fired cartridge cases recovered from the suspect's firearm (Item 1). The comparisons disclosed that items 2, 3, and 4 were not fired in the suspect's firearm (Item 1). Item 5 was microscopically compared to the test-fired cartridge cases recovered from the suspect's firearm (Item 1). The comparisons disclosed that item 5 was not fired in the suspect's firearm (Item 1).
JR73QH	Item 2, 3 y[sic] 4 were discharged from the same pistol, different of Item 1 pistol. Item 5 was discharged from a third pistol.
JR83LG	None of the questioned expended cartridge cases (Items 2-5) were discharged from the same firearm as the known expended cartridge cases (Item 1). There are strong indications that Items 2, 3 and 4 were fired from one firearm. Item 5 was fired from another weapon with different general characteristics.
JT3KWH	None of the questioned expended cartridge cases (Items 2-5) are discharged from the same firearm as the known expended cartridge cases (Item 1). All following three items - Item 2, Item 3, Item 4 are discharged from the different firearm and not from the same firearm as the known expended cartridge cases (Item 1). Item 5 is discharged from another different firearm and not from the same firearm as the known expended cartridge cases (Item 1).
JVMB8U	Examination of items 2 thru 4 revealed three (3) fired 9mm caliber cartridge cases that were all fired in the same firearm. Examination of item 5 revealed one (1) fired cartridge cases that was not fired in the same firearm as items 2 thru 4. Further examination of items 2 thru 5 with the three (3) reportedly test fired cartridge cases (item 1), revealed that items 2 thru 5 were not fired in the Sturm-Ruger P89 semi-automatic pistol.
JWARNB	The fired cartridge cases in Item (1) were fired in the same firearm. The fired cartridge cases in Item (2) to (4) were fired in a second firearm. The fired cartridge case in Item (5) was fired in a third firearm.
JY8UWC	The 9mm Luger cartridge cases (Items 2, 3, and 4) were all fired in one firearm. The 9mm Luger cartridge case (Item 5) was fired in a second firearm. The above listed 9mm Luger cartridge cases (Items 2, 3, 4, and 5) were not fired in the same firearm as the test fires from the Ruger pistol (Item 1).
K2PEG7	Examined the Specimen marked #2. It is a 9mm Luger caliber discharged cartridge case, headstamped "PMC". Examined the Specimen marked #3. It is a 9mm Luger caliber discharged cartridge case, headstamped "PMC". Examined the Specimen marked #4. It is a 9mm Luger caliber discharged cartridge case, headstamped "PMC". Examined the Specimen marked #5. It is a 9mm Luger caliber discharged cartridge case, headstamped "PMC". Compared the cartridge case marked #2 against the cartridge cases marked #3 and #4. The results of the microscopic comparisons were Positive. The three (3) shells marked #2, #3 and #4 were discharged from the same firearm. Compared the Item #1 test cartridge case against the four (4) cartridge cases marked #2, #3, #4 and #5. The results of the microscopic comparisons were Negative. Compared the cartridge case marked #2 against the cartridge case marked #5. The results of the microscopic comparisons were Negative.
KEQU2V	The cartridge cases in Items #2, #3 and #4 were identified as having been fired in the same firearm. The cartridge cases in items #2, #3 and #4 could not be identified as or excluded from having been fired in the same firearm as the cartridge cases in Item #1 based on class characteristic similarities (caliber, breech face marks and firing pin impression). The cartridge case in Item #5 was excluded from having been fired in the same firearm(s) as the cartridge cases in Items #1, #2, #3 and #4 based on class characteristic differences (firing pin impression).

TABLE 2

WebCode	Conclusions
KG9JY9	NO.
KN2WJF	1. Pistol Ruger P85 caliber 9mm luger serial number ????? did not fired cartridge cases that inscribed Item #2, Item #3, Item #4 and Item #5.
KNHVWD	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. The cartridge cases in Items 2, 3, 4 and 5 had not been fired in the same firearm as the test fired cartridge cases in Item 1. B. The cartridge cases in Items 2, 3 and 4 had been fired in the same unknown firearm. C. The cartridge case in Item 5 was fired in a separate unknown firearm.
KP9RTF	Items 2, 3 and 4 were all discharged in the same firearm. This was not the firearm used to discharge Item 1. Item 5 was discharged in a different firearm than the one used to discharge Item 1 and a different firearm that the one used to discharge Items 2, 3, and 4.
KPQQ27	3. On 2014-08-15 during the performance of my official duties I received a sealed evidence bag with number PAD000580333 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 Three (3) 9mm Parabellum calibre fired cartridge cases each marked by me "904TC1", "904TC2" and "904TC3" respectively. (tests). 3.2 Four (4) 9mm parabellum calibre fired cartridge cases marked by me "59884/14" each and "2", "3", "4" and "5" respectively. (exhibits). 4. The intention and scope of this forensic examination comprise the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1 and 3.2 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope and found: 5.1 The fired cartridge cases mentioned in paragraph 3.2 marked "146904/14" each and "2", "3" and "4" respectively, were fired in one (1) firearm. 5.2 The fired cartridge case mentioned in paragraph 3.2 marked "146904/14 5" was fired in a second (2nd) firearm. 5.3 The fired cartridge cases mentioned in paragraphs 5.1 and 5.2 were not fired in the same firearm that fired the cartridge cases (tests) mentioned in paragraph 3.1.
KPXNZ9	The Ruger P85 pistol is eliminated from having fired any of the cartridge cases from the scene. Both cartridge cases from the parking lot and the cartridge case from the flower pot (Items 2, 3, & 4 respectively) were determined to have been fired from a single firearm. The cartridge case from the grass (Item 5) was fired from a second firearm.
KUAQPP	Microscopic examination and comparison reveal that the cartridge cases, Items 1B and 1C, were not fired in the same firearm as the test fires, Item 1A. Microscopic examination and comparison reveal that the cartridge cases, Items 1B and 1C, were not fired in the same firearm. Microscopic examination and comparison of the cartridge cases, Item 1B, reveal that they were fired in the same firearm, and are consistent with being fired in a Ruger 9mm pistol. This list is provided only as an investigative lead and is not intended to be an all-inclusive list. Microscopic examination of the cartridge case, Item 1C, reveals that it is consistent with being fired in a Ruger or Taurus 9mm pistol. This list is provided only as an investigative lead and is not intended to be an all- inclusive list.
KWV2HH	Items 2 through 4: Items 2 through 4 were all identified as having been fired in the same unknown firearm. Items 2 through 4 were not fired in the suspect's pistol. Furthermore, Items 2 through 4 were not fired in the firearm that fired Item 5. Item 3 was imaged into the NIBIN database. Any association with the NIBIN database will be the subject of a supplemental report. Item 5: Item 5 was not fired in the suspect's pistol. Item 5 was imaged into the NIBIN database. Any association with the NIBIN database will be the subject of a supplemental report. Items 1A through 1C: Item 1A was imaged into the NIBIN database. Any association

TABLE 2

WebCode	Conclusions
	with the NIBIN database will be the subject of a supplemental report.
L3QH7T	Item 2 through 4 are 9mm Luger cartridge cases that were identified as having been fired in the same firearm. The Item 2 through Item 4 cartridge cases were excluded as having been fired in the same firearm as the Item 1 and Item 5 cartridge cases. Item 5 is a 9mm Luger cartridge case that was excluded as having been fired in the same firearm as the Item 1 cartridge cases.
L7EFVP	Items 2-5 were not fired in the same firearm as Items 1A1-1A3. Items 2, 3 and 4 were fired in the same firearm. Item 5 was not fired in the same firearm as Items 2, 3 and 4. Headstamps on Items 1A1-1A3 and Items 2-5 were produced by the same bunter tool.
L9MLF7	The cartridge cases Items 2, 3 and 4 were all fired in a single firearm. The cartridge case Item 5 was fired in a second firearm, different to the firearm that fired Items 2, 3 and 4. None of the cartridge cases Items 2, 3, 4 and 5 were fired by the firearm (suspect firearm) that fired the test cartridge cases Item 1.
LAFGX9	Item 1.1 consists of three fired PMC brand 9mm Luger cartridge cases stated to have been test fired by a Ruger brand model P85 pistol. They were microscopically compared to Items 1.2, 1.3, 1.4, and 1.5. Item 1.1 was eliminated as having been fired by the same firearms that fired Items 1.2, 1.3, 1.4, and 1.5. Items 1.2, 1.3, 1.4, and 1.5 consist of four fired PMC brand 9mm Luger cartridge cases. They were microscopically compared to each other. Items 1.2, 1.3, and 1.4 were identified as having been fired by the same firearm. Item 1.5 was eliminated as having been fired by the same firearm that fired Items 1.2, 1.3, and 1.4.
LAGNCG	Items 2, 3, & 4 were fired in the same firearm. Firearm not submitted. Items 2 through 4 were not fired from Item 1 or Item 5 due to differences in individual characteristics. Item 5 was not fired from Item 1 due to differences in individual characteristics.
LCTBDU	Sufficient dissimilar unique individual characteristics were noted to eliminate the items 2, 3, 4, and 5 fired cartridge cases as having been fired in the same firearm as the three (3) test fired cartridge cases submitted in item 1. Sufficient unique individual characteristics were noted to positively identify the items 2, 3 and 4 cartridge cases as having been fired in the same firearm. Sufficient dissimilar unique individual characteristics were noted to eliminate the item 5 fired cartridge case as having been fired in the same firearm as the three (3) fired cartridge cases contained in items 2, 3 and 4.
LDUZ3K	The cartridge cases, Item 1, were compare to the questioned cartridge cases Items 2, 3, 4 and 5 using a comparison microscope. There was sufficient disagreement of class and individual characteristic markings to determine that the questioned cartridge cases, Items 2, 3, 4 and 5 had not been discharged in the same firearms as the cartridge cases, Item 1. The cartridge cases in Items 2, 3, and 4 had been discharged in a single firearm and the cartridge case in Item 5 had been discharged in another firearm.
LHKEML	Cartridge cases mentioned in 3.2 marked 14-527(2), 14-527(3) and 14-527(4) were fired in the same firearm as with test cartridge cases mentioned in 3.1. Cartridge case mentioned in 3.2 marked 14-527(5) was not fired in the same firearm as with test cartridge cases mentioned in 3.1.
LJML26	Results of Examination: The conclusions in this section are the options of the undersigned examiner. When a conclusion is verified, it is also the opinion of the verifier. Items 2 - 4 were identified as having been fired in same unknown firearm based on agreement of the combination of individual characteristics and all discernible class characteristics. Items 2 - 4 were eliminated as having been fired in the same firearm as Item 1 based on the disagreement of individual characteristics. Item 5 was eliminated as having been fired in the same firearm as item 1 and items 2 - 4 due to disagreement of discernible class characteristics.

TABLE 2

WebCode	Conclusions
LJTLE	<p>The submitted cartridge cases (Items #1-2 thru 1-5) were examined and microscopically compared to the test-fired cartridge cases from the suspect Ruger P85 semiautomatic pistol. Based on differences in the markings on the firing pin impressions and breech face impressions, Items #1-2 through 1-5 can be excluded as being fired in the same gun as the test fires (Items #1A - C). The submitted firearm did not fire any of the evidence cartridge casings. Item #1-2 was microscopically compared to Items 1-3 through 1-5. Sufficient agreement was observed between individual characteristics in the breech face impressions and firing pin impressions to conclude that Items #1-2, 1-3, and 1-4 were fired in the same, unknown gun. Item #1-5 can be excluded as being fired from the same unknown gun as Items #1-2, 1-3, and 1-4. Therefore, three different firearms were responsible for the cartridge cases: the Ruger that produced the test fires, an unknown firearm that produced Items #1-2 through 1-4, and a second unknown firearm that produced Item #1-5. The comparisons were documented with photographs and notes. The identifications of the toolmarks above are made to the practical, not absolute, exclusion of all other tools. This is because it is not possible to examine all firearms or tools in the world, a prerequisite for absolute certainty. The conclusion that sufficient agreement for identification exists between two toolmarks means that the likelihood another firearm or tool could have made the questioned mark is so remote as to be considered a practical impossibility.</p>
LKE8L2	<p>The three cartridge cases recovered from the firearm was designated as Items 1A, 1B and 1C. The three cartridge cases were microscopically compared to one another. There was sufficient agreement of unique characteristics in the breech face marks and firing pin impressions to conclude they were fired in the same gun. Item 1A was microscopically compared to Item 5, Items 1A and 5 did not share the same class characteristics of lane marks on the firing pin impressions. Item 1A and 5 were not fired in the same gun unless operation of the firearm occurred prior to recovery of the firearm. Items 2, 3 and 4 were microscopically compared to one another and sufficient agreement of unique characteristics in the breech face marks and firing pin impressions to conclude they were fired in the same gun. I was able to establish identification among items 2 - 4, and separately between Items 1A - 1C which suggests that there were two separate guns that fired these two groups in addition, Item 5's different firing pin impression suggests a third gun was involved in this case.</p>
LUNELB	<p>Items 2, 3 and 4 were all identified as having been fired in the same firearm. Item 5 was eliminated from having been fired in the same firearm as Items 2, 3 and 4. Items 2, 3, 4 and 5 were all eliminated from having been fired in the Ruger P85 pistol associated with Item 1.</p>
LWRCQC	<p>Test shots from the suspect firearm (Item 1) were compared microscopically with the recovered cartridge cases (Items 2,3 4 and 5). The results of these examinations are that Items 2,3 4 and 5 eliminated. None of the recovered cartridges were fired in the submitted firearm (Item 1).</p>
M2XBLB	<p>The cartridges Item 2, Item 3, Item 4 and Item 5 are not fired in the recoverd[sic] handgun P85.</p>
M6CJQ8	<p>Cartridge casings (1.1-1.3) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the firing pin and breechface impressions. Cartridge casings (2, 3, 4) were fired from a SECOND gun based on sufficient agreement of class and individual characteristics of the firing pin and breechface impressions. Cartridge casings (5) was fired from a THIRD gun based on sufficient disagreement of class and individual characteristics.</p>
MATRCL	<p>A MICROSCOPIC COMPARISON EXAMINATION OF EVIDENCE CARTRIDGE CASES Q1 THROUGH Q4 (ITEMS 2 THROUGH 5) AGAINST TEST FIRED CARTRIDGE CASES FIRED WITH K1 RUGER 9MM PISTOL (ITEM 1) HAS REVEALED THAT Q1 THROUGH Q3 (ITEMS 2 THROUGH 4) WERE FIRED WITH THE SAME UNKNOWN FIREARM. THEY WERE NOT FIRED</p>

TABLE 2

WebCode	Conclusions
	WITH K1 RUGER (ITEM 1). DUE TO DIFFERENCES IN BREECHFACE MARKINGS AND FIRING PIN IMPRESSIONS. Q4 (ITEM 5) WAS FIRED WITH ANOTHER UNKNOWN FIREARM. IT WAS NOT FIRED WITH K1 RUGER (ITEM 1). IT WAS NOT FIRED WITH THE SAME FIREARM AS Q1 THROUGH Q3 (ITEM 2 THROUGH 4). DUE TO DIFFERENCES IN BREECHFACE MARKS AND FIRING PIN IMPRESSIONS. Q1 THROUGH 5 (ITEMS 2 THROUGH 5) ALL BEAR CLASS CHARACTERISTICS MOST COMMON TO RUGER TYPE FIREARMS BUT NOT TO THE EXCLUSION OF OTHERS. SHOULD ANY OTHER SUSPECTED FIREARMS BE RECOVERED PLEASE SUBMIT THEM IN REFERENCE TO THIS CC#
MB9R92	The cartridge cases were microscopically compared in conjunction with one another. Based on these comparative examinations, the following was determined: The firearm represented by the cartridge cases in item 1 is eliminated as having fired the cartridge cases in Items 2-5. There are two firearms that are represented by the evidence cartridge cases in Items 2-5. The three cartridge cases in Items 2-4 had been fired by the first firearm. The cartridge case in Item 5 had been fired by a second firearm.
MJA8TN	Items 2, 3, 4 and 5 (questioned cartridges) matched item 1 (known test fires)- IDENTIFICATION. All the Unknown cartridges were identified as having been fired from the recovered Ruger P85 pistol.
MJUXQF	On examination I found that the characteristic marks on the questioned cartridge cases Item 2, Item 3, Item 4 and Item 5 were different from the characteristic marks on the recovered three expended cartridge cases discharged from the suspect's weapon Item 1.
MLZJGZ	The submitted exhibit cartridge cases (items 2, 3, 4, and 5) were compared microscopically to the test fired cartridge cases (item 1) with the following results: None of the four exhibit cases were fired in the same firearm that generated test set #1 and firearm #1 is eliminated from these exhibits. Items 2, 3, and 4 were identified as having been fired in the same firearm. This represents a second gun and is not the same gun as test set 1. Item 5 is eliminated from test set 1 and the fired cases from the second gun (items 2, 3, 4) and therefore represents a third different firearm identified in this set of cartridge cases.
MQCBMT	The fired cartridge cases marked 135805/14 "B, C, D" were fired by first firearm; The fired cartridge cases marked 135805/14 "E" was fired by second firearm; Tests marked TC1; TC2 & TC3 were fired by third firearm.
MQHGNM	On 22 August 2014 the following items were received of[sic] the Forensic Ballistics Investigation Section: Item 1: Three test fired 9mm Parabellum calibre PMC cartridge cases, Item 2: One 9mm Parabellum calibre PMC fired cartridge case, Item 3: One 9mm Parabellum calibre PMC fired cartridge case, Item 4: One 9mm Parabellum calibre PMC fired cartridge case, Item 5: One 9mm Parabellum calibre PMC fired cartridge case. A comparative microscopic examination of the fired cartridge cases, Items 1 to 5 inclusive[sic], revealed thet[sic] Item 1 had been discharged in a different firearm to that which had discharged Items 2 to 5 inclusive. Further, Items 2, 3 and 4 had been discharged in the same firearm.
MQKFTC	Conclusions: Microscopic comparison was conducted with the below results. FCC-1 to FCC-3 (9mm Luger Group A) (Item #2 - 4) were fired in the same firearm, however not in Pistol P-1 (Item #1). FCC-4 (9mm Luger) (Item #5) was not fired in pistol P-1 (Item #1) or in the same firearm as group A1 (Item #2 to 4).
MWY7KQ	Microscopic examination and comparison of the submitted cartridge cases, Items 2, 3, 4, and 5, to the reference test fires of the submitted pistol, Item 1, revealed that Exhibits 2, 3, 4, and 5 were excluded from having been fired in Exhibit 1. Items 2, 3, and 4 were determined to have been fired in the same unknown firearm. Item 5 was determined to have been fired an unknown firearm.

TABLE 2

WebCode	Conclusions
MY4REH	2.1 The test fired cartridge cases mentioned in 3.1 marked 141455/14(1)A, 141455/14(1)B and 141455/14(1)C were fired in the first firearm. 2.2 The fired cartridge cases mentioned in 3.2, 3.3 and 3.4 marked 141455/14(2), 141455/14(3) and 141455/14(4) were fired in the second firearm. 2.3 The fired cartridge case mentioned in 3.5 marked 141455/14(5) was fired in the third firearm.
N2AP66	Submitted test fired cartridge cases as Item # 1 , were designated E-1, E-2, E-3, microscopic comparison of the fired cartridge cases as Item # 1, were microscopically compared against the four (4) recovered fired cartridge cases Item # 2 to Item # 5. 1. Items # 2, # 3, and # 4, were identified as have been fired by a same firearm. Item # 2, # 3, # 4, were eliminated as have been fired by the same firearm as Item # 1. 2. Item # 5 was identified as being fired by a firearm. Item # 5, was eliminated as have been fired by the same firearm as Item # 1, # 2, # 3, # 4. In conclusion 2 weapons were used to discharged the four (4) recovered cartridge cases.
N8LZPQ	Items 1 through 5 were examined and analyzed using microscopy. Items 2, 3 and 4 were identified as having been fired in the same firearm. Items 2, 3 and 4 were eliminated as having been fired in Item 1 due to sufficient differences in individual characteristics. Item 5 was eliminated as having been fired in Item 1 and the same firearm as Items 2, 3 and 4 due to a difference in class characteristics.
NAENPY	The Items 2, 3, 4 and 5 were not fired in the suspect's weapon Item 1. The Items 2, 3 and 4 were fired in the other firearm different suspect's weapon Item 1. The Item 5 was fired in the other firearm different suspect's weapon Item 1 and different weapon fired Items 2, 3 and 4.
NFXU8E	Items 2, 3 and 4 were fired in one firearm. But these items (Items 2, 3 and 4) were neither fired in the same firearm that fired Item 1 nor fired in the same firearm that fired Item 5. Item 5 was not fired in the same firearm that fired Item 1.
NH79CY	The three cartridge cases submitted a Item 1 were fired in the same firearm. Item 2, 3, and 4 were fired in the same firearm; however, they 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 2, 3 and 4.
NHK2FU	Casings M - O (Items 2-4) were fired in one 9mm firearm. Suspect weapons include 9mm Ruger pistols; however, any suspect weapon should be submitted to the laboratory for analysis. Casing P (Item 5) was fired in a second 9mm firearm. The specific brand of the suspect weapon is unknown; however, any suspect weapon should be submitted to the laboratory for analysis. Casings M - O (Items 2-4) were not fired in the submitted 9mm Ruger P85 (Item 1) based on differences in individual characteristics. Casing P (Item 5) was not fired in the submitted 9mm Ruger P85 (Item 1) based on differences in class characteristics.
NHTA2N	Items #2, #3, #4 and #5 were not fired in the same firearm as Item #1 test fires. Item #2, #3 #4 were all fired in the same firearm not Item #1. Item #5 was not fired from the Item #1 or the same firearm as Item #2, #3, or #4.
NMN7L9	Items 2, 3, and 4 were fired in the same firearm (not Item 1 - pistol). Item 5 was not fired in Item 1 - pistol, nor in the same firearm as Items 2 - 4.
NMXTMM	The Item 1 cartridge casings were identified as having been fired in the same unknown firearm. Items 2, 3, and 4 were not fired in the same unknown firearm as Item 1. Items 2, 3, and 4 were identified as having been fired in a second unknown firearm. Items 2, 3, and 4 were not fired in the same unknown firearm as Item 5. Item 5 was neither identified nor eliminated as having been fired in the same unknown firearm as Item 1. A significant agreement of individual characteristics was not observed.

TABLE 2

WebCode	Conclusions
NRYC42	<p>3. On 2014-08-19 during the performance of my official duties I received a sealed evidence bag with number PAD000580334 from Case Administration of the Ballistics Section containing the following exhibits: 3.1 Three (3) 9mm Parabellum calibre fired cartridge cases marked by me "146883/14" each and "1A", "1B" and "1C" respectively. 3.2 Four (4) 9mm Parabellum calibre fired cartridge cases marked by me "146883/14" and "2" to "5" respectively. 4. The intention and scope of this forensic examination comprise of the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1 and 3.2 and compared the individual and class characteristics markings on them using a comparison microscope found: 5.1 The cartridge cases mentioned in paragraph 3.2 marked "146883/14" each and "2" to "4" respectively, were fired in the same firearm. 5.2 The cartridge case mentioned in paragraph 3.2 marked "146883/14 "5" was fired in a second (2nd) firearm. 5.3 The cartridge cases mentioned in paragraphs 5.1 and 5.2 were not fired in the same firearm as the cartridges cases mentioned in paragraph 3.1 marked "146883/14" each and "1A", "1B" and "1C" respectively.</p>
NUH2VJ	<p>Microscopic examination and comparison reveal the cartridge cases, Items 2, 3, 4, and 5, were not fired in the same firearm as fired the cartridge cases, Item 1. Microscopic examination and comparison reveal the cartridge cases, Items 2, 3, and 4, were fired in the same firearm. Microscopic examination and comparison reveal the cartridge case, Item 5, was not fired in the same firearm as fired the cartridge cases, Items 2, 3, and 4. Microscopic examination of the cartridge cases, Items 2, 3, 4, and 5, reveals that they are consistent with being fired in Ruger and Taurus 9mm pistols. This list is provided only as an investigative lead and is not intended to be an all-inclusive list.</p>
NWKCW9	<p>Items 2, 3, 4 and 5 were microscopically examined in conjunction with Item 1 test fires identified as being from a Ruger P85 semi-automatic pistol. Based on these comparative examinations, it was determined that: A. Items 2, 3, 4 and 5 had not been fired in the same firearm as Item 1. B. Items 2, 3, and 4 had all been fired in the same unknown firearm. C. Item 5 had been fired in a second unknown firearm.</p>
NWWA7	<p>Cartridges cases referenced Item n°1 are coming from the fire testing with the suspect's weapon (Ruger P85 automatic pistol). The Cartridges cases referenced items n°2, n°3, n°4, do not correspond to cartridges cases of item n°1 from the comparison shooting fired with the weapon seized from the suspect a (Ruger P85). But the Cartridges cases referenced items n°2, n°3, n°4, are coming from the same automatic gun. Cartridge case referenced item n°5 does not correspond to cartridges cases of item n°1 from the comparison shooting fired with the weapon seized from the suspect a (Ruger P85). The Cartridge case referenced item n°5 does not correspond to cases of items n°2, n°3, n°4. The cartridge case referenced item n°5 has been fired by a different gun.</p>
PBYXXD	<p>Cartridge cases Items 2, 3, and 4 were fired in the same firearm, however, they were not fired in the same firearm as cartridge cases Item 1. Cartridge case Item 5 was fired in a second firearm, however, it was not fired in the same firearm as cartridge cases Item 1.</p>
PF8VYZ	<p>Four expended cartridge cases identified as Item 2 (recovered from the parking lot), Item 3 (recovered from the parking lot), Item 4 (recovered from the flower pot) and Item 5 (recovered from the grass) were not discharged from the same firearm as the known expended cartridge cases (Item 1). Three expended cartridge cases identified as Item 2 (recovered from the parking lot), Item 3 (recovered from the parking lot) and Item 4 (recovered from the flower pot) were discharged from the same firearm, additionally, the cartridge case recovered in the grass, identified as item 5, was not discharged from that firearm.</p>
PN9FTM	<p>The individual characteristics of item 1 doesn't match with the individual characteristics of items</p>

TABLE 2

WebCode	Conclusions
	2, 3, 4 and 5. Therefore items 2, 3, 4 and 5 haven't been fired with the gun on item 1.
PPT72Z	3. On 2014-08-19 during the performance of my official duties I received a sealed evidence bag with number PAD000580332 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 Seven (7) 9mm calibre fired cartridge cases marked by me "146896/14" each and "1TC1", "1TC2", "1TC3", "146896/14" and "2" to "5". 4. The intention and scope of this forensic examination comprise of the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. I examined the fired cartridge cases mentioned in paragraph 3.1 and compared the individual and class characteristics markings on them, using a comparison microscope and found that the cartridge cases were fired in different firearms as follows: 5.1 The cartridge cases mentioned in paragraph 3.1 marked "1TC1", "1TC2" and "1TC3" were fired in a first (1st) firearm (known). 5.2 The cartridge cases mentioned in paragraph 3.1 marked "146896/14" each and "2", "3" and "4" respectively, were fired in a second (2nd) firearm. 5.3 The cartridge case mentioned in paragraph 3.1 marked "146896/14 5" was fired in a third (3rd) firearm.
Q4VK9U	Items 2, 3, 4, and 5 were all microscopically examined and eliminated as having been fired in Item 1 due to disagreement of discernible class characteristics and/or individual characteristics. Items 2, 3, and 4 were microscopically examined and identified as having been fired in the same unknown firearm based upon agreement of the combination of individual characteristics and all discernible class characteristics. Item 5 was eliminated as having been fired in the same firearm as Items 2 - 4 due to differences in class characteristics.
Q878DD	1. C/cases MKD 2, 3 and 4 were fired in the same firearm and negative to the tests. 2 C/case MKD 5 is negative to the tests and also negative to the C/case MKD 2, 3, and 4.
Q8D8T8	Items # 2,3,4 & 5 were microscopically compared[sic] to each other and test shots, Item #1. Items # 2,3,4 & 5 were eliminated as having been fired in Item #1 due to different individual characteristics observed in the firing pin and breech face impressions.
QGDP86	3. On 2014-08-04 during the performance of my official duties I received a sealed evidence bag with number PAD000580360 from Case Administration of the Ballistics Section, containing the following: 3.1 Three (3) 9mm Parabellum calibre fired cartridge cases marked 1TC1, 1TC2 and 1TC3. 3.2 Four (4) 9mm Parabellum calibre fired cartridge cases marked "146883/14" each and "2", "3", "4" and "5" respectively. 4. The intention and scope of this forensic examination comprise of the following: 4.1 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1 and 3.2 and compared the individual and class characteristics markings on them using a comparison microscope and found: 5.1 The cartridge cases mentioned in paragraph 3.2 marked "146883/14" each and "2", "3" and "4" respectively were fired in the same firearm. 5.2 The cartridge case mentioned in paragraph 3.2 marked "146883/14 5" was not fired in the same firearm that discharged the cartridge cases mentioned in paragraph 5.1. 5.3 It cannot be determined if the cartridge cases mentioned in paragraph 5.1 were fired or were not fired in the same firearm that discharged the cartridge cases mentioned in paragraph 3.1. 5.4 The cartridge case mentioned in paragraph 3.2 marked "146883/14 5" was not fired in the same firearm that discharged the cartridge cases mentioned in paragraph 3.1.
QGLKCW	Item #2 through Item #4 were microscopically examined and compared. Based on the agreement of class characteristics and patterns of sufficient corresponding individual characteristics, the Item #2 through Item #4 [expended cartridge cases] were identified as having been fired in the same firearm. Item #1 and Item #2, #3, #4, and #5 were microscopically examined and compared. Based on the difference of class characteristics and/or patterns of individual characteristics, the Item #1 and the Items #2, #3, #4, and #5

TABLE 2

WebCode	Conclusions
	[expended cartridge cases] were eliminated as having been fired in the same firearm. Item #2 and Item #5 were microscopically examined and compared. Based on the difference of class characteristics and/or patterns of individual characteristics, the Item #2 and the Item #5 [expended cartridge cases] were eliminated as having been fired in same firearm.
QLE9NG	Items 2, 3, 4 were all fired in/from the same firearm. They were not fired from the firearm that produced test fired exemplars Item 1 or from the same firearm that fired Item 5. Item 5 was not fired from the firearm that produced test fired exemplars Item 1.
QPKMTM	The cartridge cases marked "2, 3 & 4" are positive to each other (one firearm) but negative to exhibits marked "5" and negative to tests marked "1". The fired cartridge case marked "5" is negative to exhibits marked "2, 3 & 4) and negative to tests marked "1". The tests marked "1" are positive to each other but negative to all exhibits marked "2, 3, 4 & 5".
QRQ6U4	The Item 1 to 5 were marked in the following: Item 1 marked with the last three digit of the Lab number as 969TC1-TC3, Questioned expended cartridge cases were marked with the Lab number. Item 2 marked 157969/14A, Item 3 marked (157969/14B), Item 4 marked (157969/14C) and Item 5 marked (157969/14D). In conclusion Items 2, 3 and 4 meaning 157969/14 A, B and C were fired in the same firearm but not the known Ruger P85. Item 5 meaning 157969/14D was fired in the second firearm (different firearm) with those Items 2-4 and was not fired in the same firearm with the tests marked 969TC1-TC3+. Fired cartridge cases test marked 969TC1-TC3 were fired in the same firearm (third firearm).
QUG9MB	Cartridge cases marked 141222/14 2, 3, 4 were fired in the first firearm and are negative to expanded cartridge cases marked Item 1. Cartridge case marked 141222/14 5 was fired in the second firearm and is negative to expanded cartridge cases marked Item 1.
QVUV36	The cartridge cases described in item 1, were not fired by the weapon used to fire the cartridge cases described in items 2, 3, 4 and 5.
QVZDTV	The submitted cartridge cases (Items 2-4) were all fired in the same firearm. They can neither be identified nor eliminated as having been fired as in the same firearm as Item 1; due to lack of reproducible individual characteristics. The submitted cartridge (Item 5) was eliminated as having been fired in the same firearm as Item 1, due to differences in class characteristics.
QX9ZFT	Item 1 - Three spent 9mm caliber "PMC" cartridge cases, reportedly discharged by suspects firearm. The cartridge cases matched each other and were discharged by the same firearm. The identifications were based on the agreement of individual characteristics observed during a microscopic comparison. Items 2-4 - Three spent 9mm caliber "PMC" cartridge cases. The cartridge cases matched each other and were discharged by the same firearm. The identifications were based on the agreement of individual characteristics observed during a microscopic comparison. The cartridge cases were eliminated as having be discharged by the same firearm that discharged Item 1 cartridge cases. The eliminations were based on differences in individual characteristics observed during a microscopic comparison. Item 5 - One spent 9mm caliber "PMC" cartridge case. The cartridge case was eliminated as having been discharged by the same firearm that discharged the Item 1 and Items 2-4 cartridge cases. The eliminations was based on differences in class characteristics observed during a microscopic comparison.
R4KRE7	Item 2, 3, 4, 5 expended cartridge cases were not fired from the firearm which was used to fire item 1 expended cartridge cases. Besides, item 2, 3, 4 expended cartridge cases were fired from the same firearm which was different from that used to fire item 1 expended cartridge cases.
R6R6YT	As a result of microscopic comparison it was established that: 1. Expended cartridges cases Items 2, 3, 4, 5 were not fired in the suspect's weapon Item 1. 2. Expanded[sic] cartridges

TABLE 2

WebCode	Conclusions
	cases Items 2, 3 and 4 were fired by the same firearm, different from that of the suspect's. 3. Expended cartridge case Item 5 was fired using another firearm, different from that of suspect's and different from the firearm that expended Items 2, 3 and 4.
R7HDM	Examinations showed Items 2, 3, 4 and 5 were not discharged within the same firearm as Item 1. Items 2, 3 and 4 were discharged within the same unknown firearm. Item 5 was not discharged within the same firearm as Items 2, 3 and 4.
RARAYR	After examining Items #1, #2, #3, #4 and #5, I certify this evidence is Ammunition as defined by the [State] General Law, Chapter 140, Section 121. Items #2, #3, #4 and #5 were not discharged from Item #1 based on differences of class and individual characteristics. Items #2, #3 and #4 were not discharged from the same firearm as Item #5 based on differences of class and individual characteristics. After microscopic comparison, it was determined that Items #2, #3 and #4 were fired from the same firearm based on sufficient agreement of class and individual characteristics of breech face and firing pin marks.
RGC8QL	Items 1, 2, 3, 4, and 5 were examined and are as described above. Microscopic examination and comparison of Items 2, 3, and 4 revealed that there was agreement of combinations of individual and all discernible class characteristics. It is concluded that Items 2, 3, and 4 were fired in the same firearm. Microscopic examination and comparison of Item 5 to Items 2, 3, and 4 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Item 5 is eliminated as having been fired in the same firearm as Items 2, 3, and 4. Microscopic examination and comparison of Item 5 to Item 1 revealed disagreement of individual characteristics and some discernible class characteristics. It is concluded that Item 5 is eliminated as having been fired in the same firearm as Item 1, the recovered Ruger pistol. Microscopic examination and comparison of Item 2 to the test fired cartridge cases from Item 1, revealed that there was agreement of class characteristics and some disagreement of individual characteristics. However, Item 2 was neither identified nor eliminated as having been fired in the same firearm as Item 1, the recovered Ruger pistol. This may be the result of the absence, insufficiency, or lack of marking reproducibility.
RMCTCU	The cartridge cases marked 135780/14 "B-D" were fired in the first firearm. The fired cartridge case marked 135780/14 "E" was fired in the second firearm. The cartridge cases marked 135780/14 "B-E" are negative to tests marked 780TC1-TC3.
RMR3DG	1. Class characteristics on the test cartridge cases of Exhibit 1 were observed to be in agreement with the cartridge cases, Exhibits 2, 3 and 4, however significant agreement of individual characteristics was not observed. The cartridge cases, Exhibits 2, 3 and 4 were not identified or eliminated as having been fired in the tested firearm represented by the test cartridge cases of Exhibit 1. 2. Class and individual characteristics on the fired cartridge cases, Exhibits 2, 3 and 4 were observed to be in agreement. These three (3) cartridge cases were identified as having been fired in a single firearm. 3. Class characteristics on the test cartridge cases of Exhibits 1 were observed to be in agreement with characteristics on the cartridge case, Exhibit 5, however sub-class and individual characteristics were observed not to be in agreement. The cartridge case, Exhibit 5 cannot be identified or eliminated as having been fired in the firearm used to discharge the test cartridge cases of Exhibit 1 without visual examination of the firearm.
RUERYC	Because of the difference in individual characteristics, the Items 2, 3, 4 & 5 cartridge cases could not have been fired in the Item P1 Ruger P85 recovered from the suspect.
RVZALH	See attached report. [No report attached]
TEYXCT	The four (4) fired 9mm cartridge cases in Items 2, 3, 4, and 5 were determined not to have been fired in the same weapon as the three (3) fired 9mm cartridge cases in Item 1.

TABLE 2

WebCode	Conclusions
TG933M	1. Exhibit 1 (Three 9mm cartridge cases) and Exhibits 2, 3, 4, and 5 (Four 9mm cartridge cases) were visually and microscopically compared to each other. a. The three cartridge cases in Exhibit 1 were fired in the same firearm. b. The Exhibits 2, 3 and 4 cartridge cases were fired in the same firearm, but a different firearm than Exhibit 1. c. The Exhibit 5 cartridge case was not fired in the same firearm as the Exhibit 1 cartridge cases or the Exhibits 2, 3, and 4 cartridge cases.
TPEWV4	Item 1 - No connection to any other items. Items 2, 3, & 4 - Discharged in same weapon. Item 5 - No connections to any other items.
TRTY2	Items 2 - 4 were fired in the same firearm (identification). The conclusion was verified by firearms examiner [Name]. Items 2 - 4 were not fired in the same firearm as Item 1 (elimination). This conclusion was verified by firearms examiner [Name]. Item 5 was not fired in the same firearms as Items 2 - 4 or as Item 1 (elimination). This conclusion was verified by firearms examiner [Name].
TVB24K	Items 2 - 3 - 4 are fired by the same firearm, different than the firearm that fired Item 1. Item 5 are fired by another different firearm. 3 different[sic] firearms.
TVTY97	Test Fires (1.1, 1.2, 1.3) were fired from ONE Gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breech Face Impressions. Cartridge Casings (2,3,4) were fired from a SECOND Gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breech Face Impressions. Cartridge Casing (5) was fired from a THIRD gun based on sufficient disagreement of individual characteristics.
TXBRX9	From the sample that had been received, it can be concluded that all four expended cartridge (item 2, 3, 4 & 5) that had been recovered from the crime scene did not have same characteristics as three expended cartridge (item 1) that had been discharged from the firearm which had been seized from the suspect. On the comparison between four expended cartridge (item 2, 3, 4 & 5) at the crime scene, it can be concluded that item 2, 3 and 4 are been discharged from the same firearm while item 5 from separate firearm which both firearm are in 9mm caliber firearm. Therefore, from the comparison and finding, it can be conclude that 2 firearm are been used in the crime scene meanwhile the suspect firearm are not involved in the crime. [sic]
TXZXK6	The fired cartridge cases, Items 2, 3 and 4, were identified as having been fired in one firearm. However, these cartridge cases were eliminated as having been fired in the same firearm used to generate the test fire specimens, Item 1. The fired cartridge case, Item 5, was fired in a second firearm. However, the cartridge case was eliminated as having been fired in the same firearm used to generate the test fire specimens, Item 1.
U2Y4NW	Items 2 - 5 eliminated to Item 1 (1A - 1C). Items 2 - 4 ID'd to each other. Item 5 eliminated to Items 1 - 4.
U2Y6AU	A) Expended cartridge cases Items 2, 3, 4 and 5 have been eliminated as having been discharged from the same firearm that produced Item 1. B) Items 2, 3 and 4 were identified as matching each other and therefore have been discharged in the same firearm but not of that linked to Item 1.
UCQ7FX	On 2014-08-12 during the performance of my official duties I received a sealed evidence bag with number PAD000580330 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 Three (3) 9mm Parabellum calibre fired cartridge cases marked by me "1TC1", "1TC2" and "1TC3" respectively. Note: The cartridge cases above were fired in a known 9mm Parabellum calibre Ruger P85 semi-automatic pistol. 3.2 Three (3) 9mm Parabellum calibre fired cartridge cases marked by me "146925/14" each and "2", "3" and "4"

TABLE 2

WebCode	Conclusions
	<p>respectively. 3.3 One (1) 9mm Parabellum calibre fired cartridge case marked by me "146925/14 5". The intention and scope of this forensic examination comprise the following:</p> <p>4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. I examined the fired cartridge cases mentioned in paragraphs 3.2 and 3.3 and compared the individual and class characteristics markings on them, using a comparison microscope and found that the cartridge cases were fired in different firearms as follows: 5.1 The cartridge cases mentioned in paragraph 3.2 were fired in a first (1st) firearm. 5.2 The cartridge case mentioned in paragraph 3.3 was fired in a second (2nd) firearm. I examined the fired cartridge cases mentioned in paragraph 3.1, 5.1 and 5.2 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope and found: 6.1 The cartridge cases mentioned in paragraphs 5.1 and 5.2 were not fired in the same firearm as the cartridge cases mentioned in paragraph 3.1.</p>
UDRUF9	<p>Item 1 - Three (3) test fired 9mm Luger caliber cartridge cases. Item 2 - One (1) fired cartridge case. Item 3 - One (1) fired cartridge case. Item 4 - One (1) fired cartridge case. Item 5 - One (1) fired cartridge case. The submitted specimens marked Items 2 through 5 were examined and identified as four (4) fired 9mm Luger caliber cartridge cases bearing the PMC headstamp. Items 2 through 5 were microscopically inter-compared and also compared to Item 1. As a result of microscopic examinations, Items 2, 3, and 4 were identified as having been fired in the same firearm. However, due to differences in individual characteristics, Items 2, 3, and 4 were eliminated as having been fired in the same firearm as Item 1. Due to differences in individual characteristics, Item 5 was eliminated as having been fired in the same firearm as Item 1 and Items 2, 3, and 4.</p>
UFPK69	<p>The cartridge cases respectively marked as 141468/14 '2', '3' and '4' were fired in one firearm. The cartridge case marked as 141468/14 '5' was fired in a second firearm. The cartridge cases respectively marked as 141468/14 '2', '3', '4' and '5' were not fired in the same firearm as the cartridge cases marked as 141468/14 '1a', '1b' and '1c'.</p>
UKJJDC	<p>1. The expended cartridge case identify as Item 2, Item 3 and Item 4 are caliber 9x19mm and were fired by a single firearm, different from the suspect's weapon. 2. The expended cartridge case identify as Item 5 are caliber 9x19 mm and were fired by a firearm, different from the weapon that discharge cartridge identify as Item 2 to Item 4, and different from the suspect's weapon.</p>
UMJB8X	<p>The T-1, T-2, and T-3 cartridge cases (your item 1) were fired in a different firearm than the Q-1 through Q-3 cartridge cases (your item 2, your item 3, and your item 4) and the Q-4 cartridge case (your item 5). The Q-1, Q-2, and Q-3 cartridge cases (your item 2, your item 3, and your item 4) were fired in the same firearm. The Q-4 (your item 5) and Q-1 through Q-3 cartridge cases (your item 2, your item 3, and your item 4) were not fired in the same firearm.</p>
UP3WQR	<p>Comparative examinations of Item 1 (three 9mm Luger caliber cartridge cases said to be fired from a Ruger Model P85 9mm Luger caliber pistol) against Items 2 -5 (four 9mm Luger caliber cartridge cases) showed the presence of different individual features. This indicates that Item 1 and Items 2 - 5 were not fired in the same firearm. Comparative examinations of Items 2 - 4 showed the presence of matching features. This indicates that Items 2 - 4 were fired in the same firearm.</p>
UPUPV4	<p>1. The fired cartridge cases marked Items 2 - 5 respectively, were not fired in the same firearm as the fired cartridge cases marked Item 1. 2. The fired cartridge cases marked Items 2 - 4 respectively were fired in the same firearm. 3. The fired cartridge case marked Item 5 was not fired in the same firearm as the cartridge cases marked Items 2 - 4 respectively.</p>

TABLE 2

WebCode	Conclusions
URTL7J	Exhibits listings: 1-(1) Three expended cartridge cases discharged from the suspect's weapon (known). 2-(2) First expended cartridge case recovered from parking lot (questioned). 3-(3) Second expended cartridge case recovered from the parking lot (questioned). 4-(4) One expended cartridge case recovered from the flower pot (questioned). 5-(5) One expended cartridge case recovered from the grass (questioned). Findings: Comparison microscope examinations were conducted on the evidence listed above. The findings of this examiner are the following: 1. Casings 2, 3, 4, and 5 are 9mm cartridge cases which were not fired in the suspect's weapon, the 9mm Ruger P85 pistol. 2. Casings 2, 3 and 4 were fired in the same gun. 3. The following is an investigative lead only and not intended to exclude all other makes of firearms. Based on class characteristics of the submitted evidence, the possible firearms for casings 2, 3, and 4 are 9mm Ruger pistols. 4. Casing 5 was fired in a different 9mm pistol, of unknown manufacture, from casings 2, 3, and 4.
UUGPMC	The Items 2 - 4 discharged cartridge cases were fired in the same firearm. These items were not, however, fired in the same firearm as the Item 1 test fired cartridge cases. The Item 5 discharged cartridge case was not fired in the same firearm as Item 1 test fired cartridge cases or the same firearm as the Items 2 - 4 discharged cartridge cases.
UW2NWZ	The spent cartridge cases were compared. The spent cartridge cases listed as Items 2-5 were NOT fired in the same firearm as the three spent cartridge cases listed as Item 1. The spent cartridge cases listed as Items 2-4 have been identified as having been fired in the same firearm. Item 5 was NOT fired in the same firearm as Items 2-4.
UXGBLM	(1) Examinations showed that the Items 2, 3, 4 & 5 cartridge cases were not discharged within the same firearm that discharged the Item 1 cartridge cases. (2) Examinations showed that the Items 2, 3 & 4 cartridge cases were discharged within the same unknown firearm. (3) Examinations showed that the Item 5 cartridge case was not discharged within the same firearm that discharged the Items 2, 3 & 4 cartridge cases.
V42QR7	Items 2, 3, 4 and 5 were not fired from the same firearm as Item 1. Items 2, 3, and 4 were fired from the same unknown firearm. Item 5 was fired from an additional unknown firearm.
V46ATF	I conducted an examination using a comparison microscope comparing known test Item 1 with questioned Items 2, 3, 4 & 5. In my opinion none of the submitted expended cartridge cases were discharged in the firearm that produced Item 1. Items 2, 3, 4 & 5 are thereby eliminated having significant disagreement of discernable class characteristics or individual characteristics. Items 2, 3 & 4 were discharged in the same as yet unidentified firearm but not the firearm that produced Item 1. Item 5 was discharged in yet another unidentified firearm, a different one to those that produced Items 1, 2, 3 & 4.
V9CYWG	The Item 1 firearm could not be identified or eliminated as having fired the Item 2, Item 3, Item 4 or Item 5 cartridge cases, however differences in individual characteristics indicate a different firearm was used. The Item 5 cartridge case could not be identified or eliminated as having been fired in the same unknown firearm that fired the Item 1, Item 2, Item 3, or Item 4 cartridge cases, however differences in individual characteristics indicate a different firearm was used. The Item 2, Item 3 and Item 4 cartridge cases were identified as having been fired in the same unknown firearm. ***This report contains the opinions and interpretations of the individual whose signature appears on the report. All identifications are based on microscopic comparisons and the correspondence of individual characteristics.
VAN3P2	Cartridge casings (1, 1, 1) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breechface Impressions. Cartridge casings (2, 3, 4) were fired from a SECOND gun based on sufficient agreement of class and individual characteristics of the Firing Pin and Breechface Impressions. Cartridge casing (5), was fired from a THIRD gun.

TABLE 2

WebCode	Conclusions
VHUQZ9	The Q-1, Q-2, and Q-3 cartridge cases were fired in the same firearm, but not in the same firearm as the T-1, T-2, and T-3 test fired cartridge cases. The Q-4 cartridge case was not fired in the same firearm as the T-1, T-2, and T-3 cartridge cases, or the same firearm as the Q-1, Q-2, and Q-3 cartridge cases.
VUMN3D	CONCLUSIONS: MICROSCOPIC COMPARISONS OF THE TEST FIRED CARTRIDGE CASES (9MM LUGER) FROM SUSPECTED RUGER P85 FIREARM K1 (ITEM 1) AGAINST EVIDENCE FIRED CARTRIDGE CASES Q1, Q2, Q3, AND Q4 (ITEMS 2, 3, 4, AND 5) , REVEALED THE FOLLOWING RESULTS: Q1, Q2, AND Q3 (ITEMS 2, 3, AND 4), WERE FIRED WITH THE SAME UNKNOWN FIREARM. THEY WERE NOT FIRED WITH THE SAME UNKNOWN FIREARM AS Q4 (ITEM 5), DUE TO DIFFERENCES IN FIRING PIN AND BREECH FACE IMPRESSIONS. Q1 THROUGH Q4 (ITEMS 2 THROUGH 5), WERE ALL NOT FIRED WITH SUSPECTED RUGER P85 FIREARM K1 (ITEM 1), DUE TO DIFFERENCES IN FIRING PIN AND BREECH FACE IMPRESSIONS. IF ANY ADDITIONAL SUSPECTED FIREARMS ARE RECOVERED, PLEASE SUBMIT.
WACLE	The tests fired (cartridge cases) marked 364TC1, TC2 and TC3 were fired in the first firearm. The exhibits (cartridge cases) marked 141364/14 (2) 141364/14 (3) and 141364/14 (4) were fired in the second firearm. The exhibit (cartridge case) marked 141364/14 (5) was fired in the third firearm.
WD8LBA	Item #1 is a Ruger, caliber 9mm Luger semi automatic pistol, model P85, serial number unknown. This firearm was found to be in normal operating condition. Items #2 thru #4 are three (3) caliber 9mm Luger cartridge cases, PMC brand, which were identified as having been fired in the same firearm, however, not fired in the Item #1 pistol. Item #5 is a caliber 9mm Luger cartridge case, PMC brand, which was not fired in the same firearm as Items #2 thru #4 or the Item #1 pistol.
WR2FW4	The three fired cartridge cases from Item 1 were identified as having been fired in the same firearm based on sufficient agreement of individual characteristics on firing pin impressions. Items 2, 3, and 4 were identified as having been fired in the same firearm based on sufficient agreement of individual characteristics on firing pin impressions. The three fired cartridge cases from Item 1 were eliminated as having been fired in the same firearm that fired Items 2, 3 and 4 based on significant disagreement of individual characteristics on firing pin impressions. The three fired cartridge cases from Item 1 were eliminated as having been fired in the same firearm that fired Item 5 based on significant disagreement of class and individual characteristics on firing pin impressions. Item 5 was eliminated as having been fired in the same firearm that fired Items 2, 3, and 4 based on disagreement of class and individual characteristics on firing pin impressions.
WRW876	I examined the fired cartridge cases marked "Item 1" to "Item 5" and compared the individual and class characteristics markings on them using a comparison microscope and found: 1. The three (3) cartridge cases marked "Item 1" were fired in the same firearm. 2. The three (3) cartridge cases marked "Item 2" to "Item 4" respectively were fired in a second firearm. 3. The cartridge case marked "Item 5" was fired in a third firearm.
WTT3AL	The Items 2, 3, 4, and 5 cartridge cases were compared to the Item 1 cartridge cases. It was determined that the Items 2, 3, 4, and 5 cartridge cases were not fired in the same weapon as the Item 1 cartridge cases.
WXYJYV	3. On 2014-08-12 during the performance of my official duties I received a sealed evidence bag with number PAD000580335 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 Three (3) 9mm Parabellum calibre tests fired cartridge cases marked by me each 877TC1. 3.2 Four (4) 9mm Parabellum calibre fired cartridge cases

TABLE 2

WebCode	Conclusions
	<p>marked by me each "146877/14" each and "2" to "5" respectively. 4. The intention and scope of this forensic examination comprise of the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraph 3.1 and 3.2 and compared the individual and class characteristics markings transferred to them by firearm components during the firing process using a comparison microscope found: 5.1 The cartridge cases mentioned in paragraph 3.2 marked each "146877/14" and also "2", "3" and "4" respectively, were fired in the same firearm. 5.2 The cartridge case mentioned in paragraph 3.2 marked "146877/14 5" was not fired in the same firearm as the exhibits mentioned in paragraph 5.1. 5.3 The cartridge cases mentioned in paragraphs 5.1 and 5.2 respectively were not fired in the firearm that fired the tests mentioned in paragraph 3.1.</p>
X7J2NV	<p>Items 2, 3, 4 and 5 were not discharged from the same firearm as the known expended cartridge cases (item 1). Item 2, 3 and 4 were fired in another same firearm. Item 5 was shot in a third firearm.</p>
XGXRFG	<p>The submitted fired cartridge cases (Items 2-5) were microscopically compared to test fired cartridge cases from the suspect's Ruger P85 pistol (Item 1) with the following results: Based on significant differences of individual characteristics, Items 2, 3 and 4 were eliminated as having been fired in the suspect's Ruger P85 pistol. Based on differences in class characteristics, Item 5 was eliminated as having been fired in the suspect's Ruger P85 pistol. The submitted fired cartridge cases (Items 2-5) were microscopically compared to each other with the following results: Items 2, 3 and 4 were identified as having been fired in the same firearm. Item 5 was eliminated as having been fired in the same firearm that fired Items 2, 3 and 4. The submitted fired cartridge cases (Items 2-5) were not fired in the suspect's Ruger P85 pistol. Furthermore, two different firearms were used to fire these cartridge cases.</p>
XJW9BA	<p>The cartridge cases, items 2, 3 and 4, were all discharged in the same firearm that discharged the three cartridges cases, item 1. The cartridge case, item 5, was not discharged in the same firearm that discharged the three cartridges cases, item 1.</p>
XKZRCG	<p>1. Exhibits 2, 3, 4, 5 (four 9mm PMC cartridge cases) were visually examined and microscopically compared to Exhibit 1 (three test-fired PMC cartridge cases, from Ruger P85 9mm pistol). Microscopic examination disclosed Exhibits 2, 3, 4, and 5 were not fired from the same firearm as Exhibit 1. 2. Microscopic examination disclosed that Exhibits 2, 3 and 4 were fired from the same firearm. 3. Microscopic examination disclosed that Exhibit 5 was not fired from the same firearm as Exhibits 2, 3 and 4.</p>
XM2AEX	<p>Cartridge casings (2, 3, and 4) were fired from the SAME gun based on sufficient agreement of class and individual characteristics of the firing pin and breechface impressions. Cartridge casing (5) was fired from a second gun. Cartridge casings (2, 3, 4) and (5) were fired from DIFFERENT guns then Test Fires (1, 1, 1) based on sufficient disagreement of individual characteristics.</p>
XP9KHT	<p>None of items 2 to 5 was shot in the seized P85 semi automatic pistol. Items 2 to 4 were shot in the same firearm (a semi automatic pistol) Item 5 was shot in another firearm (also a semi automatic pistol)</p>
XVRL8Z	<p>The fired cartridge cases marked 157898/14-2, 3, 4 were fired in the same firearm - firing pin and breechface marks correspond however, they were not fired in the same firearm as tests marked 1A - 1C (Item 1). The fired cartridge cases marked 157898/14-5 was fired in a second firearm (negative with Item 1) - different class characteristics.</p>
XZG67A	<p>Microscopic examination and comparison of three cartridge cases test fires (know) with four cartridge cases (questioned) It is concluded what four cartridge cases (questioned) no found</p>

TABLE 2

WebCode	Conclusions
	match with the three cartridge cases (know) Microscopic examination and comparison of Items 2, 3, and 4 cartridge cases (questioned). It is concluded that Items 2, 3 and 4 were fired in the same firearm. Microscopic examination and comparison of Item 5 cartridge case (questioned) with the items 2, 3 y[sic] 4 cartridge cases (questioned) no found match. It is concluded that Item 5 was fired firearm different of items 2,3 and 4 cartridge cases (questioned)
Y2QEUZ	After analyzing under comparison microscope, it is found that the known expended cartridge cases (Item 1) discharged from suspect's weapon does not match with any of the questioned expended cartridge cases (Item 2 - 5).
Y8LJ3G	Items 2, 3, and 4 were eliminated as having been fired by the firearm represented by the Item 1 cartridge cases. Items 2, 3, and 4 were microscopically compared to the cartridge cases submitted in Item 1. Sufficient disagreement of individual characteristics were observed to support an elimination conclusion. Items 2, 3, and 4 were identified as having been fired by the same unknown firearm. These cartridge cases were microscopically compared to each other and sufficient agreement of class and individual characteristics were observed to support and identification conclusion. Item 5 was eliminated as having been fired by the same firearms that were used to fire Items 1, 2, 3, and 4. Item 5 was microscopically compared to Items 1, 2, 3, and 4. Sufficient disagreement of class characteristics were observed to support an elimination conclusion.
YEA3KY	The cartridge cases in Items #1, 2, 3, 4, and 5 were microscopically examined in conjunction with one another. Based on these comparative examinations, it was determined that: A) None of the cartridge cases in Items #2, 3, 4, or 5 had been fired in the same firearm as the cartridge cases in Item #1. B) The cartridge cases in Items #2, 3, and 4 had all been fired in the same unknown 9mm caliber firearm. C) The cartridge case in Item #5 had been fired in a second unknown 9mm caliber firearm.
YFJJP3	Item 1 - three (3) fired cartridge cases bearing PMC headstamp (Known, Ruger P85). Item 2 - one (1) fired cartridge case bearing the PMC headstamp. Item 3 - one (1) fired cartridge case bearing the PMC headstamp. Item 4 - one (1) fired cartridge case bearing the PMC headstamp. Item 5 - one (1) fired cartridge case bearing the PMC headstamp. The submitted specimens marked as Items 2 through 5 were examined and identified as four (4) fired caliber 9mm Luger cartridge cases. Items 2 through 5 were microscopically examined against the Item 1 cartridge cases. As a result of microscopic comparison it was concluded that Items 2 through 5 were not fired in the same firearm as Item 1. However, Items 2 through 4 were identified as having been fired in the same firearm. Item 5 was not fired in the same firearm as Items 1 through 4.
YHVVDA	1. Cartridge cases marked 2, 3, 4 & 5 were not fired in the same fired cartridge cases marked 1. 2. Cartridge cases marked 2, 3 & 4 were fired in the same firearm. 3. Cartridge case marked 5 was fired in another firearm.
YT6FRF	Item 1 consists of three 9mm luger (9x19mm) cartridge cases that bear the headstamp of PMC ammunition. Items 2, 3, 4 are 9mm Luger (9x19mm) cartridge cases that bear the headstamp of PMC ammunition. The Items 2, 3 and 4 cartridge cases were identified as having been fired in the same firearm. The Item 2, 3 and 4 cartridge cases were eliminated as having been fired in the same firearm as the Item 1 cartridge cases due to difference in class characteristics. Item 5 is a 9mm Luger (9x19mm) cartridge case that bear the headstamp of PMC ammunition. The Item 5 cartridge case was eliminated as having been fired in the same firearm as Item 1, 2, 3, and 4 cartridge cases due to differences in class characteristics.
YZ3RNR	The Item 1 test cartridge cases are 9mm of PMC manufacture and were microscopically compared to the Item 2-5 cartridge cases from the scene. Comparisons determined that Item 1 is eleminated[sic] as having fired the Item 2-5 cartridge cases. The Item 2-4 cartridge cases

TABLE 2

WebCode	Conclusions
	from the scene were identified as having been fired in an unknown firearm. The Item 5 cartridge case from the scene is eliminated as having been fired in the unknown firearm that fired Items 2-4. Item 5 was fired from a second unknown firearm.
Z2VH9H	The cartridge cases in Items #2 through #4 were identified as having been fired in the same firearm. The cartridge cases in Items #2 through #4 could not be identified as or excluded from having been fired in the same firearm as cartridge cases in Item #1 based on class characteristic similarities (caliber, breech face marks and firing pin impression). The cartridge case in Item #5 was excluded from having been fired in the same firearm(s) as the cartridge cases in Items #1 through #4 based on class characteristic differences (firing pin impression).
Z84FXU	All of the fired cartridge cases in Items 1 through 5 are the same brand, PMC, and caliber, 9mm Luger. Items 2, 3, and 4 These cartridge cases were microscopically inter-compared and were determined to have been fired in the same unknown firearm. Item 2 was microscopically compared to Item 1-B, and was determined not to have been fired in the same firearm. Items 2, 3, and 4 were not fired in the same firearm as the test-fired cartridge cases from Item 1. Item 5 This cartridge case was microscopically compared to Items 1-B and 2. Item 5 was not fired in the same firearms as Items 1-B or 2. In summary, Items 2, 3, and 4 were fired in the same unknown firearm, and Item 5 was fired in a second unknown firearm.
Z986ZR	3. One 2014-08-15 during the performance of my official duties I received a sealed evidence bag with number PAD000580331 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 Three [3] 9mm Parabellum calibre fired cartridge cases marked by me "1TC1", "1TC2" and "1TC3". 3.2 One [1] 9mm Parabellum calibre fired cartridge cases marked by me "146913/14 2". 3.3 One [1] 9mm Parabellum calibre fired cartridge case marked by me "146913/14 3". 3.4 One [1] 9mm Parabellum calibre fired cartridge cases marked by me "146913/14 4". 3.5 One [1] 9mm Parabellum calibre fired cartridge case marked by me "146913/14 5". 4. The intention and scope of this examination comprise of the following: 4.1 The examination and identification of fired cartridge cases. 4.2 Microscopic individualization of fired cartridge cases. 5. I examined the fired cartridge cases mentioned in paragraphs 3.1, 3.2, 3.3, 3.4 and 3.5 and compared the individual and class characteristics markings on them using a comparison microscope and found: 5.1 The cartridge cases mentioned in paragraph 3.1 marked "1TC1", "1TC2" and "1TC3" were fired in one firearm. 5.2 The cartridge cases mentioned in paragraphs 3.2, 3.3 and 3.4 marked "146913/14" each and "2", "3" and "4" respectively were fired in a second firearm. 5.3 The cartridge case mentioned in paragraph 3.5 marked "146913/14 5" was fired in a third firearm.
ZBG4FU	By gravimetric study, microscopic examination and microscopic examination of comparison is determined as follows: 1. Item #1, were identified as have been fired by a same firearm. 2. Items # 2, # 3, and # 4, were identified as have been fired by a same firearm. Items #2, #3, and #4, were eliminated as have been fired by the same firearm as Item # 1. 3. Item #5, was identified as being fired by a firearm. Item # 5, was eliminated as have fired by the same firearm as item # 1, # 2, # 3 and # 4.
ZC9QRB	1. Items 2, 3 and 4 were not fired in the same firearm (exhibit Ruger P85 pistol) that fired item 1. 2. Items 2, 3 and 4 were all identified as having been fired in the same firearm. 3. Item 5 was not fired in the same firearms as item 1 or the same firearm that fired items 2, 3 or 4.
ZGRNPR	The expended cartridges from cases number 2, 3 and 4 have been fired with the same firearm but not with the suspect's weapon. The expended cartridge from case number 5 hasn't be fired with the suspect's weapon or with the weapons used in the cases 2, 3 and 4.
ZR3QKJ	After microscopic comparison, it was determined that Items #2, 3, 4, and 5 were not fired from the same firearm as Item #1 test fires (Ruger P85) based on differences in individual characteristics. Items #2, 3, and 4 were fired from the same firearm based on sufficient

TABLE 2

WebCode	Conclusions
	agreement of class and individual characteristics of breech face impression marks.
ZWWLMQ	Items 2, 3, 4 has been discharged from the same weapon but not from the suspect weapon. Item 5 has been discharged not from the suspect weapon and not from the weapon which Items 2, 3 and 4 has been discharged.
ZZMPUN	The four submitted fired cartridge cases were microscopically compared to the test set labeled as Item #1 with the following results: None of the four submitted cartridge cases (items 2, 3, 4 or 5) were fired in the same firearm that generated test set #1 firearm #1 is eliminated. Fired cartridge cases #2, #3, and #4 were identified as originating from the same firearm. Fired cartridge case #5 was not fired in either gun #1 or the gun from #2, #3, #4 and represents a 3rd firearm.

Additional Comments

TABLE 3

WebCode	Additional Comments
3A3BWN	Additionally, Items 2, 3 and 4 were intercompared using a comparison microscope. Sufficient agreement of class and individual characteristics was observed to conclude that Items 2, 3 and 4 were fired by the same gun. Furthermore, Item 2 was compared to Item 5 using a comparison microscope. Class differences (firing pin) were observed to conclude that Items 2 and 5 were fired by different guns.
467GN9	Items 2, 3 and 4 were fired in the same gun. However, the Items in 2, 3 and 4 could not be identified as having been fired in the same gun as Item 1.
4HVKMR	Note: Item 1 = FCCs 1, 2 & 3
4LZXUJ	The exercise was practical for the application to the comparative studies of cartridge cases that realizes the ballistic group of [City] in [Country]; activity that is very frequent in this laboratory by material evidence submitted for analysis of criminal cases which use one or more firearms.
4Z8RTY	NIBIN: Items 1A and 5, the cartridge cases, will be entered into NIBIN. The results of NIBIN entries and searches will be the subject of a separate report.
676WVQ	The firing pin of the exhibit marked "146701/14 5" is smooth with no circles and the breech face marks are different to that of the exhibits marked "146701/14" and also "2", "3" and "4". The firing pin of the exhibits marked "146701/14" and also "2", "3" and "4" have well defined circles, marks in the firing pin and also on the breech face. The firing pin of the exhibits marked "146701/14" and also "1C"[sic], "1B" and "1C" have far less circles and the firing pin is much smoother than the exhibits exhibits[sic] marked "146701/14" and also "2", "3", "4" and "5".
67HRXB	Laboratory SOP requires a definitive class difference for exclusions. However, if impressed individual marks are present in both items being compared and show no similarity, the phrase "nothing found to indicate" can be used rather than the more neutral "no conclusion" wording.
6N67EN	Ballistic QMS procedures require from me to mention how the exhibit/s were received. My Article 212-affidavit must also mention the scope and intention of the examination.
6PVCUE	Two guns of the same caliber but different from one another and different suspect's weapon, were used in the commission of the facts.
6TX6TJ	The firearm that fired cartridge cases marked as Item 2, 3 and 4 were possibly fired in the firearm with similar class characteristics marks as firearm that fired cartridge cases marked as Item 1.
7E7HN3	LIMITATIONS: 1 Practical Certainty: Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications. Firearms/Toolmark Identification is an empirical science that relies on objective observations and a subjective interpretation of microscopic marks of value. NOTES: The calibre 9x19 mm is also known as 9 mm Luger and 9 mm Parabellum calibre. This report contains interpretations and opinions based on scientific data. Technical assistance has been provided to the writer of this report, in accordance with the policies and procedures of the[Laboratory], in the examination and analysis of items discussed in this report. Some samples may have been altered or consumed during testing or may deteriorate with time. To obtain information about sample availability for re- testing or additional testing please contact the writer of this report.

TABLE 3

WebCode	Additional Comments
7FGUCE	A search of the FBI's General Rifling Characteristics database was made, and a list of firearms that could have been used to fire the cartridge cases marked "Item 2" to "Item 5" was obtained.
7L4HDB	*Laboratory policy prohibits elimination based upon individual characteristics.
8EAPYH	[Participant included report that could not be reproduced here.]
8QKDVM	Cartridge cases marked 157TCA1-TCC1 have the same class characteristics. Cartridge cases marked 157948/14D2, E3, F4 also have same class characteristics. Cartridge cases marked 157948/14D2, E3, F4 also have the different class characteristics from the cartridges cases above. On the scenario that I received, the information that was given was incomplete because there is no firearm manufacturer and also the serial number of the firearm, that is why I decided to mark my tests with the lab no that was created in our laboratory.
8RZCB6	3.1 The cartridge cases (Items 2-4) were fired in the the[sic] same firearm. 3.2 The cartridge case (Item 5) was not fired in the same firearm that fired Items 2-4.
97JQFV	The characteristic marks on the recovered cartridge cases Item 2, Item 3 and Item 4 matched with each other but did not match with the recovered cartridge case Item 5. Hence I am of the opinion that Item 2, Item 3 and Item 4 were fired from the same firearm while Item 5 was fired from another firearm.
98CVW9	Items 2, 3, 4 and the test fired cartridge cases obtained from the suspect firearm displayed agreement of all discernible class characteristics and some agreement of individual characteristics, but insufficient for an identification.
98K2L6	The fired cartridge cases contained in Items 2 to 4 had all been fired in another pistol not being Item 1. The fired cartridge case Item 5 had been fired in a further pistol not being the pistol used to fire Item 1 or the pistol used to fire Items 2 to 4.
9JJDZQ	Item 1 cartridge cases were discharged in the same known/recovered firearm. Items 2, 3 and 4 cartridge cases were discharged in a second firearm. Item 5 cartridge case was discharged in a third firearm.
9QLUWW	Based upon [observed[sic] on similar class characteristics and sufficient correspondence of matchin[sic] patterns (breech face and firing pin impressions) of individual characteristics the cartridge cases labeled as Items 2, 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 labeled as Items 1, 2, 3 or 4. The cartridge case was fired in a third firearm.
9X3EV3	1) Exclusion (Elimination): If two cartridge cases have clearly different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. [A full methods and limitations section was included, but could not be reproduced here.]
ATWGG2	The discharged cartridge cases Items 2, 3 and 4 had been fired by the same firearm. Item 5 was fired by a further firearm, meaning that two firearms other than Item 1 were used.
AVKQG3	Could not determine the repeatability of Item 5. Item 5 displayed differences in individual characteristics however, insufficient for elimination.
B23NEN	Based on the observations above [From Table 2: Conclusions], the submitted Specimens (Items) were fired in two firearms other than the seized Ruger P85 pistol.
CPUHKM	If two or more cartridge cases have different class characteristics an exclusion opinion is

TABLE 3

WebCode	Additional Comments
	rendered based on a measured class differences. The fired cartridge cases on Item 1 were identified to one another and on the submitted knowns, an identification was established between them. When comparing Items 2-4 with each other I found enough agreement of individual characteristics to make identification, also shared class characteristics with each other. During the comparison of the Items 2-4 to the known Item 1 there was disagreement of the individual characteristics. Item 5 was eliminated from Items 2-4 and also from fired cartridge cases on Item 1, based on differences or disagreement of class characteristics.
CRMBF7	Taking the above [From Table 2: Conclusions] into consideration it can be stated that: Items 2, 3, 4 were fired in one firearm. Item 5 was fired in a second firearm. The known firearm that fired the known cartridge cases, is a third firearm that's associated with the shooting scenario.
CUX948	CTS # - My #: Item 1 - Item 1A, Item 2 - Item 1B, Item 3 - Item 1C, Item 4 - Item 1D, Item 5 - Item 1E
DCUGVX	ID Items 2, 3 & 4 to each other, but could not ID to Item 1. I would notify the submitting agent and discuss with him my findings and explain to him the dissimilarities observed in individual characteristics and that I can't eliminate Items 2, 3 & 4 from being fired in the gun that fired the casings in Item 1 due to variables that could possibly change or alter the markings of the firearm, but I would also advise him that if another firearm was recovered, submit it for comparison.
EJR8JX	All "inconclusive" findings above [From Table 2: Conclusions] show similar class characteristics, but an insufficient correspondence of individual characteristics.
ELN2VH	Items 2,3 and 4 were from the same self loading pistol. Item 5 was discharged in a different weapon
FDYTP4	The unknown cartridge cases (01-02, 01-03, 01-04) were neither identified to nor eliminated from being fired in the same firearm as known cartridge cases (01-01) due to agreement of all discernible class characteristics with disagreement of individual characteristics, but insufficient for an elimination.
GK36ME	The fired cartridge cases were fired in three different firearms 1st firearm, 2nd firearm and tests were fired in another firearm (firearm mentioned in covering letter) 3rd firearm. Cartridge cases positive with each other have same class and individual characteristics but those negative have different class and individual characteristics or same but different individual characteristics.
GLDU2K	No Additional Comments[sic].
H7AHGX	Item 2 = Item 3 = Item 4
H7JUDH	The characteristic marks on Item 2, Item 3 and Item 4 were similar between each other. I am of the opinion that Item 2, Item 3 and Item 4 were discharged from the same firearm.
HVAL2W	Items 2, 3 and 4 have the same class as Item 1 with parallel BOB, FPI with concentric circles and same size of flowback. There are differences in individual characteristics on BOB and within the FPI, but without the firearm in hand, the differences are not enough to eliminate.
JGJ7MV	1) Exclusion (Elimination): If two cartridge cases have clearly different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. [A full methods and limitations section was included, but could not be reproduced here.]

TABLE 3

WebCode	Additional Comments
JWARNB	Those who were fired in the same firearms, breech face and firing pin marks correspond with each other. The one that was fired in a third firearm had different class and individual characteristic with others.
KEQU2V	Laboratory policy states that exclusions can only be made by differences in class characteristics.
KG9JY9	Items 2-4 were discharged from one firearm, item 5 was discharged from the different firearm but not the one which discharged items 2-4.
KN2WJF	Cartridge cases that inscribed Item #2, Item #3 and Item #4 were fired in the same firearms but different from the suspect pistol and different from the pistol that fired cartridge case that inscribed Item #5.
KPXNZ9	Three firearms total. Ruger P85 that was eliminated and two others from the scene.
KUAQPP	1A= known test fires. 1B= Items 2,3,4. 1C= Item 5
KWV2HH	Eliminations were based on significant differences in individual characteristics and a lack of correspondence of breechface marks, firing pin impressions, and firing pin aperture sheer marks.
L3QH7T	1) Exclusion (Elimination): If two cartridge cases have clearly different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. [A full methods and limitations section was included, but could not be reproduced here.]
LJTTLE	The phrase "practical impossibility", which currently cannot be expressed in mathematical terms, describes an event that has an extremely small probability of occurring in theory, but which empirical data and experience has shown will not occur. In the context of firearm and toolmark identification, "practical impossibility" means that based on 1) extensive empirical research and validation studies that have been conducted in the field, and 2) the cumulative results of training and casework examinations that have been performed, peer reviewed, or published in a peer-reviewed forensic journal, no firearms or tools other than those identified in any particular case will be found that produce marks exhibiting sufficient agreement for identification.
LWRCQC	There are sufficient matching individual identifiable characteristics on Items 2,3 and 4 to indicate that these three cartridge cases were fired in the same firearm. (Not Item 1) Item 5 was fired in a different firearm.
M2XBLB	The cartridges Item 2, Item 3 and Item 4 are fired in the same unknown handgun. The cartridge Item 5 is fired in an other unknown handgun.
MJA8TN	Item 2,3 and 4 firing pin marks, breech face matched when compared in conjunction with each other. In item 5, the drag mark, breech face mark marched[sic] item 1.
N2AP66	Cartridge cases in Item # 1, are test fires from Ruger P85, pistol. Cartridge cases in Items # 2, # 3, and # 4, have been fired by a second firearm. Cartridge case in Item # 5, was fired by a third firearm.
NWWWA7	Conclusion: Ruger P85 pistol seized from the suspect is not the weapon that has served to fire items n°2, n°3, n°4, n°5 found outside of the nightclub. Two different weapons have been used on scene.
PN9FTM	Items 2, 3 and 4 have been fired with the same gun.

TABLE 3

WebCode	Additional Comments
Q8D8T8	Items # 2,3, & 4 were identified as having been fired in the same firearm due to sufficient agreement of individual characteristics observed in the firing pin and breech face impression.
QGDP86	There is insufficient individual markings on the cartridge cases mentioned in paragraph 3.2 marked "146883/14" each and "2", "3" and "4" respectively to make a positive identification with the cartridge cases mentioned in paragraph 3.1 marked 1TC1, 1TC2 and 1TC3 respectively.
QPKMTM	Straight forward case which involved three firearms.
QRQ6U4	The is not having enough information about the known firearm.[sic] Recommendation at least the serial number, the type of a firearm whether is a Full Automatic, semi-auto or non semi-automatic should be stated.
QVZDTV	Items 2-4 had similar class characteristics enough so that these Items came from the same type of firearm. Without being able to generate more test fires with different ammo, I would have to list this as inconclusive based on similar class characteristics & limited individual characteristics.
R6R6YT	Three guns of the same caliber but different from one another, were used in the commission of the facts.
RGC8QL	The inconclusive results listed above reflect the practice that this laboratory rarely makes eliminations based on differences in individual characteristics. Significant differences in individual characteristics were noted in the firing impressions of the test fires from item #1 (reproducing granular/striated pattern with circles) vs Items 2, 3, and 4 (reproducing distinct granular pattern with circles). Additional differences were noted in the breech face marks, firing pin aperture, and shear marks between these groups. There is no indication that these groups of cartridge cases (Item 1) and (Items 2, 3, and 4) were fired in the same firearm.
RMR3DG	1. The tested firearm represented by the cartridge cases of Exhibit 1 should be submitted, along with the cartridge case, Exhibit 5 for re-examination.
UCQ7FX	Hence, two (2) different firearms are still at large.
UKJJDC	Through out the comparative microscopic analysis it was established that at the shooting outside the night club, two weapons participated caliber 9X19 mm. The suspect's weapon did not participate in the mentioned shooting. [sic]
V9CYWG	Inconclusive results were due to a lack of corresponding individual characteristics.
XVRL8Z	The tests marked 157898/14 -1A - 1C are negative with all the questioned cartridge cases marked 157898/14-2, 3, 4, 5 - there are significant disagreement of discernible class characteristics.
YT6FRF	1) Exclusion (Elimination): If two cartridge cases have clearly different class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on a measured class difference or the physical comparison of a discernible difference in class characteristics cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. [A full methods and limitations section was included, but could not be reproduced here.]
Z2VH9H	Laboratory policy states that exclusion can only be made based on class characteristic differences.
ZGRNPR	The expended cartridges from cases number 2, 3 and 4 could have been fired with another Ruger P85. Case number 5 has probably been fired with a semi-automatic pistol, which seems to be a Browning GP 35 model, a CZ75 or another 9 mm parabellum caliber firearm.

TABLE 3

WebCode	Additional Comments
ZWWLMQ	The quality of the samples was good. The difficulty was appropriate.

Appendix

Collaborative Testing Services ~ Forensic Testing Program

Test No. 14-527: Firearms Examination

DATA MUST BE RECEIVED BY September 08, 2014 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

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

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

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

Online Data Entry

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

Scenario:

Police are investigating a shooting outside of a night club. Investigators recovered four expended cartridge cases at the scene - two from the parking lot, one from a flower pot and one in the grass. A suspect was apprehended later that day and police seized a Ruger P85 from his possession. Three rounds of PMC® 9mm ammunition (which were consistent with the cartridge cases found at the scene) were fired with the suspect firearm and the cartridge cases collected. Investigators are asking you to compare the recovered cartridge cases from the scene with those test fired from the suspect's weapon and report your findings.

Each item is in a labeled jewel box, it is suggested that when the items are removed from their labeled boxes, they be marked according to your laboratory procedure. However, in case the items are separated from their boxes before labeling has occurred, each item has been inscribed with its item number.

Items Submitted (Sample Pack F2):

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: One expended cartridge case recovered from the flower pot (questioned).

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

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

Item 2 Yes No Inconclusive*

Item 3 Yes No Inconclusive*

Item 4 Yes No Inconclusive*

Item 5 Yes No Inconclusive*

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

Please return all pages of this data sheet.

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RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **14-527: Firearms Examination**

This release page must be completed and received by **September 8, 2014** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

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

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

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

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

ANSI-ASQ NAB/FQS RELEASE

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

ANSI-ASQ NAB/FQS Certificate No. _____

Signature and Title: _____ Date _____

Laboratory Name _____

Location (City/State) _____

Accreditation Release

Return Instructions

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

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

Please return all pages of this data sheet.

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