



Serial Number Restoration Test No. 19-5250 Summary Report

Each participant received a sample pack containing a piece of metal bar stock, which had been stamped with a six character serial number that was then obliterated. Also included was a piece of aluminum bar stock intended as a standard for the size, shape and positioning of the stamped characters. Participants were asked to restore the obliterated serial number and report their findings. Data were returned from 291 participants and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set consisted of a piece of steel bar stock that contained an obliterated serial number (Item 1) and a piece of aluminum bar stock intended as a standard for the size, shape, and positioning of the stamped digits. Participants were requested to attempt to restore the obliterated serial number utilizing their laboratory restoration methodologies and report the recovered serial number. The serial number to be restored consisted of 6 characters (A34HJ6).

SAMPLE PREPARATION:

Each sample set contained a piece of steel bar stock that was stamped with 6 characters (A34HJ6). The serial number was then obliterated by a milling machine.

A piece of aluminum bar stock was also included in the sample as a reference standard. The alphanumeric characters provided are digits 0-9 and letters A-F, H, J, K and N.

SAMPLE SET ASSEMBLY:

Each Item 1 bar stock and aluminum standard bar stock were separately enclosed in chip board, with the sides taped for security and then placed in their respective pre-labeled envelopes. Every sample pack was packaged to contain an Item 1 and aluminum standard. This process was repeated until all of the sample packs were prepared. Once verification was completed, all sample packs were sealed with a piece of evidence tape and initialed "CTS."

VERIFICATION:

All three predistribution laboratories restored the obliterated six character serial number and reported "A34HJ6" and used a chemical restoration process.

Summary Comments

This test was designed to allow participants to assess their proficiency in the restoration of an obliterated serial number. Participants were provided with a piece of metal bar stock that contained an obliterated serial number (Item 1) and a piece of aluminum bar stock intended as a standard for the size, shape and positioning of the stamped characters. Participants were requested to restore the obliterated serial number utilizing their laboratory recovery methodologies and report the recovered serial number. The serial number to be restored consisted of 6 characters (A34HJ6). (Refer to Manufacturer's Information for preparation details.)

Of the 291 responding participants in Table 1: "Recovered Characters", 290 (99%) restored the six characters consistent with the Manufacturer's Information. The remaining participant restored four of the six characters.

In Table 3: "Sample Preparation", the majority of participants used polishing, sanding or visual methods to prepare their sample. In Table 4: "Recovery Methods", the majority of participants used chemical processing for the serial number restoration. However, it was noted that there were many laboratories that used both chemical and magnetic restoration methods.

Recovered Characters

Please record the recovered characters below.

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
2C4NQT	A	3	4	H	J	6
2G4NFQ	A	3	4	H	J	6
2HYDDR	A	3	4	H	J	6
2MALKN	A	3	4	H	J	6
2NHTP3	A	3	4	H	J	6
2PDG4R	A	3	4	H	J	6
2PGUVU	A	3	4	H	J	6
2Q7ECX	A	3	4	H	J	6
2XTZL6	A	3	4	H	J	6
33HWN2	A	3	4	H	J	6
33LC8U	A	3	4	H	J	6
33YV2Y	A	3	4	H	J	6
3BT3HJ	A	3	4	H	J	6
3DE3JK	A	3	4	H	J	6
3EBDG9	A	3	4	H	J	6
3HUB6Y	A	3	4	H	J	6
3LCHKL	A	3	4	H	J	6
3MN8WB	A	3	4	H	J	6
3TNV3G	A	3	4	H	J	6
3TQLBK	A	3	4	H	J	6
3ZCAE4	A	3	4	H	J	6
3ZTMFL	A	3	4	H	J	6
42XKGF	A	3	4	H	J	6
44Q94H	A	3	4	H	J	6
49YR4V	A	3	4	H	J	6
4ARPC3	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
4HNM2Q	A	3	4	H	J	6
4T6CVP	A	3	4	H	J	6
4YYZYB	A	3	4	H	J	6
4ZNHNP	A	3	4	H	J	6
4ZRX8H	A	3	4	H	J	6
62W8BY	A	3	4	H	J	6
679TNC	A	3	4	H	J	6
6AAZLV	A	3	4	H	J	6
6BMGAU	A	3	4	H	J	6
6EK6F4	A	3	4	H	J	6
6LJUYT	A	3	4	H	J	6
6M39VH	A	3	4	H	J	6
6MBR8Z	A	3	4	H	J	6
6ME8QR	A	3	4	H	J	6
6UDUF7	A	3	4	H	J	6
6UVQ2E	A	3	4	H	J	6
6WXTLN	A	3	4	H	J	6
6XZ8MP	A	3	4	H	J	6
73RX9Q	A	3	4	H	J	6
7DRFVM	A	3	4	H	J	6
7JRVJA	A	3	4	H	J	6
7PLR9Z	A	3	4	H	J	6
83GVPW	A	3	4	H	J	6
88YTJE	A	3	4	H	J	6
89CF2T	A	3	4	H	J	6
89P2L3	A	3	4	H	J	6
89QRRK	A	3	4	H	J	6
8CBRXT	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
8FTYDF	A	3	4	H	J	6
8JQNBE	A	3	4	H	J	6
8JT38M	A	3	4	H	J	6
8V6CUD	A	3	4	H	J	6
8WXB3J	A	3	4	H	J	6
8XNRXD	A	3	4	H	J	6
93F9WP	A	3	4	H	J	6
98CPHQ	A	3	4	H	J	6
9FJL3N	A	3	4	H	J	6
9FTBHM	A	3	4	H	J	6
9GZM6Q	A	3	4	H	J	6
9KG632	A	3	4	H	J	6
A3UZHE	A	3	4	H	J	6
A4MXNZ	A	3	4	H	J	6
A4NPL9	A	3	4	H	J	6
A6FVW7	A	3	4	H	J	6
AH9AZA	A	3	4	H	J	6
AJZ9GT	A	3	4	H	J	6
AL7VPR	A	3	4	H	J	6
AULAW4	A	3	4	H	J	6
B4LHVZ	A	3	4	H	J	6
B8N32K	A	3	4	H	J	6
BB7FL9	A	3	4	H	J	6
BGACDK	A	3	4	H	J	6
BLM6F8	A	3	4	H	J	6
BQY6LB	A	3	4	H	J	6
BT2XPH	A	3	4	H	J	6
BT4NXL	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
BVDN3T	A	3	4	H	J	6
C6WGRU	A	3	4	H	J	6
C84W2L	A	3	4	H	J	6
C9EN8G	A	3	4	H	J	6
C9VVEJ	A	3	4	H	J	6
CFD9DH	A	3	4	H	J	6
CNPK7A	A	3	4	H	J	6
CPFT8X	A	3	4	H	J	6
CPGK77	A	3	4	H	J	6
DD3V2A	A	3	4	H	J	6
DEWJGJ	A	3	4	H	J	6
DG6KTH	A	3	4	H	J	6
DHVUDJ	A	3	4	H	J	6
DN7VMU	A	3	4	H	J	6
DPHQ9L	A	3	4	H	J	6
DQBNGT	A	3	4	H	J	6
DV2YQQ	A	3	4	H	J	6
DXNKDM	A	3	4	H	J	6
E3ZU2A	A	3	4	H	J	6
EBUYUB	A	3	4	H	J	6
EC43PM	A	3	4	H	J	6
ECKYBV	A	3	4	H	J	6
EECAU2	A	3	4	H	J	6
EF6928	A	3	4	H	J	6
EHV8HQ	A	3	4	H	J	6
ENUYKT	A	3	4	H	J	6
EP8BKJ	A	3	4	H	J	6
EPQDRJ	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
ETPRFA	A	3	4	H	J	6
ETVTQB	A	3	4	H	J	6
EVGN64	A	3	4	H	J	6
EVYNAE	A	3	4	H	J	6
EZRVQ2	A	3	4	H	J	6
F4QDH2	A	3	4	H	J	6
FABLRK	A	3	4	H	J	6
FATLNU	A	3	4	H	J	6
FC2MX8	A	3	4	H	J	6
FJKVFD	A	3	4	H	J	6
FT799G	A	3	4	H	J	6
FXWFTB	A	3	4	H	J	6
FYZWC4	A	3	4	H	J	6
FZR2L2	A	3	4	H	J	6
FZTUKA	A	3	4	H	J	6
G2YKDB	A	3	4	H	J	6
G3RHKG	A	3	4	H	J	6
G7APZ4	A	3	4	H	J	6
GA88WB	A	3	4	H	J	6
GB3VCK	A	3	4	H	J	6
GBHAHA	A	3	4	H	J	6
GFDY8U	A	3	4	H	J	6
GW4ZZE	A	3	4	H	J	6
GX24ZG	A	3	4	H	J	6
GXH8LV	A	3	4	H	J	6
GXWX9K	A	3	4	H	J	6
H4H4QD	A	3	4	H	J	6
HCQMZB	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
HE2JB8	A	3	4	H	J	6
HFV9XA	A	3	4	H	J	6
HJA74B	A	3	4	H	J	6
HKRR3T	A	3	4	H	J	6
HNMNKR	A	3	4	H	J	6
HNNGHZ	A	3	4	H	J	6
HUXWRN	A	3	4	H	J	6
HZX3JK	A	3	4	H	J	6
J27UQR	A	3	4	H	J	6
J34XN9	A	3	4	H	J	6
J3MQG7	A	?	4	?	J	6
J8GYML	A	3	4	H	J	6
J8ZPW7	A	3	4	H	J	6
J98ZTA	A	3	4	H	J	6
JHQKN7	A	3	4	H	J	6
JJUYJE	A	3	4	H	J	6
JV7986	A	3	4	H	J	6
JVMKPA	A	3	4	H	J	6
JZDWHL	A	3	4	H	J	6
JZFPGT	A	3	4	H	J	6
K3GR3N	A	3	4	H	J	6
K8F9EH	A	3	4	H	J	6
KBEBBH	A	3	4	H	J	6
KBFC9Q	A	3	4	H	J	6
KC7KAE	A	3	4	H	J	6
KFNVA4	A	3	4	H	J	6
KGGTGB	A	3	4	H	J	6
KJJRPH	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
KPBY9Q	A	3	4	H	J	6
KXMX32	A	3	4	H	J	6
L2KU8M	A	3	4	H	J	6
L6LUA6	A	3	4	H	J	6
LADBBW	A	3	4	H	J	6
LFH6D6	A	3	4	H	J	6
LFXEHY	A	3	4	H	J	6
LG9DEU	A	3	4	H	J	6
LHQ362	A	3	4	H	J	6
LJGJ2V	A	3	4	H	J	6
LM4W9D	A	3	4	H	J	6
LNANRE	A	3	4	H	J	6
LUHUNK	A	3	4	H	J	6
M2WUK9	A	3	4	H	J	6
M3RHYX	A	3	4	H	J	6
M4ME8R	A	3	4	H	J	6
M6CMAF	A	3	4	H	J	6
MLPQ4N	A	3	4	H	J	6
N394VK	A	3	4	H	J	6
N4233R	A	3	4	H	J	6
N4LLAJ	A	3	4	H	J	6
NFD6QB	A	3	4	H	J	6
NFW7FX	A	3	4	H	J	6
NGP4KJ	A	3	4	H	J	6
NMQGJ2	A	3	4	H	J	6
NN7MW7	A	3	4	H	J	6
NPGHPP	A	3	4	H	J	6
NPGPKQ	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
NQ9NYN	A	3	4	H	J	6
NZJPH4	A	3	4	H	J	6
PHXGZZ	A	3	4	H	J	6
PM7Z2E	A	3	4	H	J	6
PM9P8W	A	3	4	H	J	6
PMPQBX	A	3	4	H	J	6
PQANQ2	A	3	4	H	J	6
PU7J2N	A	3	4	H	J	6
Q2HY6H	A	3	4	H	J	6
Q94V88	A	3	4	H	J	6
QAGFZG	A	3	4	H	J	6
QB9KBF	A	3	4	H	J	6
QBVMLY	A	3	4	H	J	6
QC6Y2E	A	3	4	H	J	6
QNWK8A	A	3	4	H	J	6
QYX2YZ	A	3	4	H	J	6
QZBD2B	A	3	4	H	J	6
RBQTYB	A	3	4	H	J	6
RBVYQ7	A	3	4	H	J	6
RC3JBZ	A	3	4	H	J	6
RGUQT9	A	3	4	H	J	6
RRYNT6	A	3	4	H	J	6
RT76K9	A	3	4	H	J	6
RXY3GR	A	3	4	H	J	6
RZQY6L	A	3	4	H	J	6
TB6HZ2	A	3	4	H	J	6
TEHHTM	A	3	4	H	J	6
TMXYP3	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
TNBVU8	A	3	4	H	J	6
TW6WD7	A	3	4	H	J	6
TW9CWY	A	3	4	H	J	6
U3Q3VY	A	3	4	H	J	6
UJA3F3	A	3	4	H	J	6
ULKUNJ	A	3	4	H	J	6
UV8V39	A	3	4	H	J	6
UWX4YV	A	3	4	H	J	6
UXNCZJ	A	3	4	H	J	6
V27RAB	A	3	4	H	J	6
V28TQ3	A	3	4	H	J	6
V2PK39	A	3	4	H	J	6
V8W7RQ	A	3	4	H	J	6
V977XX	A	3	4	H	J	6
V9PX7H	A	3	4	H	J	6
VG28FW	A	3	4	H	J	6
VGJ3ZJ	A	3	4	H	J	6
VGXRW6	A	3	4	H	J	6
VNKBMV	A	3	4	H	J	6
W6FCT	A	3	4	H	J	6
VWB3KR	A	3	4	H	J	6
VZEVKH	A	3	4	H	J	6
VZGH3V	A	3	4	H	J	6
W4E92F	A	3	4	H	J	6
W4ECJX	A	3	4	H	J	6
W68BR4	A	3	4	H	J	6
WAG9LH	A	3	4	H	J	6
WB9EVG	A	3	4	H	J	6

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
WFPRLV	A	3	4	H	J	6
WPD MJQ	A	3	4	H	J	6
WZUCDP	A	3	4	H	J	6
X4PPCY	A	3	4	H	J	6
X9F6WY	A	3	4	H	J	6
XB74CJ	A	3	4	H	J	6
XGFD RR	A	3	4	H	J	6
XHPAAP	A	3	4	H	J	6
XHQ8KL	A	3	4	H	J	6
XL7PL3	A	3	4	H	J	6
XL9GJB	A	3	4	H	J	6
XLA66V	A	3	4	H	J	6
XM33C2	A	3	4	H	J	6
XNFJJN	A	3	4	H	J	6
XUL7HJ	A	3	4	H	J	6
Y2BKBF	A	3	4	H	J	6
Y6CJTZ	A	3	4	H	J	6
YB6J9F	A	3	4	H	J	6
YGAF2T	A	3	4	H	J	6
YJFQ6J	A	3	4	H	J	6
YK9NB6	A	3	4	H	J	6
YKQMGF	A	3	4	H	J	6
YRBT8V	A	3	4	H	J	6
YT4QE2	A	3	4	H	J	6
YVCRQZ	A	3	4	H	J	6
YW32B2	A	3	4	H	J	6
Z2AZ8D	A	3	4	H	J	6
Z327HC	A	3	4	H	J	6

TABLE 1

Recovered Characters						
<u>WebCode</u>	<u>Character 1</u>	<u>Character 2</u>	<u>Character 3</u>	<u>Character 4</u>	<u>Character 5</u>	<u>Character 6</u>
Z3TM4A	A	3	4	H	J	6
Z4LKCF	A	3	4	H	J	6
Z83ZNT	A	3	4	H	J	6
Z86QWW	A	3	4	H	J	6
Z9EU9Z	A	3	4	H	J	6
ZA3FUV	A	3	4	H	J	6
ZA7V8W	A	3	4	H	J	6
ZF9Y83	A	3	4	H	J	6
ZN6RJ3	A	3	4	H	J	6
ZPFNTE	A	3	4	H	J	6
ZTJHRJ	A	3	4	H	J	6
ZUCFYP	A	3	4	H	J	6
ZZKLVW	A	3	4	H	J	6

Response Summary						Participants: 291
	<u>Character 1</u>	<u>Character 2</u>	<u>Character 3</u>	<u>Character 4</u>	<u>Character 5</u>	<u>Character 6</u>
Consensus	A	3	4	H	J	6
Number	291	290	291	290	291	291
Percent	100.0%	99.7%	100.0%	99.7%	100.0%	100.0%

Conclusions

TABLE 2

WebCode	Conclusions
2C4NQT	The serial number of the piece of metal (stainless steel bar), described in item 1, was restored and corresponds to: A34HJ6.
2G4NFQ	The submitted specimen marked as Item 1 was examined and identified as a metal bar stock with a suspected obliterated serial number. The obliterated serial number, located on the mid-section of the metal bar stock, was chemically processed and restored to read "A34HJ6".
2HYDDR	TEST NO. 19-5250 ITEM 1: ONE (1) NON-FERROUS 2 5/8" X 1" PIECE OF METAL WITH ABRADED SERIAL #. SERIAL # A34HJ6 WAS RTESTORED THROUGH THE CHEMICAL ETCHING PROCESS.
2MALKN	Item 1 was examined and found to have an obliterated area. Standard restoration techniques revealed "A34HJ6"
2NHTP3	The serial number on the submitted stainless steel block, Item 1, was fully restored to read A34HJ6.
2PDG4R	The obliterated serial number has been restored and it can be read as: A34HJ6.
2PGUVU	Application of forensic techniques to the machined area on the section of steel bar stock restored a series of previously stamped characters that read: A34HJ6.
2Q7ECX	After application of the electromagnetic process, I determined the serial number of the sample as A34HJ6.
2XTZL6	The serial number restoration process restored serial number: A34HJ6
33HWN2	The serial number on the stainless steel bar stock (Item 1) from the sample pack (SNR1) was restored to be A34HJ6.
33LC8U	Using magnetic particle restoration and acid-etch methods, the serial number on the piece of metal (0001-AA, Item 1) was completely restored to read, "A34HJ6". No examinations were conducted with the piece of aluminum (0001-AB, item not listed on submission form).
33YV2Y	The serial number was restored to read "A34HJ6".
3BT3HJ	The one (1) apparent stainless steel bar stock, item #1, was visually examined and found to have an area of obliteration. Chemical etching of the obliterated area revealed the serial number to be A34HJ6. The one (1) apparent aluminum bar stock standard was not examined at this time. All evidence will be returned to the submitting agency.
3DE3JK	As a result of an attempted obliterated number restoration the following characters were observed: A34HJ6
3EBDG9	The following characters were recovered on item #1: A34HJ6
3HUB6Y	The obliterated serial number on the piece of bar stock was restored to read "A34HJ6".
3LCHKL	The submitted steel bar stock, Item #1, was examined and found to have an obliterated serial number. After sanding and adding etching solution, the obliterated serial number was recovered to read A34HJ6. The submitted piece of aluminum, Item #1, was not examined. All evidence will be returned to the submitting agency.
3MN8WB	Visual examination and chemical treatment of the serial number area on the metal bar stock, Item 1A, reveal the following number: A34HJ6. Item 1B was inspected to verify and document contents. No analysis was performed on the item listed.
3TNV3G	The obliterated area on the piece of stainless steel bar stock in item 1 was chemically etched and the serial number was determined to be A34HJ6.
3TQLBK	Serial number restoration techniques were performed on Item 1. The serial number was determined to be A34HJ6.

TABLE 2

WebCode	Conclusions
3ZCAE4	Visual examination, polishing, and chemical treatment of Item 1 restored the serial number to read "A34HJ6".
3ZTMFL	Magnetic Particle Inspection and chemical processing restored the Exhibit 1 obliterated markings to read "A34HJ6".
42XKGF	Examination of Item 1 revealed the presence of a defaced area. Item 1 was physically and magnetically processed. The serial number was restored as: A34HJ6
44Q94H	The obliterated serial number on Item 1 was restored to read A34HJ6.
49YR4V	The serial number on Item 1 was restored to read A34HJ6 using chemical etching techniques.
4ARPC3	Using electrolytic etching on the surface, the serial number was restored and found to be "A34HJ6".
4HNM2Q	ONE (1) PIECE OF STAINLESS STEEL BAR APPROXIMATELY 2 5/8" X 1" SERIAL NUMBER DEFACED BY ABRASION, HOWEVER RECOVERED NUMBER "A34HJ6" USING CHEMICAL ETCHING PROCESS.
4T6CVP	Serial number restoration revealed the number A34HJ6.
4YYZYB	The serial number was restored to read: "A34HJ6".
4ZNHNP	Using magnetic and chemical methods, the serial number of Item 001 was restored to read A34HJ6. No analysis was performed on Item 002.
4ZRX8H	The obliterated serial number on Item 1 was chemically restored to read A34HJ6.
62W8BY	Examination and chemical processing of Exhibit 1 restored the obliterated serial number, which was determined to be "A34HJ6".
679TNC	Using Magnetic Particle Inspection, the obliterated serial number on Item 1 was found to read A34HJ6.
6AAZLV	The restoration process was carried out in stainless steel bar, in the area where it was altered and the sequence "A34HJ6" was restored.
6BMGAU	A line of characters was restored on the metal surface. In my opinion, the characters were "A 3 4 H J 6".
6EK6F4	Sanding and chemical restoration of the obliterated serial number revealed the following sequence: A34HJ6
6LJUJT	The obliterated serial number on Item #1 was completely restored and found to be A 3 4 H J 6.
6M39VH	The obliterated serial number was chemically processed and restored to read "A34HJ6".
6MBR8Z	Item 1 has an obliterated area. Physical examination and chemical processing of the obliterated area restored the original serial number and it was determined to be "A34HJ6"
6ME8QR	The obliterated serial number on Item 1 was recovered to read A34HJ6.
6UDUF7	The following characters were recovered on item 1: A34HJ6
6UVQ2E	The serial number on the bar stock Item 1 was restored to read A 3 4 H J 6 using chemical etching techniques.
6WXTLN	The serial number of the stainless steel bar stock described in Item 1, was restored and corresponds to: A34HJ6.
6XZ8MP	A full series of characters was forensically restored and read: A 3 4 H J 6. The restored characters were of a similar size, shape and characterisation as the characters supplied on the accompanying reference/standard sample.

TABLE 2

WebCode	Conclusions
73RX9Q	An attempt to restore the obliterated serial number on a piece of stainless steel bar stock, item 1, was performed by using polishing, magnetic particle visualization and chemical etching techniques, and the following serial number was restored "A34HJ6".
7DRFVM	The serial number on Item 1 was restored to read A34HJ6 using chemical etching techniques.
7JRVJA	The obliterated serial number on the metal bar, item 1, was restored to A34HJ6.
7PLR9Z	The following string has been made visible: A34HJ6
83GVPW	The serial number A34HJ6 was restored on the bar stock.
88YTJE	The following submitted evidence was visually and microscopically examined: Exhibit 1: Steel bar. 1. The Exhibit 1 bar exhibited damaged near the center from a milling type tool. 2. The damaged area on Exhibit 1 was visually examined, polished and chemically processed. The characters were restored and appeared as follows: A34HJ6.
89CF2T	I undertook a serial number restoration on this piece of stainless steel bar stock using suitable chemical etching techniques and located a serial number of 'A34HJ6'. This serial number was viewed and confirmed by [name] (Forensic Response Section).
89P2L3	The serial number of the stainless steel bar stock, Exhibit 1, was determined to be A 3 4 H J 6.
89QRRK	The serial number on Item 1 was restored to read A 3 4 H J 6 using magnetic particle inspection.
8CBRXT	I conducted a serial number restoration on the 303 stainless steel bar and restored the characters above, which were consistent in style with those stamped on the aluminium standard.
8FTYDF	Visual examination and chemical treatment of the serial number area on the stainless steel bar stock, Item 1A, reveal the following number: A 3 4 H J 6. Item 1B was submitted as a reference standard for comparison to Item 1A. No analysis was performed on Item 1B.
8JQNBE	The piece of stainless steel bar stock, item #1, was visually examined and determined to have an area of obliteration present in the center. Chemical etching of the obliterated area revealed the serial number to be "A34HJ6". The additional submitted apparent aluminum reference standard was not examined at this time. All evidence will be returned to the submitting agency.
8JT38M	Using standard restoration techniques, the obliterated serial number on Item 1 was restored to read: A 3 4 H J 6
8V6CUD	1. Exhibit 1 is a stainless steel bar with a suspected obliterated serial number. 2. The obliterated area on Exhibit 1 was visually examined, polished and mechanically processed. The characters were restored and appeared as follows: "A 3 4 H J 6".
8WXB3J	Standard laboratory procedures for restoring stampings in metal were applied to the machined area of the submitted metal plate. The stampings revealed on the metal plate are: "A34HJ6"
8XNRXD	1. The obliterated area on Exhibit 1 (piece of bar stock) was visually examined and chemically processed. The characters were restored and appeared as follows: A 3 4 H J 6.
93F9WP	Serial Number Restoration Analysis: Methodology- Chemical Reagent Etching/Microscopy: Serial number restoration procedures revealed the serial number on Item 1A, the stainless steel bar stock, to be: A 3 4 H J 6
98CPHQ	The obliterated serial number on the item was restored to read
9FJL3N	The obliterated serial number has been restored by using acid.
9FTBHM	A Forensic procedure was performed on the machined area of the stainless steel bar. A series of previously stamped characters was restored, which read: A34HJ6. The characters were similar in size and font as that used on the aluminium bar standard.

TABLE 2

WebCode	Conclusions
9GZM6Q	On the examination, I found that there were filing mark on the stainless steel bar stock and no numbers were observed. On electrochemical treatment, a set of number read as "A34HJ6" was restored. Hence, I am of the opinion that the numbers of the stainless steel bar stock were tempered and the original numbers were "A34HJ6".
9KG632	The stamped alphanumeric characters of the piece of stainless steel labeled as "TEST 19-5250 sample Pack: SNR1", were recovered totally and are as follows A34HJ6
A3UZHE	Date worked 03/05/2019. The serial number is ground off. The serial number (A34HJ6) was restored by the acid etching process. Modified Fry's reagent and Nickles & Alloy reagent were used for the restoration. A chemical reaction was observed when the acid etching solution was applied to the surface.
A4MXNZ	I examined and chemically processed Item 1A, and I determined the serial number to be A34HJ6.
A4NPL9	The obliterated serial number of laboratory evidence item 1.1 within the milled section of the metal bar stock was chemically restored with the following results obtained. The restored serial number is A 3 4 H J 6.
A6FVW7	Through a combination of mechanical polishing and magnetic particle inspection, the obliterated serial number was restored to read A34HJ6.
AH9AZA	The serial number on item 1 was restored to A34HJ6.
AJZ9GT	The serial number on Item 1 was restored to read A 3 4 H J 6 using chemical etching techniques.
AL7VPR	By using device called (Regula 7505 M) clear images of the results were obtained from the NUCA program
AULAW4	The restoration techniques applied allowed identification of the previously erased serial number " A 3 4 H J 6 "
B4LHVZ	The serial number of the CTS unknown was processed using mechanical polishing and chemical etching. The serial number was restored and determined to be: A34HJ6.
B8N32K	CONCLUSIONS: The obliterated serial number was chemically and magnetically processed and restored to read "A34HJ6".
BB7FL9	1. The obliterated area of Exhibit 1 was visually examined and chemically processed. The characters were restored and appeared as follows: A34HJ6.
BGACDK	The obliterated area on item 1 was physically restored to read: A 3 4 H J 6
BLM6F8	The obliterated number on Item 1 was polished and chemically restored to reveal the serial number A34HJ6.
BQY6LB	Date Worked 03/05/2019. The serial number is ground off. The serial number (A34HJ6) was restored by the acid etching process. Modified Fry's reagent was used for the restoration. A chemical reaction was observed when the acid etching solution was applied to the surface.
BT2XPH	Serial number restoration revealed the number A 3 4 H J 6.
BT4NXL	Serial Number CTS test conducted with the following results: Q-1 (Item #1): One (1) aluminum bar stock, measuring approximately 2 3/4" in length and 1" in width. "Serial number" obliterated (abrasion). "Serial number" restored to read "A34HJ6" using magnetic particle inspection and chemical etching method. Item #1 scribed "CTS 19-5250" for identification.
BVDN3T	EVIDENCE SUBMITTED Lab Item # Agency Item # Description 1 SNR1 One (1) metal bar with obliterated serial number. CONCLUSIONS OF ANALYSIS The serial number on the metal bar, item 1, was restored to read A34HJ6. [Participant submitted data in a format that could not be reproduced in this report.]

TABLE 2

WebCode	Conclusions
C6WGRU	Using standard laboratory restoration techniques, the obliterated serial number was restored to read: A 3 4 H J 6.
C84W2L	Using standard laboratory restoration techniques, the obliterated serial number on Item 1 was restored to read: A 3 4 H J 6
C9EN8G	The serial number on Item 1 was restored to read A 3 4 H J 6 using chemical etching techniques.
C9VVEJ	The serial number was successfully restored. The restored serial number is: A34HJ6.
CFD9DH	The serial number on the piece of ferrous metal (Exhibit 1) was mechanically and chemically treated and restored to read A34HJ6.
CNPk7A	Visual examination and chemical treatment of the serial number area on the stainless steel bar stock, Item 1A, reveal the following number: A34HJ6 Item 1B was inspected to verify and document contents. No analysis was performed on the item listed.
CPFT8X	Vertical lines were visualised after Acid Etch. Horizontal lines were visualised with Magna Flux.
CPGK77	AFTER USE OF OUR STANDARD PROCEDURES FOR OBLITERATED SERIAL NUMBER RESTORATION WE FOUND THE FOLLWING NUMBER (LEFT TO RIGHT): A34HJ6
DD3V2A	The serial number on the piece of stainless steel bar stock (Item #1) was sanded and chemically restored to read: A34HJ6.
DEWJGJ	After analysis, the original number was restored and read as 'A34HJ6'.
DG6KTH	SERIAL NUMBER RESTORATION RESULTS: Examination and magnetic and chemical processing of the Q-1 bar stock restored the original obliterated serial number which was determined to be "A34HJ6". Methodology: The following methodologies were used in the examination in this case: Visual examination, Physical examination, Microscopic examination.
DHSVUDJ	On analysis, i found there was a filling mark on the surface of the steel bar. On electrochemical treatment on the filled surface region, i found a number A34HJ6. Hence, i am of the opinion that the number of the steel bar was tempered and the original number was A34HJ6.
DN7VMU	The serial number was restored to read A34HJ6.
DPHQ9L	The serial number on the bar stock was restored and reads A 3 4 H J 6.
DQBNGT	Using standard laboratory restoration techniques, the obliterated serial number on Item 1 was restored to read A34HJ6.
DV2YQQ	The serial number on the submitted stainless steel bar stock, Item 01-01 (1), was restored to read, "A34HJ6."
DXNKDM	By using device called (Regula 7505 M) clear images of the results were obtained from the NUCA program.
E3ZU2A	Attempts to restore the serial number were made by sanding and polishing the surface with a Dremel tool and acid etching resulting in the serial number being restored to read A34HJ6.
EBUYUB	Examination and chemical processing of the firearm item #1 restored the original obliterated serial number which was determined to be "A34HJ6". A search of the NCIC stolen gun files by serial number "A34HJ6" revealed no matching entries.
EC43PM	Examination and restoration of the obliterated area on Item 1 (stainless steel bar stock) revealed the following characters interpreted as "A34HJ6".
ECKYBV	The original serial number, erased by physical procedure, has been succesfully restored

TABLE 2

WebCode	Conclusions
EECAU2	Examination of the submitted metal bar stock found the serial number to have been obliterated. Physical processing of the metal bar stock restored the obliterated, original serial number to read "A34HJ6".
EF6928	The chemically enhanced serial number on the item 1 is A34HJ6.
EHV8HQ	SERIAL NUMBER RESTORATION PROCESS CONSISTING OF THE USE OF A DREMEL TOOL AND CHEMICAL ETCHING SOLUTIONS RESTORED SERIAL NUMBER: A34HJ6
ENUYKT	I was able to restore the erased serial number and it read A34HJ6
EP8BKJ	I found filing marks on the metal plate 'Item 1'. Upon electrochemical treatment on the filed surface, the number 'A34HJ6' was restored. Therefore, I am of the opinion that the obliterated serial number is A34HJ6.
EPQDRJ	In the piece of metal sent as questioned element and identified as E1-2019-0476 (Item 1), it was possible to recover through the restoration process, the following alphanumeric sequence: A34HJ6.
ETPRFA	Based on the above examination and finding, I am of the opinion that the original serial number on the piece of stainless steel bar stock 'Item 1' is A34HJ6.
ETVTQB	Examination and restoration of the obliterated area on Item 1 (a piece of bar stock) revealed the following characters: "A34HJ6".
EVGN64	The serial number on the piece of bar stock, Exhibit 1, was determined to be A 3 4 H J 6.
EYNAE	Item 1 was examined and found to exhibit an obliterated area in the center of the bar stock. The obliterated area was polished and treated with chemicals. This process revealed the following serial number: A34HJ6.
EZRVQ2	The obliterated area was cleaned, polished, and chemically etched. The following full serial number was restored: A34HJ6.
F4QDH2	The serial number was restored to read A34HJ6.
FABLRK	The number A34HJ6 was restored via chemical restoration techniques.
FATLNU	[No Conclusions Reported.]
FC2MX8	The serial number is ground off. The serial number (A34HJ6) was restored by acid etching. Polishing and the Fry's reagent were used for the restoration. A chemical reaction was observed when the acid etching solution was applied to the surface.
FJKVFD	Item 1 was mechanically and chemically treated and the number restored to read A34HJ6.
FT799G	Upon analysis, I am opinion the obliterated Serial Number on "Item 1" bar stock was restored and interpreted as "A34HJ6".
FXWFTB	The obliterated serial number on the stainless steel bar stock, item 1, was restored to read A34HJ6.
FYZWC4	Examination of Item 1 revealed an obliterated area on the front side. Standard chemical restoration techniques revealed the following characters: "A34HJ6"
FZR2L2	The obliterated serial number on the metal plate (Item 1) was restored to read A34HJ6.
FZTUKA	Serial number restoration techniques were applied to the submitted stainless steel bar (Item 1). The serial number was determined to be A34HJ6.
G2YKDB	I was able to restore the following characters: A 3 4 H J 6
G3RHKG	The serial number of Item 1 was restored using mechanical polishing and chemical etching techniques and was found to be: A34HJ6.
G7APZ4	The Item 1 obliterated serial number was restored and interpreted as "A34HJ6"

TABLE 2

WebCode	Conclusions
GA88WB	Serial number restoration revealed the number A34HJ6.
GB3VCK	According to the results, the following conclusions: Alphanumeric sequence A34HJ6 was detected in the altered area of the metal piece identified as Item 1, by the physical and magnetical method.
GBHAHA	Serial number restoration revealed the number A 3 4 H J 6.
GFDY8U	The piece of stainless steel bar stock (Item #1) was physically and chemically processed. Its serial number was restored to read: A34HJ6.
GW4ZZE	The serial number on the piece of metal (Exhibit 1) was mechanically and chemically treated and restored to read A34HJ6.
GX24ZG	Serial Number Restoration Analysis: Methodology- Chemical Reagent Etching/Microscopy/Physical: Serial number restoration procedures revealed the serial number on Item 1, the bar stock, to be: A 3 4 H J 6
GXH8LV	The characters were removed approximately 0.2-0.3 mm thickness. The removed serial number was resulted by the examination A34HJ6.
GXWX9K	IT WAS POSSIBLE TO OBSERVE A TOTAL WEAR OF THE PRINTED SEQUENCE. BY APPLYING THE ELECTROMAGNETIC METHODOLOGY IT WAS ACHIEVED TO SEE GREAT PART OF THE SEQUENCE PRINTED BY THE MANUFACTURER. HCL was subsequently used at 30% and FRY, making it possible to observe the entire sequence. CIA REVEALED.
H4H4QD	Item 1: The serial number was restored and was interpreted to read A34HJ6.
HCQMZB	Serial number restoration revealed the number A 3 4 H J 6.
HE2JB8	Serial number restoration techniques were applied to item 1. The serial number was determined to be A34HJ6.
HFV9XA	An obliterated area was observed on Item 1. Standard chemical restoration techniques revealed the following characters: A34HJ6
HJA74B	The serial number on the piece of metal (Exhibit 01) was mechanically and chemically treated and restored to read A34HJ6.
HKRR3T	The serial number was determined to be: A34HJ6
HNMNKR	The submitted piece of steel bar stock, item 1, was examined and found to have an obliterated area present. Sanding and chemical etching of the obliterated area revealed the serial number to be A34HJ6. No examination was performed on the aluminum standard block. All evidence will be returned to the submitting agency.
HNNGHZ	Mechanical and chemical processing was applied to item #1. The following characters were recovered: A34HJ6
HUXWRN	Visual examination with mechanical and chemical processing of the metal bar stock (Item 1) revealed the obliterated serial number to read: A34HJ6.
HZX3JK	The restoration of the metal piece was realized and was achieved to reveal the alphanumeric sequence A34HJ6.
J27UQR	Using standard laboratory techniques it was determined that the obliterated serial number on Item 001-01 was restored to read: A34HJ6. No examination was performed on Item 001-02 aluminum standard.
J34XN9	The serial number on the metal plate (Exhibit 01) was mechanically and chemically treated and restored to read A34HJ6.
J3MQG7	The original number was grinded and have been restored, read as A?4?J6 (where "?" is the number or alphabet that cannot be identified)

TABLE 2

WebCode	Conclusions
J8GYML	The serial number of Lab Item 001 was mechanically and chemically restored to read "A34HJ6". This is also the opinion of Firearms Examiner (name).
J8ZPW7	Magnetic processing restored an obliterated number of Exhibit1 that was concluded to be "A34HJ6".
J98ZTA	Examination and magnetic processing of the Q-1 steel bar (Item 1) restored the original obliterated serial number, which was determined to be A34HJ6.
JHQKN7	Using both a chemical restoration method along with a non destructive technique (Magnaflux) the erased serial number was successfully recovered and deemed to be A34HJ6.
JJUYJE	Using physical and chemical restoration techniques, the obliterated serial number on Item 1 was restored to read: A34HJ6.
JV7986	As a result of an attempted obliterated number restoration the following characters were observed: A34HJ6
JVMKPA	Item 1 was found to exhibit an area of obliteration. The obliterated area was polished and treated with a chemical etchant. This process revealed the following serial number: A34HJ6.
JZDWHL	Examination and chemical processing of the obliterated serial number on item 1 (A)was restored and determined to be "A34HJ6".
JZFPGT	Visual examination and chemical treatment of the serial number area on the firearm, Item 1, reveal the following number: A34HJ6
K3GR3N	Examination of the one (1) piece of flat bar stock (303 stainless steel), item #1, revealed the presence of an area of damage in the center of one side. Sanding and chemical etching of this area of damage on the one (1) piece of flat bar stock (303 stainless steel), item #1, revealed the following number: A 3 4 H J 6. The one (1) piece of flat bar stock (aluminum), item #1, was not examined. All evidence will be returned to the submitting agency.
K8F9EH	Restoration of the obliterated serial number was performed on the questioned surface of the stainless steel bar stock labelled "Item 1". The restored serial number was found to have six characters - "A34HJ6".
KBEBBH	The complete serial number of item number 1 was restored and noted as: A34HJ6
KBFC9Q	RESULTS: The restored serial number was: A34HJ6
KC7KAE	Upon electrochemical treatment on the filed surface, the original serial number was restored and read as A34HJ6
KFNV44	Date worked 03/04/19. The serial number is ground off. The serial number (A34HJ6) was restored by the acid etching process. Modified Fry's reagent was used for the restoration. A chemical reaction was observed when the acid etching solution was applied to the surface.
KGGTGB	The serial number on the metal plate (Exhibit 01) was mechanically and chemically treated and restored to read A34HJ6.
KJJRPH	The serial number on the stainless steel bar stock was restored to read A34HJ6 using chemical etching techniques. The aluminum bar standard was not further examined.
KPBY9Q	STAINLESS STEEL BAR (Item # 1) was physically/chemically/magnetically processed. Its serial number was restored to read A34HJ6.
KXMX32	The serial number on item 1 was restored to A34HJ6.
L2KU8M	The serial number was successfully restored to read A34HJ6.
L6LUA6	The submitted specimen marked as Item 1 was examined and identified as a piece of metal bar stock with a suspected obliterated serial number. The obliterated serial number, located on the bar stock, was chemically processed and successfully restored to read: "A34HJ6".

TABLE 2

WebCode	Conclusions
LADBBW	Using standard restoration techniques, the obliterated serial number on item 1 was restored to read, "A34HJ6".
LFH6D6	Item 1 was examined and found to have an obliterated serial #. Standard restoration techniques were applied to Item and the following characters were restored:A34HJ6.
LFXEHY	The serial number was determined to be "A34HJ6". The interpretations and opinions in this document are based upon my knowledge of the case factors and/or manufacturer information available at the time this report was authored.
LG9DEU	The serial number of Item 1 was chemically processed and restored to read: A 3 4 H J 6
LHQ362	The obliterated area on Item 1 was restored to read A34HJ6.
LJGJ2V	The serial number on the Item 1 bar stock was restored to read A34HJ6 using chemical etching techniques.
LM4W9D	I was requested to examine the test block, item 1, and to restore any erased serial numbers. The aluminium standard was provided for reference purposes. The test block itself had no identifying features. There was a grooved area running through the approximate centre of one side of the block which displayed grinding or planing marks. Number restoration techniques were applied to the area within the groove. A single line of characters was revealed. The line of characters was "A 3 4 H J 6".
LNNANRE	Using standard serial number restoration techniques, the obliterated serial number on item 1 was restored to read A34HJ6.
LUHUNK	Upon electrochemical treatment on the filed surface, the number A34HJ6 was restored. Based on my findings, I am of the opinion that A34HJ6 was the original number stamped on the surface that was subsequently obliterated.
M2WUK9	Item Q1 is one silver-colored, nonferrous metal piece of bar stock (2 - 1/2" x 1") which was received with an obliterated serial number due to machine cutting and filing on its surface. No characters were observed. Restored in the laboratory through the use of magnetic particle inspection to read "A34HJ6".
M3RHYY	Attempts to restore the obliterated serial number of Item 1.1 were successful. The restored serial number is A34HJ6.
M4ME8R	Examination of the Item 1 submitted aluminum bar stock found the serial number to have been obliterated. Physical processing of the submitted Item 1 aluminum bar stock restored the obliterated, original serial number to read A34HJ6.
M6CMAF	The examination and chemical processing of the above item, revealed a full serial number, with sufficient characteristics to allow the Examiner to make a positive identification. The characters recovered are as follows,"A34HJ6".
MLPQ4N	The stamped number on the metal block had been obliterated. The metal was polished and physically treated to recover the number. The serial number was restored and was determined to be A34HJ6.
N394VK	The serial number was restored to read: A34HJ6.
N4233R	The obliterated number on Item 1 was polished and chemically restored to reveal the serial number "A34HJ6".
N4LLAJ	THE SURFACE OF Q1 (ITEM 1) STAINLESS STEEL BAR STOCK WAS POLISHED WITH A DREMEL TOOL TO PREPARE IT FOR THE APPLICATION OF CHEMICAL ETCHING SOLUTIONS. THE NUMBER RESTORED BY THE SERIAL NUMBER PROCESS READS: A34HJ6
NFD6QB	THE ITEM 1 OBLITERATED SERIAL NUMBER, LOCATED ON THE FRONT MIDDLE OF THE ALUMINUM ALLOY BAR STOCK WAS POLISHED USING THE DREMEL AND CHEMICALLY PROCESSED AND RESTORED TO READ A34HJ6.

TABLE 2

WebCode	Conclusions
NFW7FX	Date worked 03/05/19. The serial number is ground off. The serial number (A34HJ6) was restored by the acid etching process. Modified Fry's reagent was used for the restoration. A chemical reaction was observed when the acid etching solution was applied to the surface.
NGP4KJ	1. One manila envelope containing a piece of stainless steel bar stock with suspected obliterated serial number: one (1) piece of metal, one (1) piece of metal (aluminum standard). FINDINGS: The one (1) piece of metal, item #1, was examined and found to have an obliterated area present. Sanding and chemical etching of the obliterated area revealed the serial number to be A34HJ6. No examination was performed on the one (1) piece of metal (aluminum standard), item #1. All evidence will be returned to the submitting agency.
NMQGJ2	Lab Item 1: One piece of stainless steel with obliterated serial number. Attempts to restore the obliterated serial number of Lab Item 1 were successful. The restored serial number is A34HJ6.
NN7MW7	The serial number of the stainless steel bar stock described in item 1, was restored and corresponds to: A34HJ6.
NPGHPP	Examination of the submitted bar stock revealed the manufacturer's applied serial number to have been obliterated. Physical processing of the bar stock restored the obliterated, original serial number to read "A34HJ6".
NPGPKQ	The examination and processing of the obliterated serial number on the Item 1 bar stock was restored to read "A34HJ6".
NQ9NYN	The serial number of Item 1.1 was restored using Magnetic particle inspection and was found to be: A34HJ6.
NZJPH4	Serial number restoration attempts revealed the number A 3 4 H J 6.
PHXGZZ	Serial number restoration techniques were applied to Item 1 (303 Stainless bar stock). The serial number was determined to be A34HJ6.
PM7Z2E	The serial number was partially restored to read A 3 4 ? J 6 using magnetic particle inspection. The serial number was restored to read A34HJ6 using chemical etching techniques. The aluminum standard was not further examined.
PM9P8W	Visual examination and chemical treatment of the serial number area on the metal bar stock, Item 1A, reveal the following number: A34HJ6.
PMPQBX	The serial number of Item 1 as restored is A34HJ6.
PQANQ2	A serial number restoration technique was applied to the milled surface of sample pack SNR1. As a result I obtained a recovery of previously stamped serial number A34HJ6. This recovery appeared consistent with alpha-numeric characters supplied stamped into the aluminium standard.
PU7J2N	The following findings reflect the professional opinion of the examiner authoring this report. Using chemical and physical serial number restoration techniques, an attempt was made to restore the obliterated serial number with the following results: Serial Number: A 3 4 H J 6 was restored on Item 1
Q2HY6H	Categorical, unequivocal
Q94V88	ITEM Q1: ONE (1) BLOCK OF SILVER NON FERROUS METAL MEASURING APPROXIMATELY 2 3/4" LONG X 1" WIDE X 1/4" THICK DISPLAYING A 1" X 1" AREA MILLED AWAY. SERIAL NUMBER A34HJ6 RECOVERED WITH CHEMICAL ETCHING. ITEM MARKED 19-5250A FOR IDENTIFICATION. CTS TEST NUMBER ETCHED ON BACK FOR IDENTIFICATION.
QAGFZG	Item 1 was mechanically polished and chemically processed to restore the obliterated serial number. The serial number was successfully restored to read A34HJ6.
QB9KBF	The above number was obliterated through mechanically obliterated of metal surface from serial number field.

TABLE 2

WebCode	Conclusions
QBVMY	The obliterated serial number on the piece of bar stock (Item 1) was magnetically processed and chemically restored to read "A34HJ6".
QC6Y2E	THE SERIAL NUMBER RESTORATION PROCESS ON THE ITEM 1 STAINLESS STEEL BAR STOCK RESTORED THE SERIAL NUMBER: A34HJ6
QNWK8A	The piece of steel was cleaned, polished and chemically processed to restore the obliterated serial number. The serial number A34HJ6 was successfully restored.
QYX2YZ	As a result of an attempted obliterated number restoration the following characters were observed: A34HJ6
QZBD2B	Exhibit 1 was chemically processed and the following was developed in the ground area: "A34HJ6"
RBQTYB	The alphanumeric sequence of the metal piece (Item 1) was determined altered (obliterated serial number). After the analysis, the sequence corresponding to the characteristics evaluated in the comparative material (Aluminum Standard) was revealed.
RBVYQ7	The area judged to have contained obliterated markings was subjected to recovery methods such as MagnaFlux and electro-etching techniques. These techniques uncovered one line containing six alpha-numeric characters. The characters was interpreted as " A 3 4 H J 6". No observations indicating the presence of further charaters were made. The recovered number is considered to be a serial number, however the possibility that the examined area only contains a part of the full serial number can not be excluded.
RC3JBZ	The bar stock piece was examined. The center of this bar stock had an obliterated area with a suspected serial number. The serial number on the submitted piece of bar stock was chemically restored and was determined to be: A34HJ6.
RGUQT9	The serial number was fully restored using chemical restoration techniques and determined to be A34HJ6.
RRYNT6	Serial number was obliterated (deeply abraded), restored using the MPI (magnetic particle inspection)as well as the chemical etching processes. "19-5250 D" etched on MB1 (metal block 1) for identification.
RT76K9	The serial number of the piece metal identified item 1 is A34HJ6.
RXY3GR	Item 1 The serial number on the section of bar stock was restored to read A 3 4 H J 6 using magnetic particle inspection. Item 1.1 The section of bar stock was visually inspected.
RZQY6L	The obliterated surface on the steel bar stock (Item 1) was sanded and chemically processed. All characters could have been seen during the examination, but not all at the same time. Some have been visible later than other ones.
TB6HZ2	ONE (1) STAINLESS STEEL BAR STOCK 2-3/4" IN LENGTH & 1" WIDTH. SERIAL NUMBER BAR STOCK OLITERATED BY MACHINING TOOL, SPIRAL IMPRESSIONS OBSERVED IN AFFECTED AREAS. CONCLUSION: SERIAL NUMBER RESTORED USING MAGNETIC PARTICLE INSPECTION. RESTORED SERIAL # INDICATES "A34HJ6". CTS # SCRIBED ON BACK OF BAR STOCK FOR IDENTIFICATION PURPOSES.
TEHHTM	I restored the serial number on Item 1 using a combination of sanding and magnetic particle inspection (MPI) with Magnaflux. The restored serial number is A34HJ6.
TMXYP3	Serial number restored using magnetic particle inspection process. Reads "A34HJ6"
TNBVU8	A six digit alphanumeric serial number was successfully restored by chemical treatment to read: A 3 4 H J 6
TW6WD7	The serial number on the Item 1 metal plate was restored to read A34HJ6 using chemical etching techniques. The "Aluminum Standard" was not further examined.
TW9CWY	A chemical etching process was used to restore a serial number which was identified as being A34HJ6.

TABLE 2

WebCode	Conclusions
U3Q3VY	An area of milled metal was observed on a piece of stainless steel bar stock. This area is a typical location for a serial number. I treated this area in an attempt to recover any previously stamped characters. As a result of this examination I recovered the characters, 'A 3 4 H J 6'. These characters were similar in size, shape and style to the received reference characters.
UJA3F3	The obliterated number was magnetically restored and found to be "A34HJ6".
ULKUNJ	Using standard laboratory restoration techniques, the obliterated serial number on item 001-01 was found to be A34HJ6.
UV8V39	It was observed that the piece of metal was altered and its serial was obliterated. Through the process restoration was recuperer the alphanumeric sequence: A34HJ6.
UWX4YV	Examination of Item 1 revealed an obliterated area on the bar stock. Standard chemical restoration techniques revealed the following characters: "A34HJ6".
UXNCZJ	In the restoration study of the stainless steel bar sent, a positive result was achieved by highlighting the serial number A34HJ6.
V27RAB	ITEM RECEIVED UNDER PROPERTY#V27RAB WAS ONE PIECE OF BAR STOCK WITH AN OBLITERATED SERIAL NUMBER LOCATED IN THE CENTER OF THE PLATE. SAME WAS POLISHED AND CHEMICALLY PROCESSED AND RESTORED TO READ "A34HJ6"
V28TQ3	The steel bar stock identified as Item 1 has an obliterated area, the restoration process was applied in this area and the alphanumeric sequence A34HJ6 was recovered.
V2PK39	THE SEQUENCE RESTORED IN THE METAL PIECE IDENTIFIED ITEM1 IS A34HJ6.
V8W7RQ	The obliterated area on the stainless steel bar stock in item 1 was chemically etched and the serial number was determined to be A34HJ6
V977XX	The serial number on the piece of metal (Exhibit 1) was mechanically and chemically treated and restored to read A34HJ6.
V9PX7H	The following findings reflect the professional opinion of the examiner authoring this report. Examination of Item 1 revealed one (1) piece of metal bar stock with a milled area near the center of one side. Using chemical and physical serial number restoration techniques, an attempt was made to restore the obliterated serial number with the following results: Serial Number: A34HJ6 was restored on Item 1
VG28FW	Serial number restoration procedures were performed on the Item 1 bar stock, and the obliterated serial number was restored to read: A34HJ6.
VGJ3ZJ	The obliterated area on the submitted bar, item 1, was examined and standard restoration techniques were applied in an attempt to restore the obliterated characters. The serial number of the obliterated area on item 1 was restored to A34HJ6.
VGXRW6	the erased serial number was successfully restored; it was A34HJ6.
VNKBMY	The serial number A 3 4 H J 6 was restored on the piece of metal.
V6FCT	Using Laboratory chemical restoration procedures, the serial number was restored to read: A34HJ6.
VWB3KR	Sanding and chemical restoration of the obliterated area revealed the following sequence -- A34HJ6.
VZEVKH	Examination of Item #1 revealed one (1) portion of metal bar stock approximately 2 11/16 inches long, 1 inch wide, with reported serial number obliterated. Using chemical restoration techniques, an attempt was made to restore the serial number on Item #1 with the following results: Serial Number: A 3 4 H J 6 was restored to Item #1.
VZGH3V	Examination of Item 1 revealed an obliterated area. Standard chemical restoration procedures were utilized and the characters "A34HJ6" were restored.

TABLE 2

WebCode	Conclusions
W4E92F	Using standard laboratory techniques, the obliterated serial number on Item 001-01 was restored to read "A34HJ6". No examination performed on the Item 001-02 aluminum standard.
W4ECJX	An examination showed the serial number to be A34HJ6.
W68BR4	Submission #1 was examined and found to be one section of non-magnetic bar stock with an area of obliteration. Standard chemical restoration techniques revealed the following characters "A34HJ6".
WAG9LH	Examination of the submitted stainless steel bar (Item 1) found the manufacturer's serial number to have been obliterated. Physical and chemical processing of the submitted stainless steel bar (Item 1), restored the obliterated, original serial number to read "A34HJ6".
WB9EVG	Using standard laboratory techniques, the obliterated serial number on the Item 001-01 bar stock was restored to read A34HJ6. No examinations were performed using the 001-02 aluminum standard.
WFPRLV	The Item #1 was physically and chemically processed. Its serial number was restored to read: A 3 4 H J 6.
WPDMJQ	As a result of an attempted obliterated number restoration the following characters were observed: A34HJ6
WZUCDP	The serial number on item 1 was restored to A34HJ6
X4PPCY	The Item 1 metal bar was physically and chemically processed in an attempt to restore the obliterated serial number with the following result: The serial number was restored to read A34HJ6. The restored serial number was not searched in any database.
X9F6WY	Based on the above examination and finding, I am of my opinion that the original serial number on a piece of 303 stainless steel bar stock "Item 1" is "A34HJ6".
XB74CJ	Using a combination of mechanical and chemical restoration techniques, the serial number was fully restored to read: A 3 4 H J 6.
XGFDRR	The obliterated serial number on Item 1 was chemically restored to read A34HJ6.
XHPAAP	An attempt was made to sand and chemically restore the obliterated serial number from Item #1, and the following six-character sequence was recovered: A34HJ6.
XHQ8KL	The serial number was fully restored to read "A 3 4 H J 6".
XL7PL3	The serial number has been restored successfully and appeared clearly and entirely.
XL9GJB	An area normally associated with a serial number was mechanically and chemically treated. The serial number was restored using mechanical and chemical restoration techniques and was found to be A34HJ6
XLA66V	The exhibit consisted of a rectangular piece of stainless steel with a recessed portion. It was found that the item was magnetic. The recessed area appeared to be a portion of the exhibit where the serial number has been obliterated utilising a milling machine. After performing a visual inspection of the item the remnants of the letter A was visible at the beginning of a potentially six character number. After preparing the obliterated area using a Dremel electric tool, to remove excess milling marks, I then used a polishing compound and buffer attachment to polish the obliterated area until it had a smooth and shiny appearance. Utilising a non-destructive electro magnetic particle restoration technique on the prepared (obliterated area) the number A34HJ6 became visible within a minute.
XM33C2	EXHIBIT # AGENCY # DESCRIPTION AND CONCLUSIONS 1 1 One stainless steel bar with an obliterated serial number. The serial number was visualized with magnetic particles and found to be: A34HJ6. 2 One aluminum bar standard used as a reference. [Participant submitted data in a format that could not be reproduced in this report.]

TABLE 2

WebCode	Conclusions
XNFJJN	Evidence Received: Item #1 - Piece of white metal bar stock with a defaced serial number. Serial Number Restoration: A serial number restoration was conducted on the above described evidence (Item #1) with the following results: The defaced serial number was restored to read A34HJ6.
XUL7HJ	Magnetic processing of the silver colored block with an area of obliteration restored the serial number to read: A34HJ6.
Y2BKBF	The examination and processing of the obliterated serial number on the Item 1 piece of steel was restored to read "A34HJ6".
Y6CJTZ	I found filing marks on the metal plate Item 1. Upon electrochemical treatment on the filed surface, the number 'A34HJ6' was restored. Therefore, I am of the opinion that the obliterated serial number is A34HJ6.
YB6J9F	The Item 1 serial number was restored by chemical etching and found to be A34HJ6.
YGAF2T	The serial number had been erased from the exhibit plate (Item 1 by a milling machine. I was able to restore the erased serial number. It read A34HJ6.
YJFQ6J	The obliterated serial number on Item 1 was examined microscopically, polished, magnetically processed, and chemically restored to read A34HJ6.
YK9NB6	For the provided piece of steel bar it corresponds the following serial number wick was recovered by means of restoration procedure: A34HJ6
YKQMGF	Visual examination and chemical treatment of the serial number area on the bar stock, Item 1, reveal the following number: A34HJ6.
YRBT8V	The obliterated serial number was restored and concluded to most likely be A 3 4 H J 6.
YT4QE2	The alphanumeric sequence revealed in the object identified as E1-19-0473 was A34HJ6.
YVCRQZ	Examination of item 1 revealed an obliterated area. Using standard laboratory restoration techniques the obliterated number on Item 1 was restored to read "A34HJ6".
YW32B2	The restoration of the area presenting alteration was done and it was possible to achieved the complete restoration where the alphanumeric sequence A34HJ6 was observed.
Z2AZ8D	Visual examination and chemical treatment of the serial number area on the stainless steel bar stock, Item 1A, reveal the following number: A34HJ6. Item 1B was inspected to verify and document contents. No analysis was performed on the item listed.
Z327HC	Using standard laboratory restoration techniques, the obliterated serial number on Exhibit 001-01 was restored to read "A34HJ6". No examinations were performed on Exhibit 001-02, aluminum standard.
Z3TM4A	The serial number was fully restored to read A34HJ6.
Z4LKCF	The obliterated characters on Item 1 were microscopically examined, polished, and chemically restored to reveal the characters A34HJ6.
Z83ZNT	Item 1 exhibited an area of obliteration. The following serial number was revealed using magnetic particle inspection: A34HJ6.
Z86QWW	The stainless steel block, Item 1, was examined and observed to have an obliterated serial number. The serial number was restored as follows: A34HJ6.
Z9EU9Z	Number restoration techniques revealed a line of characters on the piece of metal. In my opinion, these were "A 3 4 H J 6".
ZA3FUV	The obliterated serial number was restored and concluded to most likely be A34HJ6.
ZA7V8W	Using standard laboratory techniques, the obliterated serial number on item 1 was restored to read "A34HJ6."

TABLE 2

WebCode	Conclusions
ZF9Y83	The serial number of the stainless steel bar stock described in item 1, was restored and corresponds to: A34HJ6.
ZN6RJ3	The piece of metal in question presents wear on the surface. Both by magnetic and chemical development, it was possible to obtain a sequence alphanumeric corresponding to the shape of the alphanumeric characters provided as comparative material.
ZPFNTE	Item A1-1: The obliterated serial number on Item A1-1 was restored and found to be A34HJ6.
ZTJHRJ	1. Examination of Exhibit 1 disclosed it to be a piece of metal bar stock, displaying an area of obliteration in its center. The obliterated area of Exhibit 1 was visually examined, polished, and chemically processed. The characters were restored and appeared as follows: A34HJ6.
ZUCFYP	Standard Laboratory procedures for restoring characters stamped in metal have been employed on the obliterated area. The restored characters are "A34HJ6".
ZZKLWW	The area with obliterated characters in Item1 was removed with the use of milling method. The material of Item 1 is ferromagnetic.

Sample Preparation

(listed in order of use)

TABLE 3

Sample Preparation			
WebCode	Method	Tool Used	Grit Size
2C4NQT	Visual	Stereoscope	
	Polishing	Sand paper	#100 & #220
2G4NFQ	Polishing	Steel wool	N/A
2HYDDR	Polishing	Rotary Tool	
2MALKN	Polishing	Dremel	
2NHTP3	Polishing	Dremel	
2PDG4R	Polishing	Rotary Tool	
2PGUVU	Polishing	Emery paper	800
2Q7ECX	Sanding	Sand paper	80 / 120 / 180
	Polishing	Dremel	
	Cleaning	Acetone	
2XTZL6	Polishing	Dremel	
33HWN2	Sanding	Sand paper	600
33LC8U	Polishing	Dremel	
33YV2Y	Visual		
3BT3HJ	Visual	Stereoscope	
3DE3JK	Polishing	Steel wool	
	Polishing	Dremel	
3EBDG9	Polishing	Dremel	
3HUB6Y	Polishing	Dremel	
3LCHKL	None	Sand paper	150
3MN8WB	Sanding	Sand paper	100, 150, 220
3TNV3G	Visual		
	Polishing	Dremel	
3TQLBK	Visual	Stereoscope	
	Polishing	Dremel	
3ZCAE4	Polishing	Dremel	Extra fine cratex wheel

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
3ZTMFL	Polishing	Dremel	
42XKGF	Polishing	Dremel	fine
44Q94H	Polishing	Emery stones	240, 320, 600
49YR4V	Visual	Microscope	
	Sanding	Sand paper	P400
4ARPC3	Sanding	Sand paper	320
4HNM2Q	Polishing	Dremel	
4T6CVP	Polishing	Rotary Tool	
4YYZYB	Sanding	Sand paper	Various grit size used
	Polishing	Dremel	
4ZNHNP	Visual		
	Polishing	Dremel	
	None		
4ZRX8H	Polishing	Dremel	
62W8BY	Polishing	Dremel	
	None		
679TNC	Cleaning	SKC-S (Cleaner for MPI)	
6AAZLV	Sanding	Sand paper	#80 y #400
6BMGAU	Sanding	Dremel	180
	Sanding	Sand paper	180, 400, 800, 1200
	Polishing	Dremel	Soft pad
6EK6F4	Sanding	Sand paper	60, 100 and 150
6LJUJT	None		
6M39VH	Visual		
	Polishing	Dremel	
6MBR8Z	Sanding	Sand paper	320
6ME8QR	None		
6UDUF7	Polishing	Dremel	
	Visual	Stereoscope	

TABLE 3

Sample Preparation				
WebCode	Method	Tool Used	Grit Size	
6UVQ2E	Sanding	Sand paper	150 lightly	
6WXTLN	Visual	Stereoscope		
	Cleaning	Acetone		
	Sanding	Sand paper	#200	
	Polishing	Sand paper	#500	
6XZ8MP	Visual	Posi-test	M7 V2.2	
	Polishing	Emery paper	M1 V1.1 - 400 grit	
73RX9Q	Polishing	Dremel		
7DRFVM	Visual			
	Visual	Microscope		
	Visual	Photographic (camera)		
	Sanding	Sand paper	600	
7JRVJA	Polishing	Dremel		
7PLR9Z	Visual	Stereoscope		
	Sanding	Rotary Tool	800	
	Sanding	Rotary Tool	1200	
83GVPW	None			
88YTJE	Polishing	Dremel		
89CF2T	Sanding	Sand paper	600 grit wet/dry paper only	
	Cleaning	Steel wool		
89P2L3	Polishing	Dremel		
89QRRK	Visual			
8CBRXT	Sanding	Emery paper	360, 400, 800, 1000, 1200	
8FTYDF	Sanding	Sand paper	100 GRIT THEN 150 GRIT	
8JQNBE	None			
8JT38M	Polishing	Rotary Tool		
8V6CUD	Visual	Examiner		
	Polishing	Dremel		

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
8WXB3J	Visual	Stereoscope	
	Polishing	Dremel	
	Sanding	Dremel	very fine
8XNRXD	Visual	Microscope	
93F9WP	None		
98CPHQ	Sanding	Sand paper	60 & 600
9FJL3N	None		
9FTBHM	Polishing	Emery paper	1200
9GZM6Q	Visual	magnifying glasses	
9KG632	Polishing	Dremel	
A3UZHE	Visual		
A4MXNZ	Polishing	Rotary Tool	
A4NPL9	Polishing	Dremel	
A6FVW7	Visual	Stereoscope	
	Sanding	Sand paper	220 and 400 grit
AH9AZA	Sanding	Sand paper	unknown
AJZ9GT	Visual	Stereoscope	
	Sanding	Sand paper	P80, P320
	Polishing	Steel wool	
AL7VPR	Cleaning	Brush	
AULAW4	Cleaning	Acetone	
	Polishing	Steel wool	
B4LHVZ	Visual	Stereoscope	
	Polishing	Dremel	
B8N32K	None		
BB7FL9	None		
BGACDK	Polishing	Dremel	
BLM6F8	Polishing	Dremel	
BQY6LB	Visual		

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
BT2XPH	None		
BT4NXL	Polishing	Dremel	
BVDN3T	Visual	Stereoscope	
C6WGRU	None		
C84W2L	Visual	Stereoscope	
C9EN8G	Sanding	Sand paper	220, 400
C9VEJ	Visual	Stereoscope	
	Polishing	Dremel	
CFD9DH	Polishing	Rotary Tool	Polishing Wheel
CNPK7A	Polishing	Sand paper	220
CPFT8X	Sanding	Dremel	unknown
	Polishing	Dremel	soft
CPGK77	None		
DD3V2A	Sanding	Sand paper	150 & 220
DEWJGJ	Visual	Microscope	
DG6KTH	Polishing	Dremel	
DHVUDJ	Visual	Microscope	
DN7VMU	Polishing	Dremel	
DPHQ9L	Visual	Stereoscope	
	Polishing	Sand paper	320, 400, 600 grit
	Cleaning	Acetone	
DQBNGT	None		
DV2YQQ	Polishing	Dremel	
DXNKDM	Cleaning	Brush	
E3ZU2A	Polishing	Dremel	
EBUYUB	Sanding	Emery paper	150
	Sanding	Sand paper	1500
	Polishing	Dremel	

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
EC43PM	Visual	Stereoscope	
	Polishing	Dremel	240 grit
ECKYBV	Cleaning	Acetone	
EECAU2	Sanding	Sand paper	fine
EF6928	Polishing	Rotary Tool	
	Visual	Stereoscope	
EHV8HQ	Polishing	Dremel	
ENUYKT	Polishing	Dremel	
	Sanding	Sand paper	400/600/1200
EP8BKJ	Cleaning	Acetone	
EPQDRJ	Sanding	Sand paper	220, 400, 1000
ETPRFA	None		
ETVTQB	Polishing	Rotary Tool	
EVGN64	Polishing	Sand paper	
EVYNAE	Polishing	Dremel	
EZRQ2	Cleaning	Water	
	Sanding	Dremel	120-600
	Polishing	Dremel	
F4QDH2	Polishing	Dremel	
FABLRK	Polishing	Sand paper	P400
FATLNU	Cleaning	Ethanol	
FC2MX8	Polishing	Rotary Tool	None
FJKVFD	Polishing	Dremel	
FT799G	None		
FXWFTB	Sanding	Dremel	unk
FYZWC4	Visual	Stereoscope	
	Grinding	Dremel	
FZR2L2	Visual	Stereoscope	
	Polishing	Dremel	

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
FZTUKA	Visual		
	Polishing	Dremel	
G2YKDB	Visual	Microscope	No
G3RHKG	Polishing	Dremel	
G7APZ4	Polishing	Rotary Tool	medium grit polishing wheel
GA88WB	Visual	Stereoscope	
GB3VCK	Sanding	Sand paper	80
	Sanding	Sand paper	220
	Polishing	Sand paper	1000
GBHAHA	None		
GFDY8U	Sanding	Sand paper	medium
GW4ZZE	Polishing	Dremel	
	Cleaning	Water	
GX24ZG	Sanding	Dremel	1200
GXH8LV	Cleaning	Acetone	
	Polishing	Sand paper	400
GXWX9K	Polishing	Sand paper	1000
H4H4QD	Polishing	Dremel	
HCQMZB	Visual		
HE2JB8	Visual	Stereoscope	
HFV9XA	Polishing	Dremel	
HJA74B	Polishing	Dremel	
HKRR3T	None		
HNMNKR	Visual	Stereoscope	
	Sanding	Sand paper	600
HNNGHZ	None		
HUXWRN	Sanding	Sand paper	150, 220, 400 grit all with oil
HZX3JK	Sanding	Sand paper	220
	Polishing	Sand paper	400

TABLE 3

Sample Preparation			
WebCode	Method	Tool Used	Grit Size
J27UQR	None	Stereoscope	
J34XN9	Polishing	Dremel	
J3MQG7	Cleaning	Acetone	
J8GYML	Polishing	Dremel	
J8ZPW7	Polishing		
J98ZTA	Polishing	Dremel	
JHQKN7	None		
JJUYJE	Sanding	Sand paper	FINE, 220, 400
JV7986	Sanding	Sand paper	220
	Polishing	Steel wool	
JVMKPA	Visual	Stereoscope	
	Polishing	Dremel	
JZDWHL	Visual		
	Polishing	Dremel	
	Sanding	Emery paper	microgrit (30um)
JZFPGT	Visual	Microscope	
K3GR3N	Sanding	Sand paper	600
	Sanding	Dremel	220
K8F9EH	Polishing	Sand paper	100, 360, 800, 1500
KBEKBH	Sanding	Sand paper	600 and 1500 grit
KBFC9Q	Visual		
	Sanding	Dremel	120 and 240
	Polishing	Sand paper	600
KC7KAE	Cleaning	Acetone	
	Sanding	Sand paper	fine size
KFNVA4	Visual		
KGGTGB	Polishing	Dremel	

TABLE 3

Sample Preparation				
WebCode	Method	Tool Used	Grit Size	
KJJRPH	Visual	Stereoscope		
	Sanding	Dremel	P320	
	Polishing	Steel wool		
KPBY9Q	Sanding	Sand paper	course	
KXMX32	Visual	Stereoscope		
	Polishing	Dremel		
L2KU8M	Polishing	Dremel	fine	
L6LUA6	Polishing	Steel wool	N/A	
LADBBW	Visual	Stereoscope		
	Polishing	Dremel		
LFH6D6	Visual	Stereoscope		
LFXEHY	None			
LG9DEU	Polishing	Dremel		
LHQ362	Visual	Stereoscope		
	Polishing	Dremel		
LJGJ2V	Visual	Stereoscope		
	Polishing	Dremel		
LM4W9D	Sanding	Sand paper	180, 400, 600, 1200	
LNANRE	Polishing	Dremel		
LUHUNK	Cleaning	Acetone		
M2WUK9	Visual			
M3RHYX	Polishing	Dremel		
M4ME8R	Polishing	Sand paper	500	
M6CMAF	Polishing	Dremel		
MLPQ4N	Visual	Stereoscope		
	Polishing	Dremel	Ex-Fine	
N394VK	Visual	Stereoscope		
	Polishing	Dremel		
N4233R	None			

TABLE 3

Sample Preparation			
WebCode	Method	Tool Used	Grit Size
N4LLAJ	Polishing	Dremel	
NFD6QB	Visual		
	Polishing	Dremel	Fine Dremel Wheel
	None		
NFW7FX	Visual		
	Polishing		
NGP4KJ	Sanding	Sand paper	
NMQGJ2	Polishing	Dremel	
NN7MW7	Visual	Microscope	
	Polishing	Sand paper	220, 120
NPGHPP	Polishing	Dremel	
NPGPKQ	None		
NQ9NYN	Cleaning	Contour Probe electric magnet	
NZJPH4	None		
PHXGZZ	Polishing	Dremel	
	Cleaning	Acetone	
PM7Z2E	Visual	Stereoscope	
	Polishing	Dremel	300 grit
PM9P8W	Visual	Stereoscope	
	Sanding	Sand paper	220
PMPQBX	Visual	Stereoscope	120 grit then 400 grit
	Sanding	Sand paper	
PQANQ2	Sanding	Sand paper	180/320/800/1200
PU7J2N	Polishing	Dremel	
Q2HY6H	Polishing, degreasing	Sand paper	600/800
Q94V88	Polishing	Rotary Tool	
QAGFZG	Polishing	Dremel	fine grit
QB9KBF	Grinding	Dremel	
	Polishing	Dremel	

TABLE 3

Sample Preparation			
<u>WebCode</u>	<u>Method</u>	<u>Tool Used</u>	<u>Grit Size</u>
QBVMLY	Visual		
	Polishing	Dremel	425 Wheel
QC6Y2E	Polishing	Dremel	
QNWK8A	Cleaning	Acetone	
QYX2YZ	Grinding	Dremel	
	Sanding	Sand paper	P220
	Sanding	Sand paper	P240
	Cleaning	water	
	Visual	magnet	non-magnetic
QZBD2B	None		
RBQTYB	Sanding	Sand paper	1000
RBVYQ7	Cleaning	Ethanol	
	Polishing	Dremel	Unknown, though very fine
RC3JBZ	Sanding	Emery paper	
	Sanding	Sand paper	p220
RGUQT9	Polishing	Dremel	
RRYNT6	Polishing	Rotary Tool	
RT76K9	Sanding	Sand paper	80, 220, 1000.
RXY3GR	None		
RZQY6L	Sanding	Sand paper	P400
TB6HZ2	None	Stereoscope	
TEHHTM	None		
	Sanding	Sand paper	120, 220, 400, snd 800
TMXYP3	Polishing	Rotary Tool	
TNBVU8	Polishing	Rotary Tool	
	Cleaning	Acetone	
TW6WD7	Polishing	Dremel	
TW9CWY	Polishing	Sand paper	RANGING 400,800 AND 1200
U3Q3VY	Sanding	Sand paper	240/600/800/1200/2400

TABLE 3

Sample Preparation				
WebCode	Method	Tool Used	Grit Size	
UJA3F3	Polishing	Emery paper	240 to 1500	
ULKUNJ	None			
UV8V39	Sanding		220,400, 1000	
UWX4YV	Cleaning	Acetone		
	Sanding	Dremel	#500 Medium Soft	
UXNCZJ	Cleaning	Stereoscope		
V27RAB	Polishing	Dremel		
V28TQ3	Sanding	Sand paper	220, 400, 1000	
V2PK39	Visual			
V8W7RQ	Visual	Stereoscope		
	Polishing	Dremel		
V977XX	Polishing	Dremel		
V9PX7H	Visual	Stereoscope		
	Visual	Print powder		
VG28FW	Visual	Stereoscope		
	Cleaning	Acetone		
	Visual	Stereoscope		
	Polishing	Dremel		
VGJ3ZJ	Polishing	Sand paper	P1200	
VGXRW6	Sanding	Sand paper	240/600/1200/2000	
	None			
VNKBY	Visual	Stereoscope		
W6FCT	Grinding	Dremel		
VWB3KR	Sanding	Sand paper	60 and 220	
VZEVKH	None			
VZGH3V	Polishing	Dremel		
W4E92F	Visual			
	Visual	Stereoscope		

TABLE 3

Sample Preparation			
WebCode	Method	Tool Used	Grit Size
W4ECJX	Visual	Microscope	
	Polishing	Bench Grinder - Polishing Wheel	
	Sanding	Emery paper	400 grit
W68BR4	Sanding	Sand paper	220 & 413
WAG9LH	Polishing	Dremel	
WB9EVG	None		
WFPRLV	Polishing	Dremel	
WPDMJQ	Sanding	Sand paper	220
WZUCDP	None		
X4PPCY	Visual	OptiVisor	
	Sanding	Sand paper	400
	Polishing	Steel wool	0000
X9F6WY	None		
XB74CJ	Sanding	Dremel	
	Sanding	Sand paper	320
	Sanding	Sand paper	600
XGFDRR	Sanding	Sand paper	100
	Polishing	Dremel	
XHPAAP	Polishing	Emery paper	
XHQ8KL	Visual		
XL7PL3	Polishing	Rotary Tool	
XL9GJB	Sanding	Sand paper	Norton 220C
XLA66V	Visual	Stereoscope	
	Sanding	Dremel	120
	Polishing	Dremel	
XM33C2	Polishing	Dremel	
XNFJJN	Sanding	Sand paper	Med/Fine
	Polishing	Sand paper	Fine
XUL7HJ	None		

TABLE 3

Sample Preparation				
WebCode	Method	Tool Used	Grit Size	
Y2BKBF	Sanding	Dremel	400 GRIT	
Y6CJTZ	Cleaning	Acetone		
YB6J9F	Polishing Visual	Dremel Stereoscope		
YGAF2T	Polishing Cleaning	Fine abrasive polishing wheel Acetone		
YJFQ6J	Polishing Cleaning Polishing	Sand paper magnaflux solvent Rotary Tool	P320	
YK9NB6	Visual Sanding	Sand paper	1000	
YKQMGF	Visual Sanding	Microscope Sand paper	150, 220, 400	
YRBT8V	Sanding	Sand paper	220 & 1500	
YT4QE2	Sanding None	Sand paper	220, 400, 1000	
YVCRQZ	Cleaning	Ethanol		
YW32B2	Sanding	Sand paper	400, 220 and 80	
Z2AZ8D	Sanding Sanding	Sand paper Dremel		
Z327HC	Visual Sanding	Stereoscope Sand paper		
Z3TM4A	Polishing	Dremel		
Z4LKCF	None			
Z83ZNT	None			
Z86QWW	Polishing	Dremel		
Z9EU9Z	Sanding	Sand paper	120, 240, 400, 800, 1200	

TABLE 3

Sample Preparation			
WebCode	Method	Tool Used	Grit Size
ZA3FUV	Visual	Stereoscope	
	Sanding	Dremel	120
	Sanding	Sand paper	220
	Sanding	Sand paper	500
	Sanding	Sand paper	2000
	Cleaning	Metal Surfacing Solution	
ZA7V8W	None		
ZF9Y83	Visual	Stereoscope	
	Cleaning	Acetone	
	Polishing	Sand paper	220
	Polishing	Sand paper	500
ZN6RJ3	Polishing	Sand paper	220 grit size
ZPFNTE	Sanding	Emery paper	600
ZTJHRJ	Polishing	Dremel	
ZUCFYP	Visual	Stereoscope	
	Polishing	Dremel	
ZZKLWV	None	Stereoscope	

Response Summary		Participants: 291
Sample Preparation		
Visual Method:	78	
Sanding Method:	83	
Polishing Method:	153	
None:	43	
<p>Note: The total number of preparation methods used is not equivalent to the total number of participants because some participants used more than one sample preparation method.</p>		

Recovery Methods

(listed in order of use)

TABLE 4

Recovery Methods		
WebCode	Method	Time
2C4NQT	Davis Reagent	10 minutes
	Turner's Reagent	10 minutes
	Fry's Reagent	5 minutes
2G4NFQ	Davis' Reagent	~ 3 minutes
	Turner's Reagent	~ 5 minutes
	Fry's Reagent	~ 10 minutes
2HYDDR	Acid Etch Method	25 SECONDS AND REPEATED AS NEEDED WITH THE FOLLOWING ACIDS - FERRIC CHLORIDE, ACIDIC FERRIC CHLORIDE & 25% NITRIC ACID
2MALKN	MagnaFlux	
	Acid Etch Method	Nitric Acid and Acidic Ferric Chloride (wipes with swabs)
2NHTP3	Fry's Reagent	1 minute per application
	Turner's Reagent	30 seconds to a minute per application
	25% Nitric Acid	30 seconds to a minute per application
2PDG4R	Acid Etch Method	10 minutes
2PGUVU	Fry's Reagent	ONE HOUR
2Q7ECX	MagnaFlux	
2XTZL6	Acid Etch Method	DAVIS REAGENT, 7 MIN
33HWN2	Fry's Reagent	Approximately 5 minutes
33LC8U	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	1 minute
	Fry's Reagent	5 minutes
33YV2Y	MagnaFlux	
3BT3HJ	Fry's Reagent	Approximately 10 minutes in total.
3DE3JK	Ferric Chloride	10 mins
	Acidic Ferric Chloride	15 mins
	25% Nitric Acid	15 mins
3EBDG9	MagnaFlux	
	Fry's Reagent	1 minute
	Turner's Reagent	1 minute

TABLE 4

Recovery Methods

WebCode	Method	Time
3HUB6Y	10% Sodium Hydroxide	30 seconds
	Grinding	
	10% Sodium Hydroxide	30 seconds
	Acidic Ferric Chloride	30 seconds
3LCHKL	Fry's Reagent	1 hour
3MN8WB	Fry's Reagent	2-4 sec
3TNV3G	Acidic Ferric Chloride	15 minutes
3TQLBK	10% NaOH	10 seconds
	25% Sodium Hydroxide	10 seconds
	Turner's Reagent	10 seconds
	Fry's Reagent	5 seconds
3ZCAE4	Turner's Reagent	2 min
	Turner's Reagent	2 min
	Turner's Reagent	1 min
	Fry's Reagent	20 sec
3ZTMFL	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	one minute
42XKGF	MagnaFlux	
44Q94H	Acidic Ferric Chloride	Overall time would be approximately 15-20 minutes.
49YR4V	Ferric Chloride	5 minutes
	Acidic Ferric Chloride	10 minutes
4ARPC3	Electro-acid	
4HNM2Q	Acidic Ferric Chloride	10 MINUTES
4T6CVP	Fry's Reagent	10-15 seconds
	MagnaFlux	
4YYZYB	Fry's Reagent	2 minutes
	Acid Etch Method	30 seconds
4ZNHNP	MagnaFlux	
	Davis Reagent	5 minutes
	MagnaFlux	
4ZR8H	Fry's Reagent	~1 minute
62W8BY	Fry's Reagent	30 seconds
	Turner's Reagent	30 seconds
679TNC	Magnetic Particle Inspection (MPI)	

TABLE 4

Recovery Methods

WebCode	Method	Time
6AAZLV	MagnaFlux	
6BMGAU	Acid Etch Method	Seconds
	Fry's Reagent	Seconds
6EK6F4	Fry's Reagent	A few minutes
6LJUYT	Fry's Reagent	~ 5 minutes
6M39VH	Davis Reagent	1 min
	Turner's Reagent	1-2 minutes
	Fry's Reagent	1-2 minutes
6MBR8Z	Acidic Ferric Chloride	~ 1 minute
	Fry's Reagent	~ 1 minute
6ME8QR	Magnetic Particle Inspection (MPI)	
6UDUF7	MagnaFlux	
	Fry's Reagent	1 minute
6UVQ2E	Fry's Reagent	a few swipes, not too long
6WXTLN	Acid Etch Method	Total: 15 minutes
	David's Reagent	6 minutes
	Turner's Reagent	6 minutes
	Fry's Reagent	3 minutes
6XZ8MP	Fry's Reagent	M9 V1.1 - 1 hour
73RX9Q	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	
7DRFVM	MagnaFlux	
	Fry's Reagent	approx. 2 minutes
	Fry's Reagent	approx. 2 minutes
	Fry's Reagent	(and 10% Nitric acid)-approx. 2 minutes
	Fry's Reagent	approx. 1 minute
	Fry's Reagent	(and 10% Nitric acid)-approx. 1 minute
7JRVJA	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	Approx. 2 minutes.
7PLR9Z	Magnetic Particle Inspection (MPI)	
	Acid Etch Method	30 sec
83GVPW	MagnaFlux	
88YTJE	MagnaFlux	
89CF2T	Fry's Reagent	6 minutes left on material

TABLE 4

Recovery Methods

WebCode	Method	Time
89P2L3	Magnetic Particle Inspection (MPI) Fry's Reagent	
89QRRK	Magnetic Particle Inspection (MPI)	
8CBRXT	Acidic Ferric Chloride Fry's Reagent	Approx 2 minutes 1 minute
8FTYDF	Fry's Reagent	20 MINUTES
8JQNBE	Fry's Reagent	10 to 15 minutes total restoration time
8JT38M	Fry's Reagent	2 Minutes
8V6CUD	MagnaFlux	
8WXB3J	Fry's Reagent	2 minutes
8XNRXD	MagnaFlux	
93F9WP	Fry's Reagent	5 Minutes
98CPHQ	Fry's Reagent	approximately 5'
9FJL3N	Acid Etch Method	2 min.
9FTBHM	Fry's Reagent	20 minutes
9GZM6Q	Acidic Ferric Chloride	15 minute
9KG632	Davis Reagent Turner's Reagent	5 minutes 10 minutes
A3UZHE	Fry's Reagent Nickles & Alloy Fry's Reagent	5 1 2
A4MXNZ	Griffin Reagent	< 5 Minutes
A4NPL9	Fry's Reagent	2-3 minutes
A6FWW7	Magnetic Particle Inspection (MPI)	
AH9AZA	MagnaFlux	
AJZ9GT	Acid Etch Method Turner's Reagent	Davis Reagent- 10 minutes 25 minutes
AL7VPR	Regula 7505 M	
AULAW4	Fry's Reagent	Thirty minutes
B4LHVZ	Fry's Reagent Turner's Reagent Davis	Minimal Minimal Minimal

TABLE 4

Recovery Methods

WebCode	Method	Time
B8N32K	Fry's Reagent	under 1 min (repeated)
	Turner's Reagent	under 1 min (repeated)
	MagnaFlux	
BB7FL9	MagnaFlux	
BGACDK	MagnaFlux	
BLM6F8	Fry's Reagent	4 minutes
BQY6LB	Fry's Reagent	7 minutes
BT2XPH	Fry's Reagent	
	MagnaFlux	
BT4NXL	Magnetic Particle Inspection (MPI)	
	Acidic Ferric Chloride	1-2 minutes
	Ferric Chloride	2-3 minutes
	Modified Turner's Reagent (Solution #4)	1 minute
BVDN3T	Fry's Reagent	approximately 30 minutes
C6WGRU	MagnaFlux	
C84W2L	MagnaFlux	
	Turner's Reagent	45 minutes
C9EN8G	Fry's Reagent	
C9VEJ	Fry's Reagent	~2-3 min.
	Davis Reagent	Less than 1 min.
CFD9DH	Fry's Reagent	1-2 minutes maximum
CNPK7A	Fry's Reagent	~ 10 min
CPFT8X	Acid Etch Method	5-10 min
	MagnaFlux	
CPGK77	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	
DD3V2A	Fry's Reagent	Re-applied ~20 sec
DEWJGJ	Acid Etch Method	15-20 minutes
DG6KTH	Acid Etch Method	5 minutes
DHVUDJ	JKMC004 - Examination and Restoration of Erased Identification Numbers/Markings	8 minutes
DN7VMU	Fry's Reagent	10 Min
	10% Nitric Acid	2 Min

TABLE 4

Recovery Methods

WebCode	Method	Time
DPHQ9L	MagnaFlux	-
	Turner's Reagent	45 minutes
	Davis' reagent	5 minutes
	Phosphoric/nitric acid	5 minutes
DQBNGT	MagnaFlux	
DV2YQQ	Acidic Ferric Chloride	For a total of approximately 28 minutes
DXNKDM	Regula 7505 M	
E3ZU2A	Ferric Chloride	1 min
	Nitric Acid 10%	1 min
	Acidic Ferric Chloride	1 min
	Nitric Acid 10%	1 min
	Acidic Ferric Chloride	1 Min
	Ferric Chloride	2 Min
EBUYUB	Acid Etch Method	Solution #1, 5 minutes
	Acid Etch Method	Solution #2, 5 minutes
	Acid Etch Method	Solution #3, 5 minutes
EC43PM	Fry's Reagent	1 minute revealed characters, 5 minutes fully restored
ECKYBV	Fry's Reagent	20 min
EECAU2	MagnaFlux	
EF6928	Acid Etch Method	15 min
	Magnetic Particle Inspection (MPI)	
EHV8HQ	Fort's Solution	5 minutes
	Fry's Reagent	2 minutes
	Nitric Acid	2 minutes
ENUYKT	Fry's Reagent	overnight
EP8BKJ	Acid Etch Method	10-15 minutes
EPQDRJ	MagnaFlux	
ETPRFA	Acid Etch Method	10 minutes
ETVTQB	Fry's Reagent	less than 2 minutes
EVGN64	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	
EVYNAE	MagnaFlux	
	MagnaFlux	

TABLE 4

Recovery Methods

WebCode	Method	Time
EZRVQ2	Acid Etch Method	~5 minutes
	Ferric Chloride	~5 minutes
	Davis Reagent	2-3 minutes
	Fry's Reagent	1-2 minutes
F4QDH2	Ferric chloride	Approximately 2 minutes
	Acidic Ferric Chloride	Approximately 10 minutes
	10% Sodium Hydroxide	Approximately 1 minutes
	Davis	Approximately 5 minutes
	Fry's Reagent	Approximately 10 minutes
	Griffin Reagent	Approximately 60 minutes
	Davis	Approximately 10 minutes
FABLRK	Turner's Reagent	15-30 seconds
	Fry's Reagent	1 minute
FATLNU	Acid Etch Method	3 min
FC2MX8	Fry's Reagent	2 minutes
FJKVFD	Fry's Reagent	several seconds each time
FT799G	Acid Etch Method	
FXWFTB	Acid Etch Method	3-4 min
	Fry's Reagent	30 sec
FYZWC4	MagnaFlux	
	Acidic Ferric Chloride	20 minutes
FZR2L2	Magnetic Particle Inspection (MPI)	
FZTUKA	Acidic Ferric Chloride	1 - 2 minutes each acid
	Davis' Reagent	1 - 2 minutes
	Turner's Reagent	1 - 2 minutes
	Fry's Reagent	1 - 2 minutes
G2YKDB	Magnetic Particle Inspection (MPI)	Not used
G3RHKG	Acidic Ferric Chloride	momentary with agitation
G7APZ4	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	5 minutes
GA88WB	MagnaFlux	
GB3VCK	MagnaFlux	None
GBHAHA	MagnaFlux	

TABLE 4

Recovery Methods

WebCode	Method	Time
GFDY8U	Fry's Reagent	5 minutes
	Acidic Ferric Chloride	5 minutes
GW4ZZE	Fry's Reagent	1 minute
GX24ZG	Turner's Reagent	2 min.
	Fry's Reagent	2 min
GXH8LV	Acidic Ferric Chloride	4-5 minutes
GXWX9K	MagnaFlux	5 minutes
	Electro-acid	HCL 5 minutes and Fry 5 minutes
H4H4QD	Davis Reagent	2 applications, 5-10 seconds each
	Turner's Reagent	1 application, 5-10 seconds
	Fry's Reagent	1 application, 5-10 seconds
HCQMZB	MagnaFlux	
HE2JB8	Fry's Reagent	Continuously applied acid using cotton swab for a total of approximately 10 minutes.
	25% Nitric Acid	Continuously applied acid using cotton swab for a total of approximately 10 minutes. Used between Fry's Reagent applications.
HFV9XA	MagnaFlux	
HJA74B	Fry's Reagent	1 min
HKRR3T	Magnetic Particle Inspection (MPI)	
HNMNKR	Fry's Reagent	multiple uses, variable lengths of times
HNNGHZ	Fry's Reagent	
	DAVIS	
	Nitric Acid	
HUXWRN	Griffin Reagent	~2 minutes
HZX3JK	MagnaFlux	
J27UQR	MagnaFlux	
J34XN9	Fry's Reagent	<1 min
	25 % Nitric Acid	<1 min
J3MQG7	Fry's Reagent	
J8GYML	Acidic Ferric Chloride	approx 15 min
J8ZPW7	Magnetic Particle Inspection (MPI)	

TABLE 4
Recovery Methods

WebCode	Method	Time
J98ZTA	MagnaFlux	
JHQKN7	MagnaFlux	
JJUYJE	MagnaFlux Fry's Reagent	5 minutes
JV7986	Ferric Chloride	Less than a minute; "brushed" with swab continuously
	Acidic Ferric Chloride	Less than a minute; "brushed" with swab continuously
	25% Nitric Acid	Less than a minute; "brushed" with swab continuously
	10% Sodium Hydroxide	Less than a minute; "brushed" with swab continuously
JVMKPA	Magnetic Particle Inspection (MPI)	10 min
	Modified Fry's Reagent	10 min
JZDWHL	Fry's Reagent	1 minute
JZFPGT	Fry's Reagent	approximately 20-30 seconds per application, 5 applications
K3GR3N	Fry's Reagent	
K8F9EH	Fry's Reagent	5 seconds (5 times)
KBEKBH	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	less than 5 minutes
KBFC9Q	Turner's Reagent	multiple swabs for 15 minutes
	Davis Reagent	multiple swabs for 10 minutes
KC7KAE	Acid Etch Method	Two (2) minutes
KFNVA4	Fry's Reagent	2 minutes
KGGTGB	Fry's Reagent	30 seconds
	25% Nitric Acid	15 seconds
KJJRPH	Turner's Reagent	5 seconds
	Fry's Reagent	5 seconds
KPBY9Q	MagnaFlux	
	Fry's Reagent	30 secs each application
	Acidic Ferric Chloride	20 secs each application
KXMX32	MagnaFlux	
	Fry's Reagent	Approximately 30 min. total
L2KU8M	Fry's Reagent	constant application ~30 min.

TABLE 4

Recovery Methods		
WebCode	Method	Time
L6LUA6	Davis' Reagent	~5 minutes
	Turner's Reagent	~13 minutes
	Fry's Reagent	~8 minutes
LADBBW	MagnaFlux	
LFH6D6	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	1 minutes
LFXEHY	Magnetic Particle Inspection (MPI)	
	Davis Reagent x 2	~1 minute
	Polish	
	Davis Reagent x 2	~1 minute
	Fry's Reagent	~30 seconds
	Davis Reagent	~1 minute
	Turner's Reagent	~30 seconds
	Fry's Reagent	~30 seconds
	Davis Reagent	~1 minute
	Fry's Reagent	~30 seconds
Davis Reagent	~1 minute	
LG9DEU	Turner's Reagent	~2 mins
	Fry's Reagent	~2 mins
LHQ362	Fry's Reagent	Approximately 1 minute
LJGJ2V	Fry's Reagent	About 2 seconds before being swabbed off.
LM4W9D	Acid Etch Method	few seconds, repeat applications
	Fry's Reagent	few seconds, repeat applications
LNANRE	Fry's Reagent	30 seconds to 60 seconds
LUHUNK	Acid Etch Method	10 minutes
M2WUK9	Magnetic Particle Inspection (MPI)	
	MagnaFlux	
M3RHXY	MagnaFlux	
	Acid Etch Method	Davis Reagent: ~15-20 minutes
M4ME8R	MagnaFlux	

TABLE 4

Recovery Methods		
WebCode	Method	Time
M6CMAF	Davis	3 minutes of swiping
	Turner's Reagent	5 minutes of swiping
	Fry's Reagent	3 minutes of swiping
	Turner's Reagent	5 minutes of swiping
	Fry's Reagent	5 minutes of swiping
	Davis	3 minutes of swiping
	Fry's Reagent	2 minutes of swiping
MLPQ4N	MagnaFlux	
N394VK	MagnaFlux	
	Fry's Reagent	less than 2 minutes
	10% Nitric Acid	30 seconds
N4233R	25% Nitric Acid	2 minutes
	Ferric Chloride	2 minutes
	polished with P220 sandpaper	
	Fry's Reagent	2 minutes
N4LLAJ	Acid Etch Method	~10 MINUTES TOTAL
	Fry's Reagent	4 MINUTES
	Fort's Reagent	5 MINUTES
	Acidic Ferric Chloride	1 MINUTE
NFD6QB	Acid Etch Method	Aqua Regia ~2 minutes
	Turner's Reagent	~1 minute
	Acid Etch Method	Davis ~30 seconds
	Acid Etch Method	Aqua Regia ~1 minute
	Fry's Reagent	~ 10 seconds
	Acid Etch Method	Aqua Regia ~1 minute
NFW7FX	Fry's Reagent	4 minutes
NGP4KJ	Fry's Reagent	
NMQGJ2	Magnetic Particle Inspection (MPI)	1 min
	Fry's Reagent	2 min
NN7MW7	Davi's Reagent	6 minutes
	Turner's Reagent	6 minutes
	Fry's Reagent	2 minutes
NPGHPP	MagnaFlux	
NPGPKQ	MagnaFlux	
NQ9NYN	Electro-magnetic	

TABLE 4

Recovery Methods

WebCode	Method	Time
NZJPH4	MagnaFlux	
PHXGZZ	Fry's Reagent	~3-5 mins
	Turner's Reagent	~5 mins
	Acidic Ferric Chloride	~10 mins
	Ferric Chloride	~ 10 mins
	MagnaFlux	~ 2 mins
PM7Z2E	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	A few seconds per swab.
	Fry's Reagent	A few seconds per swab.
PM9P8W	Fry's Reagent	~ 30 seconds
	25% Nitric Acid	~ 15 seconds
PMPQBX	Acidic Ferric Chloride	First used Acidic Ferric using cotton tip applicator rubbing it several times then wiping off
	Phosphoric Nitric	After Rubbing with Acidic Ferric I then used Phosphoric Nitric in the same manner leaving it on approximately 30 seconds before wiping it off
PQANQ2	Fry's Reagent	5 minutes
PU7J2N	Fry's Reagent	swabbed on to item until exposure
Q2HY6H	Chemical etching reagent Adler	15 minutes
Q94V88	Acidic Ferric Chloride	30 SECONDS
	FERRIC CHLORIDE	30 SECONDS
	REAGENT E	30 SECONDS
	ALUMINUM SOLUTION	30 SECONDS
QAGFZG	Acidic Ferric Chloride	1 minute
QB9KBF	The sample was eaten away chemical solution $\text{CuCl}_2 \cdot 2\text{H}_2\text{O} + \text{HCl} + \text{H}_2\text{O}$	Time 30 min.
QBVMLY	MagnaFlux	
	Fry's Reagent	<5 minutes
QC6Y2E	Fry's Reagent	Approximately 2 minutes.
QNWK8A	Acid Etch Method	2 minutes

TABLE 4

Recovery Methods

WebCode	Method	Time	
QYX2YZ	Ferric Chloride water		
	Acidic Ferric Chloride water	2 minutes	
	Sodium Hydroxide Nitric Acid water	2 minutes	
	Ferric Chloride water		
	Acidic Ferric Chloride	2 minutes	
	Nitric Acid	10 minutes	
	<hr/>		
	QZBD2B	MagnaFlux	
	<hr/>		
RBQTYB	Fry's Reagent	1-2MIN	
<hr/>			
RBVYQ7	MagnaFlux		
	Electro-acid	n/a, continuous "brushing" until results	
<hr/>			
RC3JBZ	Fry's Reagent	less than one minute per treatment	
	5% NaOH	less than one minute per treatment	
	25% Nitric Acid	less than one minute per treatment	
<hr/>			
RGUQT9	Turner's Reagent	chemical reagent was continually swiped across the surface of the bar stock with a swab	
	Fry's Reagent	chemical reagent was continually swiped across the surface of the bar stock with a swab	
<hr/>			
RRYNT6	Magnetic Particle Inspection (MPI)	1st and last method	
	Acid Etch Method	30 seconds at a time	
	Acidic Ferric Chloride	30 seconds at a time	
<hr/>			
RT76K9	MagnaFlux		
<hr/>			
RXY3GR	Magnetic Particle Inspection (MPI)		
<hr/>			
RZQY6L	Acid Etch Method	different acids, all in all about 15 minutes	
<hr/>			
TB6HZ2	Magnetic Particle Inspection (MPI)		
<hr/>			
TEHHTM	MagnaFlux		
<hr/>			
TMXYP3	Magnetic Particle Inspection (MPI)		
<hr/>			
TNBVU8	Fry's Reagent	3-5 minutes	
<hr/>			

TABLE 4

Recovery Methods

WebCode	Method	Time
TW6WD7	Ferric Chloride	Swiped with swab dipped in chemical
	Acidic Ferric Chloride	Swiped with swab dipped in chemical
TW9CWY	Fry's Reagent	Left approximately for about 25 seconds
U3Q3VY	Fry's Reagent	10 Seconds
UJA3F3	MagnaFlux	
ULKUNJ	MagnaFlux	
UV8V39	MagnaFlux	
UWX4YV	MagnaFlux	
	Fry's Reagent	3 minutes
	Sodium Hydroxide	3 minutes
	10% Nitric Acid	3 minutes
	Fry's Reagent	3 minutes
	10% Nitric Acid	3 minutes
	Fry's Reagent	3 minutes
	Acid Etch Method	10 minutes of above alternating swabs
UXNCZJ	MagnaFlux	
V27RAB	Davis' Reagent	~ 1-2 mins
	Turner's Reagent	~ 1-2 mins
	Fry's Reagent	~ 2-3 mins
V28TQ3	MagnaFlux	Not used
V2PK39	MagnaFlux	
V8W7RQ	Fry's Reagent	Three (3) applications ~ 2 minutes each time
V977XX	Fry's Reagent	~1 minute
V9PX7H	Fry's Reagent	15 minutes
VG28FW	MagnaFlux	
	Turner's Reagent	few strokes
	Fry's Reagent	few strokes
	Nitric Acid	few strokes
VGJ3ZJ	Magnetic Particle Inspection (MPI)	
VGXRW6	MagnaFlux	
	Acid Etch Method	1 minute
VNKBMV	MagnaFlux	
	Acid Etch Method	It was swiped with cotton tipped applicator.

TABLE 4

Recovery Methods

WebCode	Method	Time
WV6FCT	Fry's Reagent	3 min
	Acid Etch Method	10-15 min
VWB3KR	Fry's Reagent	10 minutes
VZEVKH	Fry's Reagent	Swabbed approximately 10 minutes
VZGH3V	MagnaFlux	1 minute
	Fry's Reagent	30 seconds
	10% Sodium Hydroxide	30 seconds
	Fry's Reagent	30 seconds
	Acidic Ferric Chloride	30 seconds
W4E92F	MagnaFlux	
W4ECJX	Fry's Reagent	15 Minutes.
W68BR4	Fry's Reagent	2 minutes
WAG9LH	MagnaFlux	
WB9EVG	Magnetic Particle Inspection (MPI)	
WFPRLV	Fry's Reagent	3 MINUTES
WPDMJQ	Ferric Chloride	wiping in one direction for 6 min with cotton swab
	Acidic Ferric Chloride	wiping in one direction for 5 min with cotton swab
	Acidic Ferric Chloride	wiping in one direction for 5 min with cotton swab
	Acidic Ferric Chloride	wiping in one direction for 5 min with cotton swab
WZUCDP	MagnaFlux	
X4PPCY	Fry's Reagent	1 minute
X9F6WY	Acid Etch Method	10-15 minutes
XB74CJ	Griffin Reagent	Approximately 1 minute
XGFDRR	Fry's Reagent	2 Minutes
XHPAAP	Fry's Reagent	Approx. one minute
XHQ8KL	MagnaFlux	
XL7PL3	Fry's Reagent	15 '
XL9GJB	MagnaFlux	
XLA66V	Electro-magnetic	

TABLE 4

Recovery Methods

WebCode	Method	Time
XM33C2	MagnaFlux	
XNFJJN	Restora Gel #RAG 1001	2 minutes at a time
XUL7HJ	Magnetic Particle Inspection (MPI)	
Y2BKBF	CUPRIC AMMONIUM CHLORIDE	<5 MINS
Y6CJTZ	Fry's Reagent	10-15 minutes
YB6J9F	Fry's Reagent	1 minute
	Turner's Reagent	30 seconds
YGAF2T	Fry's Reagent	Approx 15mins for full restoration
YJFQ6J	Magnetic Particle Inspection (MPI)	
	25% Nitric Acid Solution	Less than 5 minutes
	Griffin Reagent	Less than 5 minutes
YK9NB6	MagnaFlux	No used
YKQMGF	Fry's Reagent	Approx. 1 minute per application- five applications-, with vigorous swabbing/rubbing of the affected surface.
YRBT8V	Acid Etch Method	20 minutes total time
YT4QE2	MagnaFlux	
	Fry's Reagent	1 minute
YVCRQZ	MagnaFlux	
YW32B2	MagnaFlux	
	Fry's Reagent	
Z2AZ8D	Fry's Reagent	Agitated with cotton swab, a few seconds each time before wiping away and agitating again
Z327HC	MagnaFlux	
Z3TM4A	MagnaFlux	2 minutes
	Fry's Reagent	6 minutes
	10 % Nitric Acid	6 minutes
Z4LKCF	Acid Etch Method	~15 minutes using cotton swab
	Fry's Reagent	~2 minutes using cotton swab
Z83ZNT	Magnetic Particle Inspection (MPI)	
Z86QWW	MagnaFlux	
Z9EU9Z	Acid Etch Method	Up to 10 seconds
	Fry's Reagent	Up to 3 seconds

TABLE 4

Recovery Methods		
WebCode	Method	Time
ZA3FUV	Acid Etch Method	30sec-1 min at a time. total of 20 mins
ZA7V8W	MagnaFlux	
ZF9Y83	Acid Etch Method	Total: 11 minutes
	Davis Reagent	5 minutes
	Turner's Reagent	5 minutes
	Fry's Reagent	1 minute
ZN6RJ3	MagnaFlux	
	Acid Etch Method	Chemilcal: HCL, 2 minutes
ZPFNTE	MagnaFlux	
ZTJHRJ	MagnaFlux	
	Davis' Reagent	4 seconds per application
ZUCFYP	Fry's Reagent	less than 5 minutes
ZZKLVW	Acid Etch Method	five minutes

Response Summary		Participants: 291
Recovery Methods		
Chemical Processing:	213	
Magnetic Processing:	120	
<p>Note: The total number of recovery methods used is not equivalent to the total number of participants because some participants used more than one recovery method.</p>		

Additional Comments

TABLE 5

WebCode	Additional Comments
2C4NQT	1. After the restoration process, sodium bicarbonate was used to neutralize acid residues on the surface.
3BT3HJ	Acid was not left on the material for any extended time but rather was swabbed over the obliterated area and wiped away multiple times for approximately 10 minutes.
3EBDG9	Polishing of the Dremel was done after Magnaflux and before the acidic etchants.
3TQLBK	Multiple applications of each chemical was used. The eradicated area was rinsed with distilled water between each application.
4YYZYB	I used the method of Fry's Reagent followed by Nitric Acid numerous times
6MBR8Z	Digital images were captured after recovery of the obliterated serial number.
8CBRXT	The first chemical did not produce clear results, hence copper chloride solution was then applied with immediate effect; making all six digits clear and unambiguous.
8FTYDF	1A = Stainless steel bar stock serial number removed (Item 1). 1B = Aluminum bar stock.
8JQNBE	10 to 15 minutes total restoration time, spread across several approximately 30 second swabs using Fry's Reagent.
AL7VPR	In this test (Regula 7505 M) was enough to get clear image for the result without using chemical solutions.
B4LHVZ	Fry's reagent worked best, so that was mostly used over Davis or Turner's. Fellow Criminalist [name] seconded this result on 2/12/2019.
BT4NXL	Modified Turner's Reagent (Solution #4) used as a highlighter.
C6WGRU	The obliterated serial number restored with the first application of Magnaflux. Then a grinding/polishing wheel on a dremel tool was used to improve the visibility of the obliterated serial number. This enhanced the results of the second application of Magnaflux.
C84W2L	Restored SN# was readily visible using MagnaFlux technique and by using the Turners reagent was able to make SN# permanently visible to the eye.
CNPK7A	Polishing was performed as a pre-treatment of the obliterated area on the bar stock before applying a chemical reagent. The Fry's Reagent was diluted 5:1 and wiped on the bar stock with cotton swabs until SN was revealed after about 10 min.
CPGK77	WE USE MAGNETIC YOKE AND WET MAGNETIC POWDER.
DXNKDM	In this test (Regula 7505 M) was enough to get clear image for the result without using chemical solutions.
EBUYUB	Acid restoration solutions #1 and #2 had no effect. After applying solution #3 for 5 minutes the number appeared. The process was documented with photography.

TABLE 5

WebCode	Additional Comments
EZRVQ2	Not sure if it was a typo by the test preparer or error in the supplied test information, but the item was described as a piece of zinc bar-stock whereas this submission form describes the item as 303 stainless steel. Upon initial exam it was found to be weakly magnetic (both zinc and 303 stainless should be non-magnetic). Weaker zinc reagents were applied first, prior to moving on to stronger acids for ferrous metals. The weaker reagents did produce development of the obliterated number, however improved development was observed after applying the ferrous metal etchants.
GXWX9K	A lot of agreement was found between the letter "N" and the letter "H", which makes it difficult to compare.
KJJRPH	Turner's and Fry's reagents were alternated over a period of approximately 10 minutes.
LADBBW	Much of the serial number was visible prior to the use of any restoration methods.
NN7MW7	I made a visual inspection and determined the restored characters. After that I used sodium bicarbonate to neutralize the bar stock.
NPGPKQ	Methods: Serial Number: Magnetic, thermal, and chemical methods may be used for the restoration of serial numbers. Conclusions regarding restored characters are made by visual examination of the restored surface under a variety of lighting conditions. Information regarding the alpha-numeric structure or the general location of serial numbers is obtained when necessary from reference sources or from firearms in the Laboratory's Reference Firearms Collection. Limitations: Serial Number: With the exception of the magnetic method, serial number restoration is a destructive examination and it is possible that the obtained results may not be reproduced in any subsequent examinations. Restored serial numbers are sometimes only visible during a portion of the reconstruction process, and are not necessarily visible at the conclusion of the process.
PHXGZZ	Although Item 1 is magnetic, it is very minimal. Initially, and at various stages during the restoration process, a polishing wheel was utilized on the Dremel tool to smooth and polish the ground area. Acid etchants were then applied (Fry's, Turner's Ferric Chloride and Acidic Ferric Chloride) with minimal visible results. The stock was then cleaned with the Magnaflux prep bath and the solution applied. Initially the characters which were visible were A34?J6. It was difficult to discern the 4th character either being an "H" or "1 1". Turner's reagent was then re-applied and wiped off a number of times which revealed the character to be an "H", allowing for photographs.
PM9P8W	The main restoration chemical used was Fry's reagent - applied with a cotton swab for ~30 seconds per application, for a total of 18 applications. 25% Nitric Acid was applied one time to see whether the Nitric Acid could enhance the contrast of the background. No beneficial change was noticed with the application of 25% Nitric Acid (one single application). Fry's reagent with an application of gun oil at the end of processing allowed for suitable restoration and contrast for photography purposes.
PMPQBX	No letters or numbers were observed before beginning the restoration process. Also no letters or numbers were observed after the first application of the Acidic Ferric chloride. Only after applying the Phosphoric Nitric Acid did the numbers and letters begin appearing.
Q2HY6H	Test/digestion/testing about 15 minutes.
QBVMLY	Magnaflux yielded a complete visualization of characters. Chemical etch was performed for confirmation. If this was an actual case, casting of tool marks would have been performed if probative.

TABLE 5

WebCode	Additional Comments
RBVYQ7	In short: Too easy. Not really a proficiency test at all, more of a verification or validation test of applied methods and equipment. One colleague that has NO previous experience of recovery techniques (MagnaFlux) was able to successfully recover the serial number with less than two minutes of verbal instruction. Method used to obliterate the alpha-numeric characters does not mirror "our" reality. Grinding is far more common than milling and also presents a larger challenge with varying depth of machining as well as a more unevenly striated surface. This test corresponds with my 24 years of experience of CTS tests: They are hardly, if ever, challenging enough to test or establish if a minimum level of personal proficiency exists. This is a significant problem, as these tests are used as a means to show personal proficiency as well as method reliability when challenged in court proceedings.
RZQY6L	After smoothening the surface softly with sand paper we rubbed the surface with acid saturated cotton swabs. The difficulty to reconstruct the serial number on this steel bar stock was comparable to the steel bar stock last year.
UJA3F3	THE CHARACTERS USING MAGNA-FLUX COME INTO FOCUS WHEN THAT PORTION OF THE CHARACTER CROSSES THE LINES OF FLUX. THE HORIZONTAL PARTS OF THE "A" AND "H" WERE NOT VISIBLE WHEN THE TEST PIECE WAS PACED ON A MAGNET. THE TOP PART OF THE SECOND CHARACTER LOOKED MORE LIKE AN EIGHT. WHEN THE MAGNET WAS TURNED 90 DEGREES, WHAT WAS HORIZONTAL BECAME VERTICAL AND CAME INTO FOCUS. ALL OF THE CHARACTERS BECAME LEGIBLE. THIS FEATURE OF MAGNA-FLUX HAD NEVER BEEN DISCUSSED. SEE THE TWO PICTURES ON THE WORKSHEET.
UXNCZJ	The first step was to verify the piece of stainless steel bar, sent for study. We can observed that the piece was wear down. The surface was then cleaned, and a horseshoe magnet was placed near the area to be highlighted. Subsequently the magnetic particle solution was stirred and sprayed directly to the surface wear down, achieving a positive result. Then, it was documented photographically
VGXRW6	I used the magnaflux method first and it revealed the number, but I decided to acid etch it as well for completeness.
WPD MJQ	I wiped the obliterated area with a unused chem wipe after each application or 5 min.
X9F6WY	The visual examination of the "Item 1" revealed the presence of filing marks on the center of the bar. Grease was applied to the bar after the serial number was restored.
XUL7HJ	Polished with a dremel tool after the first attempt with MPI.
Y2BKBF	Methods: Serial Number: Magnetic, thermal, and chemical methods may be used for the restoration of serial numbers. Conclusions regarding restored characters are made by visual examination of the restored surface under a variety of lighting conditions. Information regarding the alpha-numeric structure or the general location of serial numbers is obtained when necessary from reference sources or from firearms in the Laboratory's Reference Firearms Collection. Limitations: Serial Number: With the exception of the magnetic method, serial number restoration is a destructive examination and it is possible that the obtained results may not be reproduced in any subsequent examinations. Restored serial numbers are sometimes only visible during a portion of the reconstruction process, and are not necessarily visible at the conclusion of the process.
YKQMGF	SN was recovered with little difference noticeable between character impressions.

TABLE 5

WebCode	Additional Comments
YW32B2	The surface was sanded until it was mirror-like. The sequence was able to watch with the MagnaFlux, but for confirm it was used Fry's.
ZF9Y83	Finally, I made a visual inspection and determined the restored characters. Then I used Sodium Bicarbonate to neutralize the stainless steel bar stock.
ZN6RJ3	Due to the size and shape of the letter, it is difficult to distinguish between "H" and "N".

-End of Report-
(Appendix may follow)

Test No. 19-5250: Serial Number Restoration

DATA MUST BE SUBMITTED BY **March 18, 2019, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: EUR7HA

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

Please Note: A piece of aluminum bar stock labeled as "Aluminum Standard" was also included in the sample set and is intended as a reference for size, shape and positioning of the stamped alphanumeric characters used in the serial number.

Items Submitted (Sample Pack SNR1):

Item 1: A piece of 303 stainless steel bar stock with suspected obliterated serial number.

1.) Please record the restored characters below.

The serial number on this material consists of 6 characters.

Item 1:

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

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

3.) What methods were used to prepare the sample prior to attempts at recovery?

eg. Sanding, Polishing, Visual, etc. (Please describe in order.)

Method	Tool Used	If sanding was done what grit size was used?

4.) What recovery methods were used during your examination?

eg. Fry's, Acid Etch, MagnaFlux, etc. (Please list in order of use)

Method	If an acidic method was used how long was the acid left on the material?

5.) Additional Comments

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

RELEASE OF DATA TO ACCREDITATION BODIES

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

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

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

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

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

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

A2LA Certificate No.

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

Authorized Contact Person and Title

Laboratory Name

Location (City/State)