



## OSAC RESEARCH NEEDS ASSESSMENT FORM

**Title of research need:**

Study to Assess the Accuracy and Reliability of Firearm and Toolmark Examinations

**Keyword(s):**

black box, toolmarks, validation, firearms, forensic science, error rate

**Submitting subcommittee(s):**

Firearms and Toolmarks

**Date Approved:**

*(If SAC review identifies additional subcommittees, add them to the box above.)*

### Background Information:

1. Description of research need:

Studies designed to assess examiner accuracy and reliability in source attribution-type conclusions (i.e. error rate studies).

2. Key bibliographic references relating to this research need:

Baldwin, D.P., Bajic, S.J., Morris, M., and Zamrow, D., "A Study of False-Positive and False-Negative Error Rates in Cartridge Case Comparisons", Ames Laboratory, USDOE Technical Report #IS-5207, April 7, 2014.

Ulery BT, et al. "Accuracy and Reliability of Forensic Latent Print Decisions" 2011 108(19) pp. 7733-7738.

3a. In what ways would the research results improve current laboratory capabilities?

Error rate studies have the potential to provide laboratories with information on what types of errors occur, the frequency of errors and why they may occur. This can help shape laboratory quality programs in order to help mitigate errors.

3b. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

Numerous studies have been performed, however additional studies with different design will continue to provide the subcommittee with knowledge about errors. This data will help guide our work product regarding analytical, documentation and case review standards.

3c. In what ways would the research results improve services to the criminal justice system?

This research would provide additional data to help the justice system assess the overall error rate of the firearm and toolmark discipline and fulfill one of the Daubert criteria (error rate).

4. Status assessment (I, II, III, or IV):

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	<b>I</b>	<b>III</b>
Existing current research is being conducted	<b>II</b>	<b>IV</b>

*This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.*

**Approvals:**

Subcommittee	Approval date: <input type="text" value="5/4/2018"/>
<i>(Approval is by majority vote of subcommittee. Once approved, forward to SAC.)</i>	

SAC	
1. Does the SAC agree with the research need?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Does the SAC agree with the status assessment?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, what is the status assessment of the SAC:	<input type="text"/>
Approval date:	<input type="text" value="5/4/2018"/>
<i>(Approval is by majority vote of SAC. Once approved, forward to NIST for posting.)</i>	