OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need: Effect of Nonrelevant Data on Origin and Cause Determination

Describe the need: Exposure to domain irrelevant data has the potential to cause errors in the scientific determination of origin and cause. Separating the duties of examining physical evidence and relevant witness statements from data not relevant to determination of origin and cause could eliminate bias which might affect origin and cause determinations. The impacts and effectiveness of a range of methods and protocols to reduce bias should be evaluated.

Keywords): Fire, sequential unmasking, bias

Submitting subcommittees): Fire & Explosion Investigation **Date Approved:** March 10, 2021

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

Background Information:

1. Does this research need address a gaps) in a current or planned standard? ex.: Field identification system for on scene opioid detection and confirmation)

Yes. NFPA 921 recognizes bias as a potential issue but additional research in methodology for reducing bias would be beneficial for the document and the profession.

2. Are you aware of any ongoing research that may address this research need that has not yet been published e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

No.

3. Key bibliographic references relating to this research need: ex.: Toll, L., Standifer, K. M., Massotte, D., eds. 2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

Tversky, A.,&Kahneman,0.1974).Judgmentunderuncertainty:Heuristicsandbiases.Science,185, 1124M1131.http://dx.doi.org/10.1126/sclence.185.4157.1124

Lentini,J.,2008)."TowardaMoreScientificDetermination:MinimizingExpectationBiasinFireInvestigations," Proceedingsofthe3rdInternationalSymposiumonFireInvestigationsScienceandTechnology,ISFI),NAFI, Sarasota,FL.

Avato,S,Cox,A2009).ScienceandCircumstance:KeyComponentsinFireInvestigations.FireandArsonInvestigator, 594)47M49.

Dror,I.E.2013)Practicalsolutionstocognitiveandhumanfactorchallengesinforensicscience.Forensic SciencePolicy&Management4,1M9.

NFPA9212014).GuideforFireandExplosionInvestigations.NFPA:Quincy,MA.

ForensicScienceRegulator2015).CognitiveBiaseffectsrelevanttoforensicscienceexaminations.FSRMGM217. RetrievedonJanuary28,2016,from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/470549/FSRMGM217_Cognitive_bias_appendix.pdf

4. Review the annual operational/research needs published by the National Institute of Justice NIJ) at https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest? Is your research need identified by NIJ?

No.

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

This research need is targeted to improve current fire investigation field work rather than laboratory analyses. Bias from domain irrelevant data has the potential to cause errors in the scientific determination of origin and cause.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittees)?

See Number 5.

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

Bias from domain irrelevant data has the potential to cause errors in the scientific determination of origin and cause.

8. Status assessment I, II, III, or IV): I

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

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