

Organization of Scientific Area Committees for Forensic Science (OSAC) Update

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Chairman

Forensic Science Standards Board



National Commission on Forensic Science

Washington, DC

December 7, 2015

Agenda

- OSAC Objective and Architecture
- Standards/Guidelines Process is Operational
- OSAC Recent Updates
- OSAC Now & Moving Forward

OSAC Objective

To create a sustainable organizational infrastructure dedicated to identifying and fostering the development of technically sound, consensus-based documentary standards and guidelines for widespread adoption throughout the forensic science community



OSAC Registries: A Framework for a Quality Infrastructure

OSAC Registries

MANDATORY

**Registry of Approved
Standards**

NON-MANDATORY

**Registry of Approved
Guidelines**

Catalog of Forensic Standards and Guidelines

Existing standards and guidelines
including SWG documents



Forensic Science Laboratories and Accreditors

OSAC Registries of Approved Standards and Guidelines

Documentary standards and guidelines that have demonstrated:

1. Technical merit

- Detailed Scope
- Examination of fitness for purpose
- Consideration of uncertainty measurement and potential bias
- Method validation, as appropriate

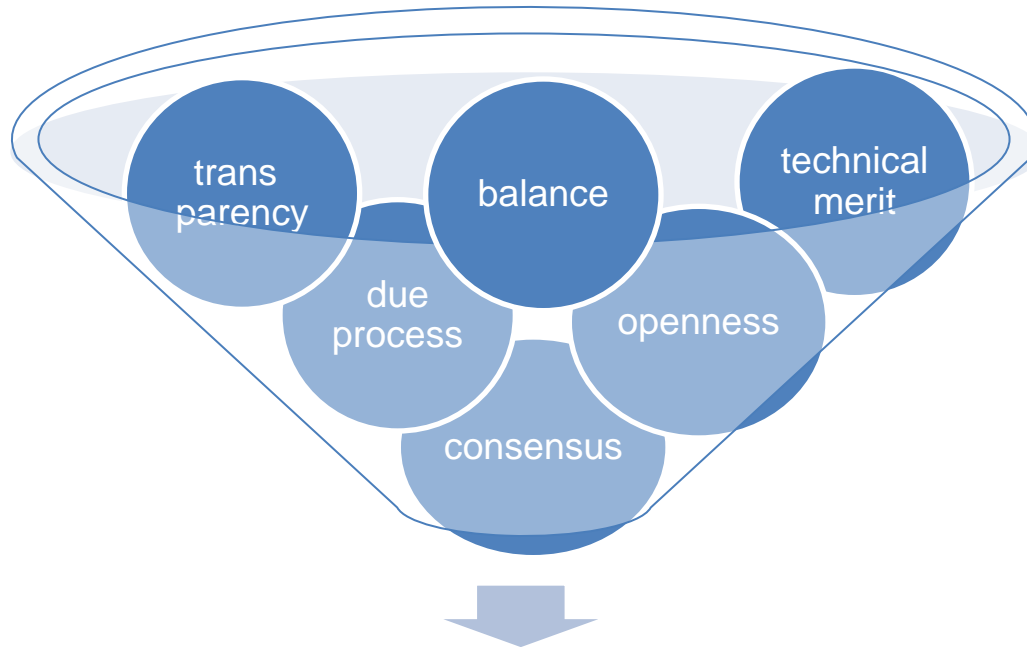
2. Reasonable standards development process

- Due Process
- Consensus
- Openness
- Transparency
- Freedom from undue influence
- Balance of interests

Registry Sources:

- 1. An existing standard developed using approved processes**
- 2. Catalyzed with an existing SDOs**

OSAC: Standards vs. Guidelines



OSAC Registry of Approved Standards

Standard - **mandatory**

- Specifies uniform methods, actions, practices, or processes, protocols
- Compliance recommended to be mandatory and modified only under unusual circumstances: (**shall**)
- Approved by FSSB

OSAC Registry of Approved Guidelines

Guideline – **strongly recommended**

- Suggested methods, actions, practices, or processes to consider in absence of applicable standards
- Best practices that are strongly recommended but not required (**should**)
- Approved by SAC

Traditional Hierarchal Organizational Chart

Forensic Science Standards Board (FSSB)

Legal Resource
Committee (LRC)

Quality Infrastructure
Committee (QIC)

Human Factors
Committee (HFC)

Biology/DNA
SAC

Chemistry/
Instrumental Analysis
SAC

Crime Scene/
Death Investigation
SAC

Digital/Multimedia
SAC

Physics/Pattern
Interpretation
SAC

Biological Data
Interpretation and
Reporting Sub

Biological Methods Sub

Wildlife Forensics Sub

Fire Debris and Explosives Sub

Geological Materials Sub

Gunshot Residue Sub

Materials (Trace) Sub

Seized Drugs Sub

Toxicology Sub

Anthropology Sub

Disaster Victim
Identification Sub

Dogs and Sensors Sub

Fire and Explosion
Investigation Sub

Medicolegal Death
Investigation Sub

Odontology Sub

Digital Evidence Sub

Facial Identification Sub

Speaker Recognition Sub

Video/Imaging Technology
and Analysis Sub

Bloodstain Pattern
Analysis Sub

Firearms and
Toolmarks Sub

Footwear and Tire Sub

Forensic Document
Examination Sub

Friction Ridge Sub

SAC = Scientific Area Committee
Sub = Subcommittee

March 17, 2015

Understanding the OSAC Levels

Forensic Science Standards Board (FSSB)

- Set policy, rules, priorities for OSAC
- Manage OSAC Registry of Approved Standards and Approved Guidelines

Legal Resource, Quality Infrastructure, Human Factors Committees

- Provide advice across all forensic science and discipline committees

Scientific Area Committees

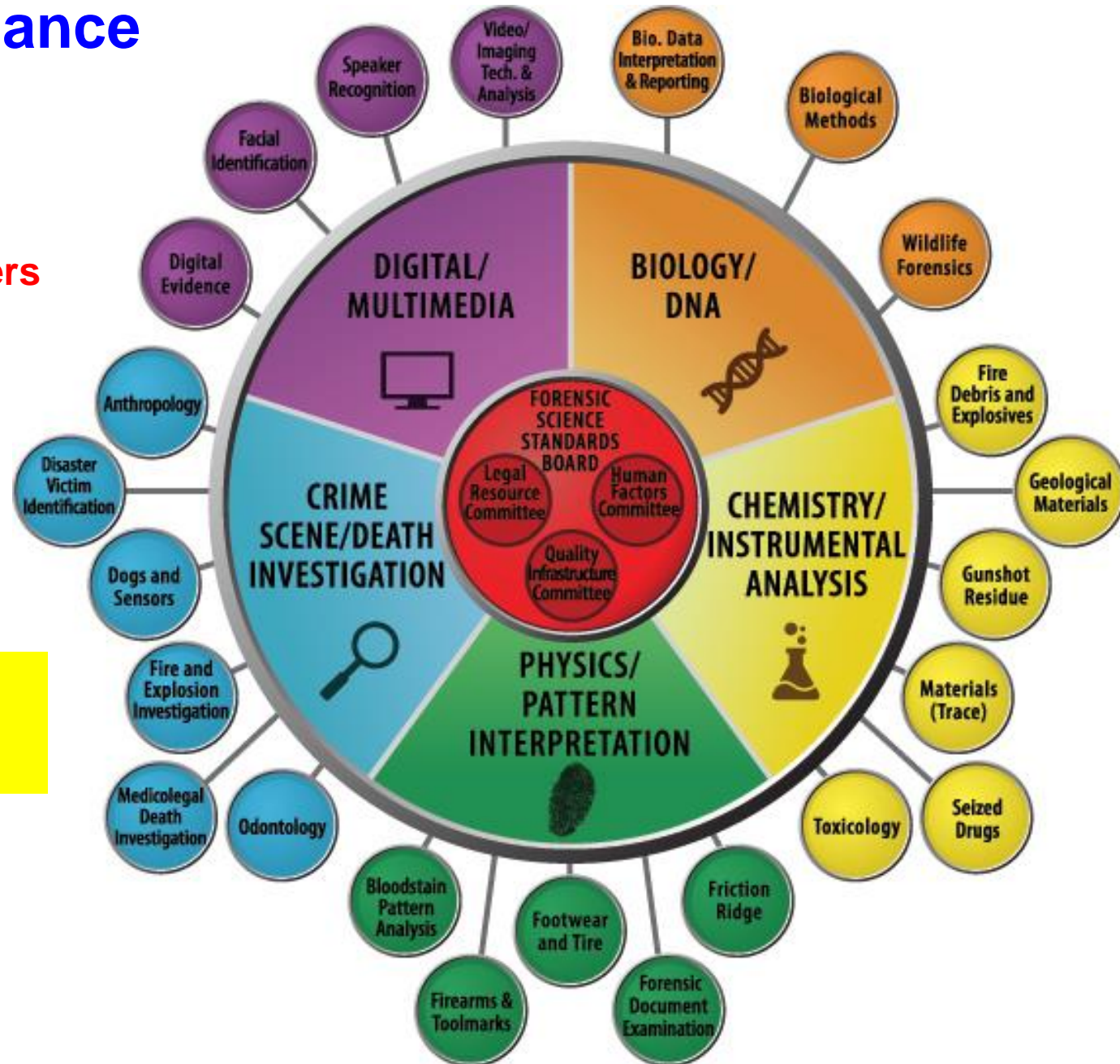
- Manage work within a scientific area (harmonize/leverage across related disciplines)
- Adopt and approve scientific area standards, (e.g., terminology, reporting requirements, conclusion statements)

Discipline Specific Subcommittees (Working Groups)

- Identify and develop (with an SDO or the canvass method) standards & guidelines for discipline

OSAC at a Glance

- **1913 Total Applications**
- **542 OSAC Members**
- **150+ Affiliates**
(current 8/2/2015)



364 ACTIVE PROJECTS!

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COMMITTEE

Legal Resource and Human Factors Committees

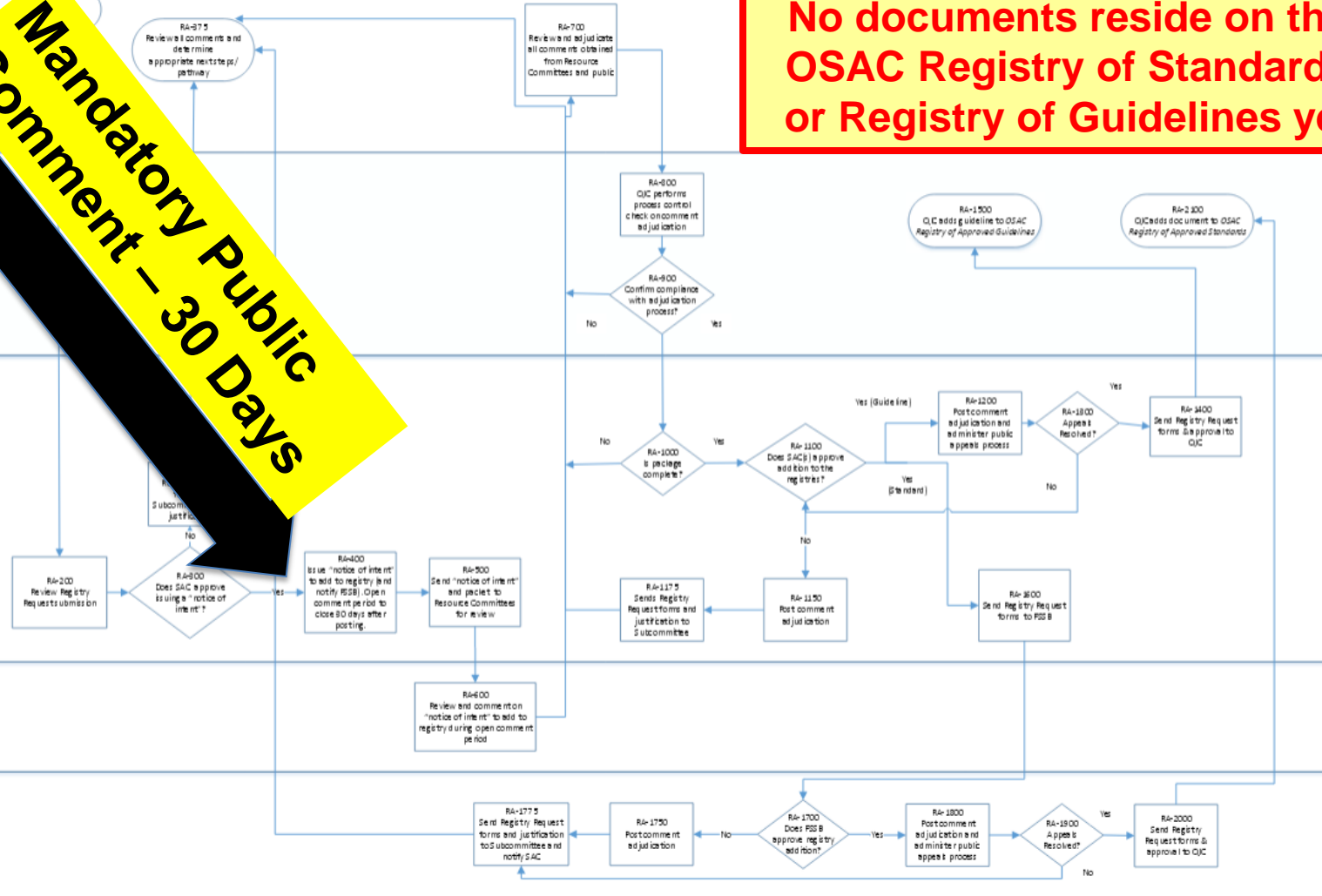
OSAC Registry Approval Process is Operational

OSAC Registry Approval Process of Published Standards/Guidelines Process Map

Registry Approval Process Map

No documents reside on the OSAC Registry of Standards or Registry of Guidelines yet

Mandatory Public Comment – 30 Days



¹ Begin with a standard or guideline that the subcommittee has deemed to be technically sound (QIC Form 1), and that the subcommittee QIC liaison has confirmed to be developed through an approved standards development organization or an approved process (QIC Form 2).

² Forms include 1) QIC Form 1: Technical Merit Worksheet 2) QIC Form 2: Standards Development Process Worksheet (if applicable) 3) QIC Form 3: Registry Request 4) QIC Form 4: Impact Worksheet 5) QIC Form 5: Harmonization Worksheet.

Version 1 / Date of Issue: 7.1.2015 / Document Owner: Quality Infrastructure Committee (QIC) / Issuing Authority: Forensic Science Standards Board (FSSB)

Where You Can Impact the Process: SDO

- OSAC Standards/Guidelines will be developed predominantly in existing Standards Development Organizations (SDOs) like ASTM, AAFS, NFPA, ADA, etc.
 - Become a member and vote “Affirmative” or “Negative with Comment” to recommend a change to a standard under development.
 - Be part of the SDO’s comment adjudication process – determines how a subcommittee/committee resolves “negative comments”.
 - Be Persuasive or Editorial



Where You Can Impact the Process: OSAC

- OSAC Mandatory Public Comment Process
 - OSAC Standards/Guidelines – once a Scientific Area Committee (SAC) determines a standard/guideline has technical merit and has followed a reasonable standards development process – they vote to post a “Notice of Intent” to add the document to an OSAC registry.
 - 30 day public comment period opens (**Submit your comments**)
 - Subcommittee will adjudicate public comments
 - If SAC approves document after Subcommittee adjudicates all the comments – 15 day appeals process begins
 - Submit an appeal if you feel your comment was not adjudicated properly.



First Standards Through Public Comment

1. SAC Chem Seized Drugs RA-1 (*Standard*): **ASTM E2329-14 Standard Practice for Identification of Seized Drugs, 2014**
2. SAC Chem Seized Drugs RA-3 (*Standard*): **ASTM E2548-11e1 Standard Guide for Sampling Seized Drugs for Qualitative and Quantitative Analysis, 2011**
3. SAC Chem Materials: RA-2 (*Standard*) **ASTM E2926-13 Standard Test Method for Forensic Comparison of Glass Using Micro X-ray Fluorescence (u-XRF), 2013**

First Standards Through Public Comment

4. SAC Chem, Materials RA-4 (*Standard*): **ASTM E2330-12 Standard Test Method for Determination of Concentrations of Elements in Glass Samples Using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) for Forensic Comparisons, 2012**
5. SAC Chem Fire Debris & Explosives RA-1 (*Standard*): **ASTM E2881-13 Standard Test Method for Extraction and Derivatization of Vegetable Oils and Fats from Fire Debris and Liquid Samples with Analysis by Gas Chromatography-Mass Spectrometry, 2013**

OSAC Process Worksheets Now in Operation

OSAC Technical Merit Worksheet



This worksheet is intended to assist in reviewing a potential standard or guideline to determine its appropriateness for inclusion on the OSAC Registries. Depending upon the nature of the standard or guideline, not all areas will be applicable. Additional factors may be needed for the evaluation of standards relating to observational- and judgment-based practices or human factors such as training, qualifications, research and quality control.

DATE

CHAIR

Name:

Affiliation:

Email:

Phone:

Document Title, Number, and Year:

1. Are the purpose and

2. Terminology

Are relevant terms, acronym

3. Bibliographic Referen

Does the document contain r

4. Quality Control

Does the document describe

5. Is the document a test

reporting guidelines, meth

OSAC Harmonization Worksheet



This worksheet must be submitted with your Registry Request Form. The form is intended to assist in the evaluation of potential conflicts with documents currently listed on the OSAC Registries.

DATE

CHAIR

Name:

Affiliation:

Email:

Phone:

Document Title, Number, and Year:

1. Does the document contain any information currently listed on the OSAC Registry as complex as opposing techniques or

☐ Yes

☐ No (If "No", the form is complete)

2. Name of conflicting or overlapping

OSAC Impact Worksheet



This worksheet must be completed and included with the Registry Request Form if the referenced document is likely to produce a financial, human resource, or other impact on the forensic community.

DATE

CHAIR

Name:

Affiliation:

Email:

Phone:

Document Title, Number, and Year:

1. What is the intended impact, for example, is this standard likely to impact forensic scientists?

OSAC Standard Development Process Worksheet



Complete the following worksheet if the standard or guideline submitted for addition to the OSAC Registry was not developed by a recognized standards development organization (SDO) but might meet the process requirements. Provide all documentation to support the responses as attachments.

DATE

SUBMITTING SUBCOMMITTEE

CHAIR

Name:

Affiliation:

Email:

Phone:

TECHNICAL CONTACT (if different than Chair)

Name:

Affiliation:

Email:

Phone:

Document Title, Number, and Year:

1. Was a written procedure used to govern the creation of this standard or guideline?

☐ Yes ☐ No (If yes, describe below)

OSAC

Technical Merit Worksheet

3. Bibliographic References

Does the document contain references, including scientific or academic, that support its content? ☐ Yes ☐ No ☐ N/A

6. Does the document provide guidance on estimating uncertainty? ☐ Yes ☐ No ☐ N/A

9. Have studies regarding the validation of the test procedure been conducted and results reported? ☐ Yes ☐ No ☐ N/A
If yes, include reference(s).

11a. Is this a generally accepted practice in the relevant forensic community? ☐ Yes ☐ No ☐ N/A
If no, explain. If yes, describe how the document represents consensus opinion of knowledgeable practitioners.

11b. Is this a generally accepted practice in the general scientific community? ☐ Yes ☐ No ☐ N/A
If no, explain. If yes, describe how the document represents consensus opinion of knowledgeable researchers, statisticians, measurement scientists, etc.

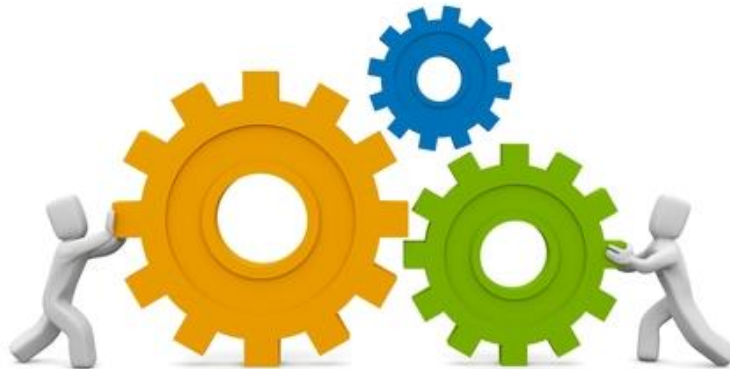


OSAC Registry Request

6. OSAC COORDINATION

Have you collaborated with the Resource Committees on technical merit, harmonization, impact, or other considerations?

☐ HFC ☐ LRC ☐ QIC ☐ N/A



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New Disciplines Process

How do we evaluate requests for adding new disciplines to OSAC?

Evaluation criteria

- Impact of the discipline
- Render conclusions in a legal context
- Process forensic evidence
- Frequency of use
- Research publications defining scientific basis
- How is the discipline related to /different from existing OSAC subcommittees

Ways to Incorporate

- Task Group
- Add to scope of existing subcommittee
- New subcommittee

Introducing Crime Scene

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Quality Infrastructure
Committee (QIC)

Human Factors
Committee (HFC)

Biology/DNA
SAC

Chemistry/
Instrumental Analysis
SAC

Crime Scene/
Death Investigation
SAC

Digital/Multimedia
SAC

Physics/Pattern
Interpretation
SAC

Biological Data
Interpretation and
Reporting Sub

Biological Methods Sub

Wildlife Forensics Sub

Fire Debris and Explosives Sub

Geological Materials Sub

Gunshot Residue Sub

Materials (Trace) Sub

Seized Drugs Sub

Toxicology Sub

Anthropology Sub

Disaster Victim
Identification Sub

Dogs and Sensors Sub

Fire and Explosion
Investigation Sub

Medicolegal Death
Investigation Sub

Odontology Sub

Crime Scene Sub

Digital Evidence Sub

Facial Identification Sub

Speaker Recognition Sub

Video/Imaging Technology
and Analysis Sub

Bloodstain Pattern
Analysis Sub

Firearms and
Toolmarks Sub

Footwear and Tire Sub

Forensic Document
Examination Sub

Friction Ridge Sub

SAC = Scientific Area Committee
Sub = Subcommittee

Future Subcommittees or Task Groups???

- Forensic Art
- Polygraph
- Forensic Psychiatry
- Forensic Engineering
- Forensic Entomology
- Linguistic Evidence
- Forensic Mapping
- Fire Modeling
- SANE nurses



Research Needs Assessment

OSAC uniquely populated to provide feedback on basic and applied research needs

~57% = forensic science practitioners

~28% = researchers / academia

OSAC will not perform or fund research directly; however, subcommittees will collect and publish identified research needs that can inform the research community





OSAC Research Needs Assessment Form

- Subcommittee will identify gaps/needs
- Research needs will be published on OSAC website
- Researchers / grantors can use as resource for grant applications and solicitations

<http://www.nist.gov/forensics/osac/osac-research-needs-assessments.cfm>

OSAC Newsletter

- Monthly Release
- Public Comment Period
- OSAC Vacancies
- OSAC Meetings
- Feature Articles
- Accomplishments



The newsletter cover features a collage of forensic science images at the top, including a person using a microscope, fingerprints, and various laboratory equipment. The title "OSAC Newsletter" is prominently displayed in the center, with "OSAC" in a large, bold, black font and "Newsletter" in a large, bold, red font. Below the title, the text "Organization of Scientific Area Committees for Forensic Science" is written in a smaller font.

Inside this issue

- Feature Article:**
OSAC Publishes the Standards/
Guidelines Registry Approval Process
Page 1
- Message from the Forensic Science
Standards Board (FSSB)
Page 2
- Message from the OSAC Affairs Director
About OSAC
Page 3
- Recent and Upcoming Meetings
Page 4
- OSAC Vacancies
Page 5
- Upcoming Public Comment Periods
for Standards/Guidelines
Under Consideration for
the OSAC Registry
Page 6
- OSAC Catalog of External Standards
and Guidelines
Page 7
- OSAC Accomplishments
Page 8

Feature Article:
OSAC Publishes the Standards/Guidelines Registry Approval Process

One aim of the OSAC is to identify and promote existing technically sound, consensus-based, and fit-for-purpose documentary standards that are based on sound scientific principles. This is achieved through the *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guideline*. A standard or guideline that is posted on the registry demonstrates that the methods it contains have been judged by forensic practitioners, academic researchers, measurement scientists, and statisticians, to be valid.

Once populated, forensic scientists and practitioners will be able to refer to the *OSAC Registry of Approved Standards* and the *OSAC Registry of Approved Guidelines* for a uniform set of high quality standards on how to produce scientifically sound and statistically valid test results, laboratory results, and courtroom testimony. These standards should help to increase confidence in the criminal justice system and the testimony put forth by practitioners.



The diagram illustrates the OSAC Registry of Approved Standards and Guidelines. It is a circular structure with a central core labeled "CRIME SCENE/DEATH INVESTIGATION". Surrounding this core are various scientific fields, each with its own set of standards and guidelines. The fields include: DIGITAL/MULTIMEDIA, BIOLOGY/DNA, CHEMISTRY/INSTRUMENTAL ANALYSIS, PHYSICAL/INTERPRETATION, and TOXICOLOGY. Each field is further divided into sub-categories, such as "Forensic Toxicology" under TOXICOLOGY and "Forensic Chemistry" under CHEMISTRY/INSTRUMENTAL ANALYSIS. The diagram also includes a section for "CRIME SCENE/DEATH INVESTIGATION" with sub-categories like "Crime Scene Investigation", "Death Investigation", and "Forensic Anthropology".

The OSAC has recently developed and launched the *OSAC Registry Approval Process of Published Standards and Guidelines*, which is a rigorous process that includes checklist criteria against which existing standards and guidelines are to be analyzed before they are posted to the registries. This includes an analysis of technical merit, the openness of the development process (to ensure balanced interests are represented), consensus,

... Continued page 4

OSAC website: <http://www.nist.gov/forensics/osac/>

Agenda

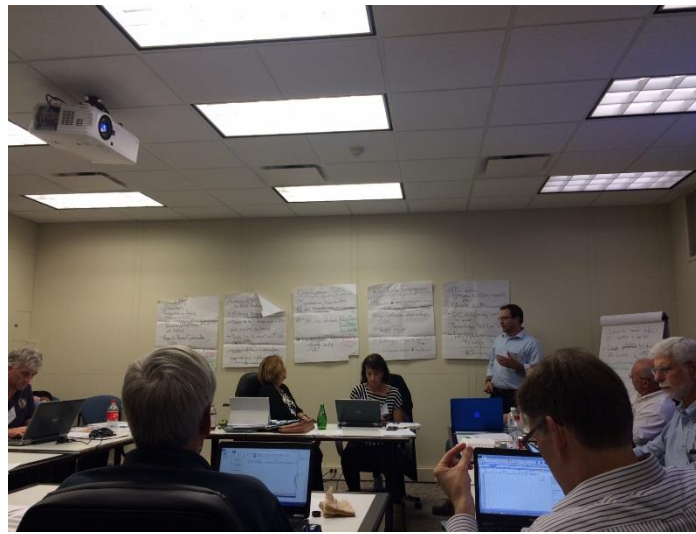
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OSAC Recent Collaborative Meetings

- LRC, HFC, QIC, Chemistry SAC & Crime Scene SAC at NIST on July 27-28th



- FSSB Meeting at NIST on July 29-30th



OSAC Recent Collaborative Meetings

- Physics SAC – August 2-3rd @ IAI



- Digital SAC – August 3rd & 5th @ IAI
- OSAC Plenary Day – August 4th @ IAI
- Biology SAC – October 15th & 17th @ ISHI
- FSSB – December 3rd and 4th, DC

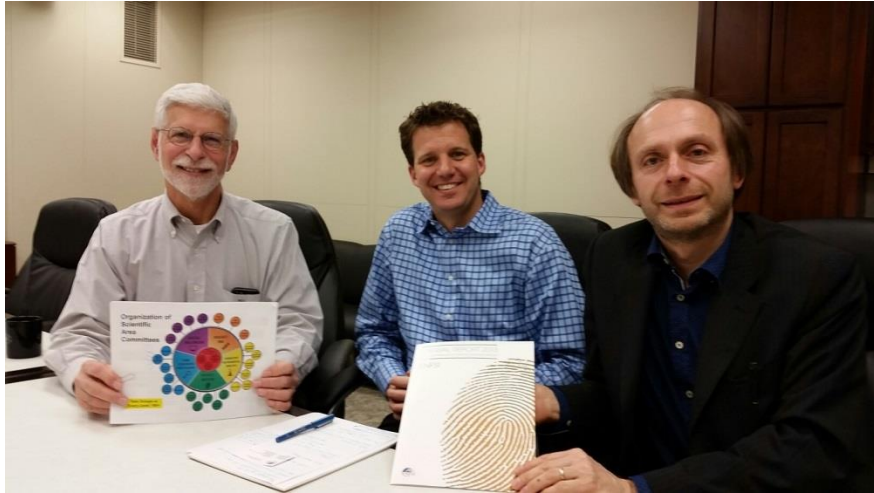


OSAC Upcoming Meetings

- Full OSAC Meeting - January 25-29, 2016
 - 500+ in Leesburg, Virginia
- AAFS Public Reporting – February 22-23, 2016
 - 5 SAC Chairs Public Presentations
 - 24 Subcommittee Chairs Public Presentations



Future Potential for International Collaborations



OSAC & ENFSI:
Jan De Kinder
2015



OSAC & NIFS:
Dr. Linzi Wilson-Wilde
2015



OSAC & International Forensics Strategic Alliance 2015

OSAC Moving Forward

- **Outreach** – Continue to conduct open OSAC forums and provide presentations to stakeholder organizations
- **Functional Shift** – Transition from infrastructure build-out to operations focusing on standards and guidelines development
- **OSAC Affiliates** – Team up with Members on Task Groups for special projects and serve as pool for new positions and replacements
- **Become an OSAC Affiliate** – apply online <https://www.nist.gov/forensics/osac-application.cfm> and be appointed to a Task Group to become an OSAC Affiliate



Stay Informed

- How can I be notified of latest OSAC announcements or when standards are open for public comment?
 - www.nist.gov/forensics
 - Insert your email address
- Where are the latest publicly available OSAC materials?
 - OSAC Homepage:
<http://www.nist.gov/forensics/osac/index.cfm>
 - OSAC Library:
<https://workspace.forensicosac.org/kws/public/documents?view=all-documents>



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*Email Address

Submit



Questions?



OSAC Registry Request



DATE	SUBMITTING SUBCOMMITTEE
CHAIR	TECHNICAL CONTACT <i>(if different than Chair)</i>
Name:	Name:
Affiliation:	Affiliation:
Email:	Email:
Phone:	Phone:

DOCUMENT TITLE, NUMBER, AND YEAR

1. TECHNICAL MERIT

The document has appropriate technical merit when evaluated using the factors questioned on the **Technical Merit Worksheet** as well as any other factors deemed relevant by the submitter(s).

Yes (Include **Technical Merit Worksheet** with this OSAC Registry Request Form)

2. STANDARDS DEVELOPMENT PROCESS

The document was developed by: a recognized standards developing organization (SDO) using a “reasonable voluntary consensus standards development process” (openness, due process, balance of interest, an appeals process, consensus, etc.)

If by a recognized SDO, give SDO name:

If the document was a) not developed by a recognized SDO or b) is not, or will not be maintained by the SDO, complete the **Standards Development Process Worksheet** and include with OSAC Registry Request Form.

3. IMPACT

Is placing this document on the Registry likely to produce a financial, human resource, or other impact on the forensic community?

Yes **No** (If yes, complete the **Impact Worksheet** and include with OSAC Registry Request Form.)

4. HARMONIZATION

Does information presented in this document contain material that conflicts or overlaps with any other document currently on the OSAC Registries?

Known conflicts: **Yes** **No** (If yes, complete the **Harmonization Worksheet** and include with OSAC Registry Request Form.)

5. REGISTRY RECOMMEND

This document is being recommended for:

**OSAC Registry of
Approved Guidelines**

**OSAC Registry of
Approved Standards**

6. OSAC COORDINATION

Have you collaborated with the Resource Committees on technical merit, harmonization, impact, or other considerations?

HFC LRC QIC N/A



OSAC Research Needs Assessment Form

Title of research need:

Keywords:

Submitting subcommittee(s):

Date Approved:

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

Background information:

1. Description of research need:

2. Key bibliographic references relating to this research need:

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

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

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

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	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.

Subcommittee

Approval date:

(Approval is by majority vote of subcommittee. Once approved, forward to SAC.)

SAC

1. Does the SAC agree with the research need? Yes ☐ No ☐

2. Does the SAC agree with the status assessment? Yes ☐ No ☐

If no, what is the status assessment of the SAC:

Approval date:

(Approval is by majority vote of SAC. Once approved, forward to NIST for posting.)

OSAC Technical Merit Worksheet



This worksheet is intended to assist in reviewing a potential standard or guideline to determine its appropriateness for inclusion on the OSAC Registries. Depending upon the nature of the standard or guideline, not all areas will be applicable. Additional factors may be needed for the evaluation of standards relating to observational- and judgment-based practices or human factors such as training, qualifications, research and quality control.

DATE	SUBMITTING SUBCOMMITTEE		
<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top; padding: 5px;"> CHAIR Name: Affiliation: Email: Phone: </td> <td style="width: 50%; vertical-align: top; padding: 5px;"> TECHNICAL CONTACT (if different than Chair) Name: Affiliation: Email: Phone: </td> </tr> </table>		CHAIR Name: Affiliation: Email: Phone:	TECHNICAL CONTACT (if different than Chair) Name: Affiliation: Email: Phone:
CHAIR Name: Affiliation: Email: Phone:	TECHNICAL CONTACT (if different than Chair) Name: Affiliation: Email: Phone:		

Document Title, Number, and Year:

1. Are the purpose and scope clearly stated? Yes No

2. Terminology

Are relevant terms, acronyms, or abbreviations used in the document clearly defined? Yes No N/A

3. Bibliographic References

Does the document contain references, including scientific or academic, that support its content? Yes No N/A

4. Is the document a test procedure? * Yes No If yes, consider elements such as analysis, protocols, data interpretation, reporting guidelines, method validation, and sampling, and discuss if these are adequately addressed.

5. Quality Control

Does the document describe quality control procedures for instruments, equipment, chemicals, reagents, and/or other items? Yes No N/A

6. Does the document provide guidance on estimating uncertainty? Yes No N/A

7. Limitations

Does the document clearly state any known limitations to either the method itself or the interpretation of the resulting findings and conclusions? Yes No N/A

8. Safety

Does it include hazard identification that includes proper chemical handling techniques, personal protective gear requirements, proper operation of equipment and safe disposal of waste? Yes No N/A

9. Have studies regarding the validation of the test procedure been conducted and results reported? Yes No N/A

If yes, include reference(s).

10. Is the document fit-for-purpose? Yes No N/A

Explain how the document does or does not meet the expectations of the target audience. This audience may include the document user and the consumer of the document results.

11a. Is this a generally accepted practice in the relevant forensic community? Yes No N/A

If no, explain. If yes, describe how the document represents consensus opinion of knowledgeable practitioners.

11b. Is this a generally accepted practice in the general scientific community? Yes No N/A

If no, explain. If yes, describe how the document represents consensus opinion of knowledgeable researchers, statisticians, measurement scientists, etc.

12. Is this document considered to be a standard or a guideline?

Standard

Guideline

13. What other concerns, issues or aspects were considered while evaluating the technical merit?

14. Technical Merit Rating** _____

1 Acceptable

2 Acceptable with minor revisions

3 Acceptable with major revisions

4 Unacceptable

**Test Procedure: Total operation necessary to perform the analysis e.g., preparation of the specimen or sample, of the reference materials or of the reagents, the use of instruments and of formulas for the calculations (when the test is quantitative), the preparation and use of calibration curves and the determination of the number of replicates. (Source of definition: United Nations International Glossary of Terms for Quality Assurance and Good Laboratory Practices UNDOC ST/NAR/26/Rev.1)*

***If Technical Merit is 1, include this worksheet as part of the Registry Request packet for submission to the SAC for approval. If Technical Merit is 2 or 3, evaluate whether document should be revised (by working with the relevant SDO or standards process procedure) prior to submission for addition to the Registry. If Technical Merit is 4, retain this worksheet as a record of document consideration. Other factors may be considered as determined by the submitting OSAC Unit.*

Please submit this worksheet with your Registry Request Form.

Please use this box if you need extra space for a response. Please include the question number(s) with the continuation of your response.

