

# ***Scientific Analysis on DNA Analysis Methods (SWGDM) July 2014 Report***

*July 15-17, 2014*

*Fredericksburg, Virginia*

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## **I. Agenda:**

Please see Attachment 1.

## **II. Meeting Synopsis:**

**Tuesday, July 15, 2014**

SWGDM Chairman, Anthony Onorato, welcomed the attendees and reviewed the agenda for the July 2014 meeting. The July 2014 meeting was dedicated to Sue Rogers, a colleague and dear friend. Angelo Della Manna and Elizabeth Johnson shared remembrances of and tributes to Sue.

The Chair noted that there were 40 invited guests at this meeting (invited to specific Committees) and 25 members, including 4 new members. With the issuance of the MP Casework guidance document, the tasks for this Missing Person Committee have been completed and the Committee has been disbanded. There are two new Working Groups on Probabilistic Genotyping and Next Generation Sequencing chaired by Timothy Zolanz and John Tonkyn respectively.

Technical Session

To begin the Technical Session, the Chair introduced Dawn Herkenham who presented on Sexual Assault Kit Evidence laws. Ms. Herkenham described the Federal Sexual Assault Forensic Evidence Reporting Act (P.L. 113-4) as containing Federal funding requirements as well as direction for the development of “protocols and practices for the accurate, timely, and effective collection and processing of DNA evidence” and provision of technical assistance and training for state and local governments in the implementation of such protocols. State sexual assault evidence kit laws were described as including the following elements: inventory or kit tracking; turnaround times for submission to the law enforcement agency and laboratories; analyses of backlog; and annual reporting.

Dr. Tamyra Moretti presented on Sexual Assault Evidence kit processing. Dr. Moretti emphasized that the laboratory will need to do appropriate research to establish reliability of the method. Dr. Moretti shared her laboratory's efforts to determine the best method for confirming the presence of semen; assessing manual and semi-automated methods; and proceeding directly to STRs.

Mr. Gary Sims presented on California's project for the Rapid Analysis of Sexual Assault Kits. Their Rapid DNA Service or RADS is for cases where a sexual assault kit is collected and up to three evidence swabs are sent directly to lab. With the RADS approach, these extra (3) swabs are collected and sent directly to the laboratory (analyzed within 15 days of receipt). The SART team determines the best evidence for RADS and collects the extra evidence and victim reference samples. Generally, to achieve the 15 day turn around, in week one – begin extraction and for week two – data analysis completed and the reports prepared. There have been 493 cases completed generating 160 searchable profiles resulting in 76 cases with hits.

Mr. Neil Fernandopulle presented on their Direct to DNA (DTD) process in which they proceed directly to differential extraction. As part of this process, they also incorporated a more user friendly report in table format that contains a clear purpose statement and footnotes that clearly explain that there is still a swab left for serology or additional testing. Mr. Fernandopulle described the rollout of this process included providing the case receiving office with guidelines on what to send; education of other laboratory sections; communications with the client(s); client support hotline; and a substantial grace period

The afternoon session began with an update by Mr. Gerald LaPorte on the activities of the National Institute of Justice (NIJ). Mr. LaPorte explained the federal funding administered by NIJ's Office of Investigative and Forensic Sciences as follows: \$125 million for DNA related and forensic programs which includes \$117 million for DNA analysis and capacity enhancement, \$4 million for Post Conviction Testing, and \$4 million for the Sexual Assault Forensic Exam Program. Mr. LaPorte explained that NIJ collaborates with many Federal agencies; for example, NIJ has a partnership with the FBI for sexual assault kit processing in which the FBI will be used as a central repository to process sexual assault kits that meet specified eligibility criteria and will help develop best practices for collection and processing of sexual assault evidence kits. There will also be a new solicitation for FY 2015: Research and Development for Public Laboratories to Assess the Testing and Processing of Physical Evidence.

Mr. Jeffrey Nye presented on Sexual Assault Kit Testing and explained that in Michigan, although it was well publicized that Detroit had 11,000 untested sexual assault kits, the

total number of untested kits statewide was unknown. Sexual assault kit legislation was recently enacted in Michigan and will take effect January 1, 2015. To address the sexual assault kit issue, the laboratory developed administrative and technical solutions that included: evidence submission guidelines, outsourcing the analyses of the sexual assault kits, and the use of contract personnel to perform technical reviews. Mr. Nye noted that they are contracting with an academic institution for the contractor reviews and will share their forms and procedures on the use of contractor assisted reviews with interested laboratories.

Dr. Jack Ballantyne presented on Emerging Sexual Assault Evidence Testing Technologies. Dr. Ballantyne emphasized the quality aspect and completeness of analysis. He noted that the new Y-STR kits test more loci, offer more discrimination and contain better chemistry. Dr. Ballantyne explained that body fluid identification can be useful and helpful in certain cases where conventional methods may consume the sample, are labor intensive and difficult to automate. Some potential body fluid methods include: multidimensional Raman spectroscopy (non-destructive screening); mRND Body Fluid Multiplex; High Resolution Melt (HRM); Nanostring technology; and Next Generation Sequencing.

There were presentations from the Chairs of the Enhanced Detection Methods and Rapid DNA Committees. Mr. Eugene Lien reviewed the revisions to the Enhanced Detection Methods document. Ms. Jennifer Wendel reviewed the proposed Addendum to the Quality Assurance Standards for DNA Databasing Laboratories Performing Rapid DNA Analysis and Modified Rapid DNA Analysis, as well as the proposed revisions to the QAS Audit Document.

### **Wednesday, July 16, 2014**

The following Committees met for the day<sup>1</sup>:

Autosomal STR Committee

CODIS Committee

Enhanced Detection Methods Committee

Quality Assurance Committee

Rapid DNA Committee

Y-STR Committee

Next Generation Sequencing Working Group

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<sup>1</sup> The Ad Hoc Working Group on Probabilistic Genotyping met on Monday, July 14, 2014.

A round table discussion was held Wednesday evening that began with recognition of Sylvain LaLonde, a long-standing Invited Guest to SWGDAM from the Royal Canadian Mounted Police, in honor of his last SWGDAM meeting before retirement.

In addition to a discussion on a recent clarification issued by ASCLD/LAB relating to a positive association, new invited guests presented on the following topics: interesting cases, validation, setting up a new laboratory, direct typing of casework samples and familial searches/matches.

#### **Thursday, July 17, 2014**

The Chair opened the Thursday morning session with a review of the three documents under review. Mr. Eugene Lien reviewed the revisions made by the Enhanced Detection Methods Committee to address comments at the meeting. After this review, there was a motion to accept the Guidelines for STR Enhanced Detection Methods as revised. The membership unanimously approved the motion.

Ms. Jennifer Wendel reviewed the revisions to the Addendum to the Quality Assurance Standards for DNA Databasing Laboratories performing Rapid DNA Analysis and Modified Rapid DNA Analysis Using a Rapid DNA Instrument and QAS Audit Document. It was explained that, if the revisions were accepted by SWGDAM, the proposed revisions would be posted for public comment. There was a motion to accept both Rapid DNA documents as revised. The membership unanimously approved the motion.

The Chair discussed the third document under consideration – revision of the SWGDAM Bylaws. The membership and invited guests were provided with the proposed revisions in advance of the meeting pursuant to the requirements of the Bylaws. There were three proposed revisions relating to membership, public comment and electronic voting. The membership revisions would establish a maximum of six members that could be from the same agency and a maximum of five members from the FBI. The public comment revision would allow the Chair, upon the approval of the Executive Board, to post final standards and/or guidance documents for public comment for a minimum of 30 days. Public comments received during that period will be submitted to the Committee responsible for the standards/guidelines document for its consideration. The electronic voting revision would authorize the use of electronic voting for amendments to the Bylaws. All of the revisions were unanimously approved by the membership.

The following Committees/Working Groups provided updates: Autosomal STRs, CODIS, Next Generation Sequencing, Quality Assurance and YSTRs.

The afternoon update session began with an update from Adam Shariff on the United Kingdom (UK) National DNA Database. Mr. Shariff described that they will be introducing the DNA New Generation with 17 loci. Mr. Shariff explained the advantages of the DNA 17: include mini STRs, no commercial monopoly, improvements to science (degradation), and new target areas less susceptible to effects. The UK National DNA Database contains DNA profiles from Northern Ireland, England, Scotland and Wales with multiple operational providers submitting samples. The Database has 7,694,888 subject profiles and 690,892 forensic profiles. Mr. Shariff provided a description of their legislation from the 1984 PACE Act to the 2012 Protection of Freedoms Act which established retention periods for subject records. Mr. Shariff shared the UK's experience with Familial DNA Searching and noted that of the 260 investigations in which familial searching was used, there were 54 offenders identified (62 known relationships).

Col. Dr. Roman Hradil presented an update on ENFSI activities. He explained the subjects and subgroups of the DNA Working Groups, the composition of the ENFSI, and the documents available from ENFSI. Col. Hradil described the plans for 2014: continue cooperation with SWGDAM, BASG, Interpol, and Europol; contact considered with AFSN; semiannual update on DNA databases; and new process for election of Chairperson. Col. Hradil also shared his comments on the SWGDAM presentations.

Ms. Dawn Herkenham presented a legislative update on DNA databases, including arrestee states and litigation. Of recent note, the Vermont Supreme Court, in a set of consolidated cases under the title *State v. Medina*, ruled that the DNA collection at arraignment provisions violated the Vermont State Constitution. Ms. Herkenham noted that Mississippi and Rhode Island enacted laws to collect DNA samples from arrestees; the Mississippi law is contingent on funding by the Legislature.

Dr. Douglas Hares provided an update on the CODIS Core Loci Validation Project. Dr. Hares explained that there are 18 laboratories involved in the validation project for database, casework and missing person samples. Dr. Hares acknowledged the efforts of the National Institute of Standards and Technology (NIST) team in performing analysis of the validation data and reviewed some of that data. Dr. Hares stated that once the additional core loci are selected, there will be a minimum of 24 months before implementation of the additional CODIS Core Loci at NDIS. In response to an inquiry, Dr. Hares responded that the Fusion and GlobalFiler kits are approved for use at NDIS.

Drs. Peter Vallone and Mike Coble presented an update on the following NIST activities: SRM 2391c working to expand the amount of information to characterize more loci for the same SRM (can have certified, reference and informational values); Digital PCR and

SRM 2372a; Rapid PCR; HID Identity Panel; NGS Support for mtDNA analysis; Y-filer Plus; mixture interpretation (review of software tools); and upcoming workshops.

Ms. Minh Nguyen provided an update on National Institute of Justice funding of priorities identified by the Forensic Technical Working Group. There is approximately \$8 million in funding available. The current awards address about 23 of the TWG needs. They will be looking at the following subject areas: mixtures, screening, alternate and novel DNA analysis methods, and alternate biological markers.

Dr. John Butler updated the participants on the National Commission on Forensic Science, a Federal Advisory Committee for the U.S. Department of Justice (DOJ). Dr. Butler noted that the report compiled by the White House Subcommittee on Forensic Science (SoFS) has been released. He noted that NIST has a new role administering the Commission and the Organization for Scientific Area Committees (OSACs). Dr. Butler stated that the Commission meetings will be webcast in the future. He reviewed the six subcommittees: accreditation and proficiency testing; interim solutions; medico-legal investigations; reporting and testimony; scientific inquiry and research' and training on science and law. Dr. Butler reviewed the recent announcements relating to the Forensic Science Board and three resource committees.

The Chair reviewed the documents that have been completed (STR EDM Guidelines and Rapid DNA QAS and Audit document) as well as the amendments to the Bylaws. The Chair noted there was considerable discussion at the roundtable on the ASCLD/LAB clarification and the membership agreed that SWGDAM may wish to provide some comments on this point; the membership was agreeable to the Executive Board providing comments so that the document would be timely. The Chair adjourned the meeting and noted that the next meeting would be held the week of January 12 - 16, 2015.

**III. Attendees:**

Please see Attachment 2.

**IV. Final Reports:**

The SWGDAM membership unanimously approved the final report on the STR Enhanced Detection Methods Guidelines for review by the Executive Board.

The SWGDAM membership unanimously approved the final report on the Addendum to the Quality Assurance Standards for DNA Databasing Laboratories Performing Rapid DNA Analysis or Modified Rapid DNA Analysis and the accompanying Audit Document for review by the Executive Board.

The SWGDAM membership unanimously approved amendments to the SWGDAM Bylaws on membership, public comment and electronic voting.

**V. Next Meeting:**

The next meeting will be held January 13-15, 2015.



## SWGDM REGULAR MEETING

July 15 - 17, 2014

### AGENDA

#### Monday, July 14, 2014 (PRE-REGULAR MEETING SESSION)

8:00 AM – 5:00 PM Probabilistic Genotyping Working Group Meeting

#### Tuesday, July 15, 2014

8:00 AM Chair and Vice Chair Meeting

8:30 AM Welcome and Business Matters

#### TECHNICAL SESSION: SEXUAL ASSAULT KIT (SAK) TESTING PRACTICES

9:00 AM Review of the Sexual Assault Forensic Evidence Reporting (SAFER) Act of 2013 and Related Legislation - Dawn Herkenham

9:30 AM SAK Processing Design: Technical Considerations – Tamyra Moretti

10:15 AM BREAK

10:30 AM SAK: Processing Strategies

California Department of Justice – Gary Sims

Centre of Forensic Science – Neil Fernandopulle

Michigan State Police – Jeff Nye

12:30 PM LUNCH

1:45 PM NIJ SAK Backlog Reduction Activities – Gerald Laporte





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SCIENTIFIC WORKING GROUP

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DNA ANALYSIS METHODS

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- 3:00 PM      BREAK
- 3:15 PM      Emerging Sexual Assault Evidence Testing Technologies – Jack Ballantyne

COMMITTEE OF THE WHOLE SESSION

- 4:15 PM      Review of the proposed SWGDAM Enhanced Detection Methods and Interpretation Guidelines for STR Testing – EDMI Committee
- 4:45 PM      Review of the Addendum to the Quality Assurance Standards for DNA Databasing Laboratories for Rapid DNA Analysis and Modified Rapid DNA Analysis Using a Rapid DNA Instrument – R-DNA Committee
- 5:15 PM      Committee Planning Sessions
- Autosomal STR – John Butler
- CODIS – Douglas Hares
- Enhanced Detection Methods – Eugene Lien
- Next Generation Sequencing Working Group – John Tonkyn
- Quality Assurance – Jodi Dahl
- Rapid DNA – Jennifer Wendel
- Y-STR – Tamyra Moretti
- 5:30 PM      ADJOURNMENT
- 6:00 PM      Executive Board Meeting

**Wednesday, July 16, 2014**

COMMITTEE BREAKOUT SESSIONS

- 8:00 AM      Committee Break-Out Sessions
- 12:00 PM      LUNCH



SCIENTIFIC WORKING GROUP

DNA ANALYSIS METHODS

1:00 PM Committee Break-Out Sessions

5:00 PM ADJOURNMENT

#### ROUND TABLE SESSION

6:00 PM TBD - Moderator: Russell Vossbrink

#### Thursday, July 17, 2014

8:00 AM Committee Final Approval Votes: Enhanced Detection Methods and Rapid DNA Committees

9:00 AM Review, Discussion, and Vote on the Proposed Amendments to the SWGDAM Bylaws

9:45 AM Committee Progress Updates

Autosomal STR – John Butler

CODIS – Douglas Hares

Next Generation Sequencing Working Group – John Tonkyn

Quality Assurance – Jocelyn Carlson

Y-STR – Tamyra Moretti

10:30 PM BREAK

#### UPDATE SESSION

11:00 PM Home Office Update – Adam Shariff

11:45 PM ENFSI Update – Roman Hradil



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SCIENTIFIC WORKING GROUP

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DNA ANALYSIS METHODS

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- 12:30PM LUNCH
- 1:30 PM Legislative Update – Dawn Herkenham
- 2:00 PM CODIS Core Loci Expansion Update – Douglas Hares
- 2:30 PM NIST Update – Mike Coble
- 3:15 PM BREAK
- 3:30 PM NIJ Update - Minh Nguyen
- 4:15 PM National Commission on Forensic Science Update – John Butler

**BUSINESS SESSION**

- 4:45 PM Chair Report – Tony Onorato
- 5:00 PM ADJOURNMENT

## SWGDM July 2014 Meeting Members and Invited Guests

SWGDM Chair  
**Anthony Onorato**

**Jerrilyn Conway (IG)**  
FBI Laboratory

SWGDM Vice Chair  
**Russell Vossbrink**

**Jodi Dahl (IG)**  
FBI Laboratory

Executive Board Members  
**Angelo Della Manna**  
**Brian Hoey**  
**Amy McGuckian**  
**Eric Pokorak**  
**Gary Sims**

**Tina Delgado**  
FBI Laboratory

**Neil Fernandopulle (IG)**  
Centre of Forensic Sciences

Executive Secretary  
**Dawn Herkenham (IG)**

**Russell Gettig (IG)**  
NYS Police Forensic Investigation Center

Members and Invited Guests  
**Patricia Aagaard (IG)**  
FBI Laboratory

**Ann Marie Gross**  
Minnesota Bureau of Criminal  
Apprehension

**Jack Ballantyne (IG)**  
University of Central Florida

**Douglas Hares (IG)**  
FBI Laboratory

**Suzanne Barritt-Ross (IG)**  
Aremed Forencs DNA Identification  
Laboratory

**Bruce Heidebrecht**  
Maryland State Police

**John Butler (IG)**  
National Institute of Standards and  
Technology

**Deedra Hughes**  
Mississippi Crime Laboratory

**Thomas Callaghan (IG)**  
FBI Laboratory

**Clark Jaw (IG)**  
FBI Laboratory

**Chris Carney**  
FDLE – DNA Database

**Elizabeth Johnson**  
U.S. Army Crime Lab

**Michael Coble (IG)**  
National Institute of Standards and  
Technology

**Sylvain Lalonde (IG)**  
Royal Canadian Mounted Police

**George Li**  
Virginia Department of Forensic Science

**Eugene Lien**  
NYC Office of the Chief Medical Examiner

**Beth Ann Marne**  
Pennsylvania State Police

**Scott McWilliams (IG)**  
Wyoming State Crime Laboratory

**Jeff Modler (IG)**  
RCMP Forensic Science & Identification  
Services

**Gary J. Molina (IG)**  
Texas Department of Public Safety

**Tamyra Moretti (IG)**  
FBI Laboratory

**Steven Myers**  
California Department of Justice

**Jeffrey Nye**  
Michigan State Police

**Dixie Peters (IG)**  
University of North Texas Health Science  
Center

**John Planz**  
University of North Texas Health Science  
Center

**Juliet Rolando (IG)**  
FBI Laboratory

**Margaret (Peg) Schwartz**  
Vermont Forensic Laboratory

**Taylor Scott**  
Illinois State Police

**Joel Sutton**  
USA CIL

**John Tonkyn**  
California Department of Justice

**Peter Vallone (IG)**  
National Institute of Standards and  
Technology

**Stacy Warnecke (IG)**  
Kentucky State Police

**Bruce Weir (IG)**  
University of Washington

**Jennifer Wendel**  
FBI Laboratory

**Ray Wickenheiser (IG)**  
NYS Police Forensic Investigation Center

**Tim Zolandz (IG)**  
FBI Laboratory

July 2014 Invited Guests

**John Buckleton**  
ESR

**Jocelyn Carlson**  
FBI Laboratory

**Katherine Butler Gettings**  
National Institute of Standards and  
Technology

**Debbie Glidewell**  
Defense Forensic Science Center

**Lisa Grossweiler**

FBI Laboratory

**Brian Harmon**

California Department of Justice

**Roman Hradil**

ICP (Institute of Crimnalytics Prague)

**Bill Hudlow**

California Department of Justice

**Jodi Irwin**

FBI Laboratory

**J. Janice Joslin**

Oklahoma State Bureau of Investigation

**Kristy Kadash**

Jefferson County Regional Crime Lab

**Shawn Montpetit**

San Diego Police Department

**Elizabeth Morris**

Austin Police Department

**Minh Nguyen**

National Institute of Justice

**Adam Shariff**

UK National DNA Database