

Scientific Analysis on DNA Analysis Methods (SWGDM) July 2015 Report

July 14-16, 2015

Fredericksburg, Virginia

I. Agenda:

Please see Attachment 1.

II. Meeting Synopsis:

Tuesday, July 14, 2015

The SWGDAM Chair, Mr. Anthony Onorato, introduced himself and reviewed administrative matters (travel and funding approvals for the meeting). The Chair announced the approval and posting of the SWGDAM Guidelines for the Validation of Probabilistic Genotyping Systems on the SWGDAM web site (www.swgdam.org under “Updates”). The Chair noted that as the review of the Quality Assurance Standards begins, this is an opportunity to reflect on the original quality efforts and chart the course forward.

Technical Session

Dr. Dwight Adams, Director of the University of Central Oklahoma Forensic Science Institute and former Director of the Laboratory Division at the Federal Bureau of Investigation (FBI) described his career. With respect to DNA, Dr. Adams noted that the research team was created in 1987; visiting scientists began in 1988; casework began in Oct. 1988 [six months to implement casework and additional time to complete the population data studies]; and 1989 was the FBI’s (and his) first DNA testimony in Hawaii. Dr. Adams described his work on the Central Park jogger case, the power of this new technology to exclude as well as provide investigative leads, and the pretrial admissibility hearing in *U.S. v. Yee*. Dr. Adams concluded that the forensic scientists are engaged in forensic DNA analyses -- to have a voice for the victims -- and acknowledged the attendees for all their efforts.

The Chair reviewed personnel changes at the FBI Laboratory: Dr. Alice Isenberg – Deputy Assistant Director of the FBI Laboratory; Ms. Tina Delgado – Section Chief, Biometric Analysis Section; Mr. Eric Pokorak – Section Chief, Scientific Analysis

Section; and Ms. Jennifer Wendel – Unit Chief, CID Executive Staff, Criminal Investigation Division. The Chair also noted that SWGDAM member Phil Kinsey, now laboratory director in Montana resigned his membership in SWGDAM because of his laboratory responsibilities.

Dr. Thomas Callaghan, Senior Biometric Scientist provided a brief history of forensic DNA science. Dr. Callaghan presented a timeline and his initial impressions of forensic DNA analysis. Dr. Callaghan shared his view of the building for the National DNA Index System (NDIS); the foundation provided by TWGDAM/SWGDAM, CODIS, the Federal DNA Act of 1994 and the Quality Assurance Standards (QAS); the second layer provided by CODIS State Administrators, the NDIS Procedures Board, the NDIS Memorandum of Understanding (MOUs), and NDIS QAS Audits; all of these providing support for establishment of the national DNA database. Dr. Callaghan explained that the shared governance with the FBI Legal Assistance Unit and the communication fostered by regular meetings and working groups such as the NDIS Procedures Board, State Administrators and SWGDAM all contributed to the foundation. Dr. Callaghan noted that the Federal DNA Advisory Board used the TWGDAM Guidelines as a starting point for their discussions with a goal of setting standards for the entire DNA community and not individual laboratories.

Mr. Ken Konzak, retired from the California Department of Justice, presented on the history of TWGDAM/SWGDAM. He reviewed the genetic markers in use over the past 50 years. Mr. Konzak explained that differences in the fingerprint systems acquired in the east and the west led to the realization that standardization was important and the creation of the Technical Working Group on DNA Analysis Methods (TWGDAM) for DNA. Mr. Konzak described the early meetings sponsored by the FBI and the California Association of Criminalists. Mr. Konzak cited passage of the California law in 1983 to collect PGM secretor type. He attributed the genius of James Kearney and the Forensic Science Research and Training Center staff to establishment of a community of practice based on shared norms of practice. TWGDAM included members of the forensic science community who were actively pursuing the various DNA analysis methods and they established a subcommittee for quality assurance at their first meeting.

Ms. Dawn Herkenham reviewed the Federal DNA Identification Act of 1994, including the legislative history as well as subsequent amendments to the DNA Act. Ms. Herkenham reviewed legislative guidelines as well as early DNA legislative proposals for the Federal DNA Advisory Board and quality assurance standards. Ms. Herkenham reviewed the 1994 Federal DNA Act and amendments made by the DNA Analysis Backlog Elimination Act of 2000, the Justice for All Act and the DNA Fingerprint Act of 2005

Following lunch, Dr. Douglas Hares, with the FBI's CODIS Unit (Acting Unit Chief and NDIS Custodian) presented on the history and evolution of the Quality Assurance Standards (QAS). Dr. Hares reviewed his timeline with respect to the issuance of the FBI Director's QAS. Dr. Hares noted the importance of documenting standards and practice and that the subject areas included in the TWGDAM Guidelines were similar to the QAS. He reviewed the topics covered by the original QAS and that, when its' term was over, the Federal DNA Advisory Board tasked SWGDAM with providing the FBI Director with recommended revisions to the QAS. Dr. Hares explained that the Department of Justice' Office of the Inspector General found the self-certification for audits insufficient and that led to the creation of the NDIS Audit Review process by the CODIS Unit. Dr. Hares described the first QAS Audit Document Revision was a result of the change in Federal law from proficiency testing every 180 days to semiannually. The review of the QAS was a process begun in 2004 and a revised draft was presented to the SWGDAM membership in January 2006. This first revision included additional detail and clarification in the standards. Dr. Hares reviewed additional revisions to the Standards (2011, NDIS Enhancements).

Mr. David Coffman, SWGDAM Chair Emeritus, shared his recollections from the first revision of the Quality Assurance Standards. Mr. Coffman discussed issues encountered during his Chairmanship such as membership, conflict of interest principles, one spokesperson and more frequent communication with the Executive Board. In the revision of the QAS, the QA Committee would formulate the first draft and then present that draft to the SWGDAM body for discussion during the semiannual meeting. The body recognized that they were considering minimum standards to ensure quality in forensic DNA nationwide and not validating what is being done in individual laboratories. It was helpful to review the findings on audits and evaluate those that come up more frequently. The QAS have raised the bar and this body will continue to be guided by what's best for the DNA community, as a whole.

Ms. Jocelyn Carlson, Chair of the QA Committee, explained the process for revision of the QAS. First, there will be a review of the standards; do they meet our needs? Does the audit document help, clarify or add new requirements? Is there redundancy to accreditation requirements? Are updates needed for Rapid DNA, Next Generation Sequencing (NGS), robotics, expert systems, probabilistic genotyping? Ms. Carlson explained the target timeline began in January 2015 when the discussions were initiated, input from the membership was solicited which will be reviewed at this meeting. From there, the QA Committee will review feedback from the QAS audits (2009-present), overturned findings, most/least findings; and NDIS Audit Review Panel member insight. Topics or areas that may need revision include: personnel, validation, analytical methods, equipment, reports, proficiency testing, and outsourcing. Ms. Carlson encouraged the

membership to continue to submit suggestions and for the other SWGDAM Committees to provide input for the revisions.

Wednesday, July 15, 2015

The following SWGDAM Committees/Working Group met all day: Autosomal STR, CODIS, Enhanced Detection Methods, Next Generation Sequencing, Quality Assurance, Rapid DNA and Y-STR.

A round table discussion was held in the evening and the following topics were presented and/or discussed: FBI genotyping discrepancies in the 1999-2000 population data; case involving unidentified human remains, case involving cartridge cases; GlobalFiler® material modification; differential extractions; familial searching; and the Commission on Forensic Science.

Thursday, July 16, 2015

The following SWGDAM Committees/Working Group met in the morning and presented updates on their activities after lunch: Autosomal STR, CODIS, Enhanced Detection Methods, Next Generation Sequencing, Quality Assurance, Rapid DNA and Y-STR.

The SWGDAM Chair announced that Mr. Steven Myers was appointed to the SWGDAM Executive Board to serve out the balance of Eric Pokorak's term; congratulations Steven!

Update Session

Minh Nguyen from the National Institute of Justice (NIJ) presented an update on NIJ activities. NIJ has a new Director – Dr. Nancy Rodriguez. There has been reorganization within the Office of Investigative and Forensic Services with a split into the grants management division and research and technology support division. She explained that the FY 2015 awards will be made in September. Ms. Nguyen noted that FY 2016 funding opportunities are available at the NIJ web site. The National Research Council's evaluation of NIJ continues; they held four meetings and are now drafting their report. Ms. Nguyen noted that the Technology Working Group will be meeting in September to review/update their research priorities.

Col. Dr. Roman Hradil, Chair of the DNA Working Group of the European Network of Forensic Science Institutes (ENFSI), provided an update on ENFSI activities. With the goal of exchanging ideas, there are 17 expert working groups and two formal project

groups. Their objectives are: (1) strengthening the empirical scientific basis of forensic science by developing pan European databases; (2) creating funding opportunities for the forensic community; (3) formulating and improving forensic quality standards; and (4) improving forensic governance. Col. Hradil noted that ENFSI has a new website and its latest publication is available there: ENFSI Guideline for Evaluative Reporting in Forensic Science. He provided an update on the status of the Monopoly Programme 2014 (MP2014) and the DNA Working Group meeting held in April 2015.

Dr. Michael Coble of the National Institute of Standards and Technology (NIST) provided an update on NIST activities. The SRM 2391c update has been accepted and the certificate has been updated for 41 additional STR markers and Amelogenin. Work continues on the Consortium Validation Project. Qiagen has launched in the United States with the Qiagen Investigator 2 plex QS including quality sensors (low molecular and high molecular weight amplicons to distinguish degradation from inhibition, and if no DNA, amplification of the amplicon). The Rapid Maturity Assessment Study continues to evaluate and test the instruments success rate in producing DNA profiles with the CODIS Core Loci. For Next Generation Sequencing, waiting to upgrade their instrumentation. They are looking at next generation data through output from a software package and putting that data into report format. Dr. Coble also reviewed recently accepted articles for publication in Forensic Science International as well as upcoming talks, workshops and posters.

Ms. Dawn Herkenham, with Leidos, provided a legislative update. Ms. Herkenham reviewed the States with arrestee laws as well as pending arrestee litigation. Ms. Herkenham also reviewed 2015 legislative proposals that were enacted relating to arrestees and DNA work product. Ms. Herkenham described recent legislation on sexual assault evidence kits in Connecticut and Pennsylvania as well as legislation on familial searching and DNA databases. Pending Federal legislation and appropriation report language was also reviewed. Ms. Herkenham provided an update of recent cases of interest relating to Y-STRs, low template DNA analysis and probabilistic genotyping software, the Confrontation Clause and the Genetic Information Nondiscrimination Act.

Mr. Adam Shariff of the United Kingdom (UK) Home Office provided an update on forensic DNA and the UK National DNA Database. He explained that the UK DNA Database included: Birmingham, England, Wales, Scotland, and Northern Ireland. Mr. Shariff described the number of DNA profiles loaded over the past year: 251,935 (cumulative of over 8 million records loaded over the past 20 years) and 34,201 forensic profiles (cumulative of over 700,000 forensic over the past 20 years). The UK DNA database currently has 5,766,369 subject records and 486,691 crime stain records. They have a match rate of 63.2%. He described the launch of DNA-17 on July 24, 2014 (using

NGMSelect™, GlobalFiler®, PowerPlex® ESI 17, PowerPlex® ESI-17 Fast, Investigator® ESS plex SE Plus (which is approved for use but not being used at present). Mr. Shariff also explained their central elimination database; a DNA contamination detection tool (for staff elimination databases) and that the International Commission on Missing Persons is working on a manufacturers' elimination database.

Dr. John Butler, of the National Institute of Standard and Technology (NIST), provided an update on the activities of the Scientific Area Committees, the National Commission on Forensic Science and NIST. Dr. Butler explained that the NIST Forensic Science Research Program awarded \$20 million (over 5 years) to a consortium effort led by Iowa State involving Carnegie Mellon, University of California-Irvine, and the University of Virginia for a NIST Forensic Science Center of Excellence. Dr. Butler provided an update on OSAC's meeting in February 2015, linking with ENFSI and other groups throughout the world and the Quality Infrastructure Committee. Dr. Butler reviewed the activities of the National Commission since the last SWGDAM meeting, including their two meetings, new designated Federal official, documents approved by the Commission, and the new Bylaws Subcommittee.

III. Attendees:

Please see Attachment 2.

IV. Next Meeting:

The next meeting will be held January 12-14, 2016.



SWGDM REGULAR MEETING

July 14 - 16, 2015

AGENDA

Tuesday, July 14, 2015

8:00 AM Chair and Vice Chair Meeting

8:30 AM Welcome and Business Matters

TECHNICAL SESSION: SWGDAM AND THE FBI NATIONAL QUALITY ASSURANCE STANDARDS (QAS)

9:00 AM Present at the Start: Research and Casework Reflections on the Beginning of FBI Forensic DNA Testing – Dwight Adams

9:30 AM A Brief History of Forensic DNA Science – Thomas Callaghan

10:00 AM BREAK

10:15 AM The History of TWGDAM/SWGDAM – Ken Konzak

11:15 AM The Legacy of the DNA Identification Act of 1994 – Dawn Herkenham

12:00 PM LUNCH

1:30 PM The Evolution of the FBI National Quality Assurance Standards – Douglas Hares

2:15 PM Reviewing the QAS: Lessons Learned by a Chair Emeritus – Dave Coffman

3:00 PM BREAK

3:15 PM Reviewing the QAS 2015-2016: The Plan Moving Forward – Jocelyn Carlson

COMMITTEE PLANNING SESSIONS

4:00 PM Committees and Working Groups

Autosomal STR – Joel Sutton

CODIS – Douglas Hares



SCIENTIFIC WORKING GROUP

DNA ANALYSIS METHODS

Enhanced Detection Methods – Eugene Lien

Next Generation Sequencing Working Group – John Tonkyn

Quality Assurance – Jocelyn Carlson

Rapid DNA – Jennifer Wendel

Y-STR – Tamyra Moretti

4:00 PM ADJOURNMENT

Wednesday, July 15, 2015

COMMITTEE BREAKOUT SESSIONS

9:30 AM Committee Break-Out Sessions

12:00 PM LUNCH

1:00 PM Committee Break-Out Sessions

5:00 PM ADJOURNMENT

ROUND TABLE SESSION

6:00 PM TBD - Moderator: Russell Vossbrink

Thursday, July 16, 2015

COMMITTEE BREAKOUT SESSIONS

8:30 AM Committee Break-Out Sessions or Committee of the Whole Reviews or Committee Final Reports and Final Approval Votes (as needed)

12:00 PM LUNCH



UPDATE SESSION

- 1:00 PM Committees and Working Groups
- Autosomal STR – Joel Sutton
 - CODIS – Darrel Oubre
 - Enhanced Detection Methods – Dixie Peters
 - Next Generation Sequencing Working Group – John Tonkyn
 - Quality Assurance – Jocelyn Carlson
 - Rapid DNA – Taylor Scott
 - Y-STR – Tamyra Moretti
- 2:15 PM NIJ Update - Minh Nguyen
- 2:45 PM ENFSI Update – Roman Hradil
- 3:15 PM BREAK
- 3:30 PM Legislative Update – Dawn Herkenham
- 4:00 PM NIST Update – Mike Coble
- 4:30 PM Home Office Update – Adam Shariff
- 5:30 PM Biology/DNA Scientific Area Committee – John Butler
- 5:45 PM National Commission on Forensic Science Update – John Butler
- 6:00 PM ADJOURNMENT

SWGDM July 2015 Meeting Attendees

SWGDM Chair

Anthony Onorato

FBI Laboratory

SWGDM Vice Chair

Russell Vossbrink

Arizona Department of Public Safety

Executive Board Members

Brian Hoey

Missouri State Highway Patrol

Crime Laboratory

Amy McGuckian

Palm Beach County Sheriff's Office

Steven Myers

California Department of Justice

Gary Sims

California Department of Justice

SWGDM Executive Secretary

Dawn Herkenham

Leidos

SWGDM Attendees

Jack Ballantyne

University of Central Florida

Jo Bright

Institute of Environmental Science and

Research Limited

John Buckleton

Institute of Environmental Science &

Research

John Butler

National Institute of Standards and

Technology

Thomas Callaghan

FBI Laboratory

Jocelyn Carlson

FBI Laboratory

Chris Carney

FDLE – DNA Database

Amber Carr

FBI Laboratory

Craig Carroll

Royal Canadian Mounted Police

Michael Coble

National Institute of Standards and

Technology

Tina Delgado

FBI Laboratory

Seth Faith

NC State University

Neil Fernandopulle

Centre of Forensic Sciences

Russell Gettig

NYS Police Forensic Investigation Center

Debra Glidewell

Defense Forensic Science Center

Ann Marie Gross

Minnesota Bureau of Criminal

Apprehension

Lisa Grossweiler

FBI Laboratory

Douglas Hares

FBI Laboratory

Brian Harmon

California Department of Justice

Bruce Heidebrecht

Maryland State Police

Roman Hradil

ICP (Institute of Crimnalistics Prague)

Bill Hudlow

California Department of Justice

Deedra Hughes

Mississippi Forensic Laboratory

Jodi Irwin

FBI Laboratory

Clark Jaw

FBI Laboratory

Elizabeth Johnson

U.S. Army Crime Lab

J. Janice Joslin

Oklahoma State Bureau of Investigation

Kristy Kadash

Jefferson County Regional Crime Lab

Susannah Kehl

FBI Laboratory

Jason Kokoszka

Alabama Department of Forensic Sciences

George Li

Virginia Department of Forensic Science

Eugene Lien

NYC Office of Chief Medical Examiner

Beth Ann Marne

Pennsylvania State Police

Charla Marshall

AFDIL

Scott McWilliams

Wyoming State Crime Laboratory

Gary J. Molina

Texas Department of Public Safety

Shawn Montpetit

San Diego Police Department

Tamyra Moretti

FBI Laboratory

Elizabeth Morris

Austin Police Department

Minh Nguyen

National Institute of Justice

Mary Lou Nicholson

Royal Canadian Mounted Police

Jeffrey Nye

Michigan State Police

Darrel Oubre

FBI Laboratory

Dixie Peters

University of North Texas Health Science Center

Lutz Roewer
University Medicine Berlin

David Coffman

Ken Konzak

Juliet Rolando
FBI Laboratory

Lisa Schiermeier-Wood
Virginia Department of Forensic Science

Peg Schwartz
Vermont State Police (Retired)

Taylor Scott
Illinois State Police

Adam Shariff
UK National DNA Database

Joel Sutton
USACIL - DFSE

John Tonkyn
California Department of Justice

Peter Vallone
National Institute of Standards and
Technology

Stacy Warnecke
Kentucky State Police

Ray Wickenheiser
NYS Police Forensic Investigation Center

Tim Zolandz
FBI Laboratory

Presenters
Dr. Dwight Adams