A100 Two Case Studies of Controlled Substance Laboratories Using Custom Macros and Commercial LIMS-Based Paperless Systems Under ASCLD/LAB©-International Accreditation Requirements

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After attending this presentation, attendees will understand the process associated with the implementation of a LIMS-based paperless system through custom instrument macros. Attendees will observe two approaches that comply with ASCLD/LAB-International accreditation requirements, particularly regarding security and documentation of technical review.

This presentation will impact the forensic science community by increasing efficiency while simultaneously reducing operational costs. A major challenge of controlled substance laboratories is managing high caseload submissions in an efficient, cost-effective manner. This presentation chronicles the implementation of two paperless systems using commercial LIMS-based systems. The purpose of this presentation is to provide a blueprint for laboratories seeking ways to implement cost- saving measures and efficiency without expending a great deal of resources.

The Oklahoma State Bureau of Investigation (OSBI) initially created macros specifically for Agilent Chemstation™ to automate sample analysis and report creation for Agilent™ dual column GC-FID and GC- MS instrumentation. The Harris County Institute of Forensic Sciences (HCIFS) implemented these macros and further tailored the macros to

comply with agency-specific procedures. HCIFS also provided customization for the automatic dual creation of hard-copy and electronic report formats. All reports, regardless of instrument type, are automatically generated and display all relevant case information and instrument settings. The macros incorporate quality control data to ensure proper instrument performance in an easy to read format.

Macros are also used to add a layer of security. A .“txt” file is created that assigns a unique Validation Code to each sample. The .“txt” file contains the validation number, case number, item and analyst information; with the Validation Code also appearing on the report. The

.“txt” files and sequence logs for each instrument run are archived in secure folders.

The OSBI and HCIFS have connected instrumentation computers to their individual laboratory-wide networks to allow for access of instrument reports at analyst workstations. After review by the analyst, the instrument reports are uploaded into the respective LIMS system and are time and/or date stamped with the user login information. The LIMS system in place at HCIFS is Justice-Trax™ whereas the OSBI uses the BEAST™, both prominent, commercial LIMS systems.

Instrument reports are uploaded into the BEAST™ as PDF documents and all transactions are documented in an Audit Log. The Audit Log tracks all the details of the actions taken for individual cases. Administrative/technical reviews are performed before the BEAST™ releases a case.

Justice-Trax™ requires a technical review of these electronic documents which is tracked through a review history before the case can be released. Justice-Trax™ generates an electronic worksheet which documents the total number of technical pages uploaded into the electronic case file, complying with ASCLD-LAB/*International* requirements of documenting the review of each page in the official case record.

Other topics of discussion will include enhancements of the HCIFS paperless workflow including the implementation of additional commercial and/or in-house compiled software to document exhibit weights, the creation of custom barcodes for Agilent™ GC-FID and GC- MS and the use of Kováts retention index (RI) for GC-MS confirmation, in lieu of repeated injections of positive controls. **Controlled Substances, Paperless, Macros**

 ** Presenting Author*