

**STR ANALYSIS OF CODIS SAMPLES ON A VARIETY OF PHYSICAL  
SUBSTRATES IN A HIGH THROUGHPUT ENVIRONMENT**

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A highly automated STR felon databasing system capable of rapid scalability has been constructed, validated and implemented. The Surelock ID<sup>SM</sup> Testing Service has a demonstrated ability to process multiple sample types while increasing throughput capacity 7-fold within a 10 month period with no loss in efficiency or accuracy.

The National Institute of Justice (NIJ) FY2000 program for backlog reduction of convicted offender DNA samples has created multiple challenges and opportunities. Processing a number of state specific contracts ranging from 1,500-90,000 samples within the 12-month funding period necessitated exponential increases in processing capacity. Among the states, CODIS samples have been collected and stored on a variety of physical substrates; Stained Cotton Cloth, Filter Paper, FTA<sup>®</sup> Stain Cards, Buccal Swabs (sponge, filter paper or cotton), Buccal Swabs pressed onto FTA<sup>®</sup> Stain Cards and extracted DNA. Each of these substrates presented a unique set of challenges for processing in a high throughput environment. To accommodate all of these substrate types within the same high throughput system required multiple sample entry points and reprocess pathways. The successful analysis of very large numbers of diverse samples in the past year validates the Surelock ID<sup>SM</sup> design approach to high throughput processing of CODIS samples on a variety of physical substrates.

The discussion of the Surelock ID<sup>SM</sup> system will include design considerations for processing multiple sample types within a high throughput system, analysis challenges for different sample types, essential process quality control parameters and future system enhancements.