

DATABASING EFFORTS UNDERWAY IN INDIANA

Todd W. Bille, M.S.

Indiana State Police Laboratory



In July of 1996, the Indiana State Legislature passed a law allowing for the formation of an offender DNA database. This enabled the Department of Corrections to collect DNA samples from individuals convicted of felony crimes against a person and burglary. The Indiana State Police Laboratory has used PCR-based DNA typing technology since the inception of its DNA Unit in 1991. In February of 1998, the unit went on-line with STR typing using the *GenePrint®* PowerPlex™ 1.1 kit from Promega Corporation and the Hitachi FMBIO® Fluorescent Imager. Because of this and the focus of the FBI at that time on the inclusion of an agreed upon set of STR's in CODIS, the decision was made to perform STR analysis on the database samples as well.

The Indiana correctional system utilizes a central processing center through which all recently convicted individuals pass. Here the convicted felon is screened for infectious diseases and routed to the appropriate prison. Therefore, a DNA sample could be obtained from all the incoming felons with ease at the processing center. The collection of samples then began in November of 1997. A plan was also put in place to collect DNA samples from the designated inmates of the existing prison population. In July of 1997, a prison sweep was conducted. The combined programs led to the collection of over 10,000 DNA samples in a relatively short period of time.

Prior to the collection of the samples, a decision had to be made whether to analyze the samples in-house or to outsource the analysis. The decision to out-source the analysis of the DNA samples was made for several reasons. First, at the time the backlog of the DNA unit was such that keeping up with court dates was becoming a challenge. Second, there was limited space in the laboratory for expansion of the unit. Additionally, it was determined that a private company could more efficiently adapt to the changing sample number. The prison sweep led to a one time substantial number of samples which would be followed by a reduced, constant weekly number. For ease of data handling, interpretation and review, the company to which the analysis was out-sourced was required to utilize the same technology. It was known that inherent problems would exist with out-sourcing the DNA analysis of the samples. The logistics of sample transport, chain of custody and return of data was an area of concern. Differences in the methodologies for the analysis of database samples versus casework samples was a consideration. The need for good communication soon became apparent due to the relatively new and changing CODIS software and other unique situations that arise when handling large numbers of samples. Overall, very few problems have surface, and those that did were easily resolved.

One essential consideration was the implementation of a quality assurance program to oversee the analysis of the database samples. This is more difficult since the analysis is not on-site, yet is an integral part of the database program. In general, the laboratory performing the analysis must meet the guidelines set forth by the DNA Advisory Board for databasing laboratories and the American Society of Crime Laboratory Directors. Components of the program include inspections at a minimum annually, external proficiencies, blind duplicates and retesting. Approximately 5% of the samples sent are blind duplicates. In addition to retesting samples at random, any sample that is out of the ordinary (i.e. rare variants, three band patterns, etc.) is analyzed in our laboratory.

Currently, over 19,000 samples have been collected. Of those, all have been analyzed for the PowerPlex™ 1.1 loci and are currently being analyzed for the PowerPlex™ 2.1 loci. The predicted rate of incoming samples is approximately 3,300 samples per year. The next step in the database program is to begin the analysis of no-suspect cases on a larger scale. To this end, additional personnel have been hired and are currently being trained. It is planned that at least a portion of the analysis of the casework samples will also be out-sourced.