

## **INTERNAL VALIDATION OF GLOBALFILER® EXPRESS “GOOD FAITH EFFORTS” PROTOCOLS**

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NDIS Operational Procedures Manual approved January 13, 2014, states that “4.2.1.2 Database and reference samples shall be accurate and complete for the CODIS Core Loci; good faith efforts shall be made to obtain results for each locus and to enter all of the results as part of the DNA profile.”. The current analytical platform to process database samples at the State of Alaska Crime Laboratory consists of use of Life Technologies GlobalFiler® Express (GFE) for direct amplification and analysis on AB 3500xl genetic analyzers. Although it is expected that a significant portion of samples analyzed will result in complete profiles, the validation studies did show that some samples, particularly those which were collected more than two years prior, may not yield complete profiles on the first attempt. Collection of new samples may not always be possible or practical. Therefore, to comply with current NDIS operational procedures, subsequent validation studies were performed to assess possible courses of action (i.e. “good faith efforts”) in order to obtain accurate and complete profiles for challenging samples.

The two “Good Faith Effort” protocols include: (1) revisiting a lysate after extended incubation (at 4 - 8°C for up to two weeks) with the standard GFE protocol for amplification; and/or (2) performing extraction on all of the remaining GFE lysate on a Qiagen BioRobot EZ1 ® Advanced XL and amplifying the purified DNA extract with PowerPlex 16 ®. Resulting profiles from either protocol were assessed for completeness at core CODIS loci. Each of these “Good Faith Effort” protocols was able to increase the ultimate pass rate for challenging samples.