DATE:        April 12, 2019

TO:          San Diego District Attorney's Office

FROM:        Shawn Montpetit, DNA Technical Manager, Forensic Biology Unit

SUBJECT:     Likelihood Ratio Verbal Scale Changes

In 2018, the Scientific Working Group on DNA Analysis Methods (SWGDAM) published recommendations on DNA typing results reported as likelihood ratios. The purpose of these recommendations is to create consistency among laboratories in how likelihood ratios are being reported.

Likelihood ratios provide statistical weight to comparisons of a particular individual to an evidentiary DNA profile. Since October 2015, the San Diego Police Department (SDPD) Forensic Biology Unit has been using likelihood ratios exclusively in casework analysis. Effective April 15, 2019, we will implement the following policy changes based on the SWGDAM recommendations:

**Policy change in response to Recommendation 1.1: The likelihood ratio reported will be the lowest value calculated.** The SDPD Forensic Biology Unit calculates likelihood ratios for the African American, Caucasian, Hispanic, and Asian population groups. This results in four different likelihood ratio values for a single comparison. Of these four values, we previously reported the likelihood ratio value closest to 1. The likelihood ratio reported will now be the lowest calculated value.

**Policy Change in response to Recommendation 1.2: The SDPD will adopt the verbal scale recommended by SWGDAM.** In an effort to convey the meaning of the calculated likelihood ratio value, a verbal scale can be used to provide a qualitative statement describing the significance of this value. The verbal scale previously used by the SDPD was based on our internal validation studies, and as a result, varied from the verbal scales used by other laboratories. The below table compares the new SWGDAM verbal scale to the former SDPD verbal scale.

| Likelihood Ratio Value | New SWGDAM Verbal Scale | Previous SDPD Verbal Scale |
|---|---|---|
| ≥1,000,000 | Very Strong Support for Inclusion | Strong Support for Inclusion |
| 10,000–999,999 | Strong Support for Inclusion | |
| 1,000–9,999 | Moderate Support for Inclusion | Moderate Support for Inclusion |
| 100–999 | | Limited Support for Inclusion |
| 2–99 | Limited Support for Inclusion | Inconclusive[1] |
| 0.5–1.9 | Uninformative | |
| 0.01–.0.49 | Limited Support for Exclusion | |
| <0.01 | Exclusion | Exclusion |

**Policy Change in response to Recommendation 3.1: The SDPD will no longer use the term inconclusive to describe a likelihood ratio value between 0.01 and 100[1].** Likelihood ratio values between 0.5 and 2 will now be reported as *uninformative.* Likelihood ratio results in this range provide near equal support for inclusion and exclusion. Consequently, likelihood ratio values previously described as "inconclusive" may now be described as limited support for inclusion or exclusion.

It is important to note that the way in which the likelihood ratio value is calculated has not changed with the implementation of these recommendations. The only policy modifications are: to report the lowest likelihood ratio and to use the SWGDAM verbal scale. As a result, these new policy changes do not invalidate DNA reports written prior to April 15, 2019.

Shawn Montpetit, DNA Technical Manager

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[1] The inconclusive range previously used by the SDPD for five person mixtures was between 0.001 and 1,000. There was no limited support for inclusion range for five-person mixtures.