

REPORT

Report to: Walter Sofronoff QC, Commissioner
Commissioner of Inquiry into Forensic DNA Testing in Queensland

Report Date: 25 August 2022

Request: Opinion as to the accuracy of statements made by reporting scientist in formal witness statements regarding samples that have “no DNA detected”.
Would you please advise whether, in your opinion:

- a) The statement quoted in paragraph 1 above is true for every sample that returns a quantitation value of less than 0.001ng/uL;
- b) If the statement is untrue or if it is misleading in any respect, please explain why that is so.
- c) The statement quoted in paragraph 5 above is true for every sample that returns a quantitation value of less than 0.001ng/uL;
- d) If the statement is untrue or if it is misleading in any respect, please explain why that is so.
- e) What words could be used to accurately describe the situation in the Forensic Register or in formal witness statements.

Information Reviewed:

Document	Date Issued
Letter – Sofronoff to Wilson-Wilde – Opinion as to the accuracy of statements made by reporting scientist in formal witness statements regarding samples that have “no DNA detected”.	04-08-2022
Index – Brief to Wilson-Wilde – no DNA detected	
QHFSS document - Procedure for the Release of Results using the Forensic Register	22-07-2022
Statement of Jacqueline Maree Wilson in relation to [REDACTED]	05-08-2021
Case notes corresponding to the statement of Jacqueline Maree Wilson in relation to [REDACTED] (pages 58-59)	
Statement of Josie Elizabeth Entwistle in relation to [REDACTED]	23-11-2021
Case notes corresponding to the statement of Josie Elizabeth Entwistle in relation to [REDACTED] (various pages)	
Statement of Rhys James Parry in relation to QP2101473662	25-03-2022
Case notes corresponding to the statement of Rhys James Parry in relation to [REDACTED] (pages 185-228)	
Quantifiler™ HP and Trio DNA Quantification Kits USER GUIDE https://tools.thermofisher.com/content/sfs/manuals/4485354.pdf	2017

Comments

- Page 30 of QHFSS document - *Procedure for the Release of Results using the Forensic Register* it states, "Samples with no DNA detected, quantitation values <0.001ng/uL, will be released with the result line "No DNA Detected" and will be actioned..."
- Variations were found in the three statements; however, these can be considered insignificant and are as follows:
 - WILSON – "DNA was not detected in this sample during the initial stages of DNA analysis and as such, no further testing was conducted."
 - ENTWISTLE – "DNA was not detected in this sample and it was not processed further."
 - PARRY – "DNA was not detected in this fraction and as such, further DNA testing was not conducted."
- According to the *Quantifiler™ HP and Trio DNA Quantification Kits USER GUIDE*, issued by Thermo Fisher Scientific (kit manufacturer), the Limit of Detection (LOD) for the Quant Trio DNA quantification kit is <1pg/uL.
- 1pg/uL equates to 0.001ng/uL.
- According to the *Quantifiler™ HP and Trio DNA Quantification Kits USER GUIDE*, with an input target of 0.0016ng/uL, the average percentage of alleles recovered following amplification, using the GlobalFiler™ amplification kit, is 20%. With a target input of 0.0008ng/uL the output reduces to 4%. This supports a LOD of 0.001ng/uL.
- It is important to note that "no DNA detected" is not the same as saying there was no DNA in the sample.
- Casefile notes in relation to the statements for WILSON (2 pages), ENTWISTLE and PARRY (45 pages) were reviewed. All samples where "no DNA detected" was used in the statement had quantitation values less than 0.001ng/uL.
- It can be reasonably inferred that for all other samples where the casefile notes were not reviewed, the samples designated as "no DNA detected" would also have quantitation values less than 0.001ng/uL.

Opinion

1. In the forensic context, a quantitation value below the limit of detection does not necessarily signify that there was no DNA in the sample. It only signifies that the instrument was unable, given its limitations, to detect a fluorescence signal (representing DNA) higher than the threshold validated by the laboratory.
2. There may be very low levels of DNA present in the sample, but the instrument has been unable to detect the presence of the DNA to a level that can be confirmed with any confidence. It is in this sense that "No DNA detected" is true.
3. "No DNA detected" is not intended to convey (to scientists) the absence of DNA but only that the machine could not detect with any with confidence, whether or not it was present (albeit at very low levels).
4. In the case files provided, which contain a quantitation value between 0 and 0.001 ng/uL, the quantitation value indicates that the instrument detected some fluorescence signal, but it is not known whether it is detecting DNA or something else (for example background "noise").


Professor Linzi Wilson-Wilde OAM