

Notice number: 2022/00181

**COMMISSION OF INQUIRY INTO FORENSIC DNA TESTING  
IN QUEENSLAND**

Section 5(1)(d) of the *Commissions of Inquiry Act 1950*

**STATEMENT OF ALLAN RUSSELL McNEVIN**

I, **Allan Russell McNevin, Reporting Scientist**, of Queensland Health Forensic and Scientific Services – Forensic DNA Analysis, do solemnly and sincerely declare that:

1. On 14 September 2022 I was requested to provide a statement answering a number of questions as set out in Notice 2022/00181. My responses are as follows.


**Bones**

**Question 1 – Explain your knowledge, experience and expertise in the collection, testing and analysis of biological material from bones to obtain DNA profiles.**

2. I was the manager of the Analytical Team from 2006 to 2014 and the Evidence Recovery Team from 2014 to 2021, as such my involvement with the collection, testing and analysis of bone samples was mostly in a supervisory capacity. I did perform some DNA extraction from bone using the organic (phenol-chloroform) extraction method early in my time working in Forensic DNA Analysis. I only performed a small number of extractions. I do not have the details of exactly how many I performed.
3. Whilst managing each of the teams mentioned, I made myself familiar with all processes that were performed by the team by gaining some hands-on experience (where necessary and practical), learning from the team members and by reading associated materials (e.g. text books, journal articles, information available from suppliers and vendors etc.). This included the collection, testing and analysis of bone samples.

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263. According to the Minor Change register, the Forensic DNA Analysis laboratory introduced automated DNA IQ extractions using automated liquid handler platforms – the MultiPROBE® II PLUS HT EX platforms (MPII) - in October 2007. In March 2008, DNA IQ extraction using off-deck lysis was introduced. Off-deck lysis referred to the process whereby the initial steps of the DNA IQ extraction would be performed in a manual manner (the lysis step) followed by completion of the DNA extraction procedure (binding of DNA to the beads, washing and elution) on an MPII.
264. Please see exhibit 'ARM-104' Copy of Change Register - Minor Changes and emerging or novel practices as at 20-09-2022.xls.

**Question 48 – Explain what problems with DNAIQ were experienced in approximately 2008. Explain, to the best of your knowledge, how these problems were first detected.**

265. From my recollection, there were some initial teething problems with the introduction of automated processing. Many of these were the result of human error. The kinds of errors included staff placing labware in incorrect orientations, making errors while using new equipment. As these initial problems arose, ongoing training and adjustments to processes took place.
266. One of the teething problems that arose was the formation of a gel like consistency in the reagents during the processing of the extraction. To resolve this SDS was replaced with Sarcosyl as one of the reagents.
267. Aside from the human error type problems that took place, some instances of cross-contamination were detected. These problems were related to the automated DNA IQ extraction procedure. At some point it became apparent that there was a systemic problem rather than isolated incidences. According to information supplied in Question 50 below, it would appear that it became apparent that it was systemic issue sometime around early July just prior to the extraordinary management team meeting noted below. I cannot identify a more specific date.

**Question 49 – Identify each OQI and adverse event that relates to DNAIQ problems at around this time, or has since been linked to DNAIQ problems from around this time.**

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276. The first OQI raised (OQI 19330) has a date identified listed as 21/04/2008. The dates that subsequent OQIs were listed as date identified are as follows: 19349 – 23/04/2008; 19477 – 12/05/2008; 19767 – 14/06/2008 and 19768 – 14/06/2008. It would appear to me that these were the OQIs which were sufficient to determine that there was a systemic problem relating to multiple incidences of cross-contamination. The memo listed above only mentions OQIs 19349, 19477 and 19768. All other OQIs listed in Question 49 above were created subsequent to 14/07/2008.
277. According to the Actions for OQI 19768, an extraordinary management team meeting was held on 14/07/2008 with the following actions agreed on: Processing of Reference samples only on Extraction platform A (initial investigations indicated events were likely related to platform A); Processing of Casework samples on Extraction platform B in a checkerboard pattern with extraction reagent blanks; Urgent progression of Audit 8227 and investigation into findings; A full information review of results from automated extractions with documented quality events and extractions without documented quality events to gain further information. I have been unable to locate minutes for the meeting held 14/07/2008, it is possible that none were taken.
278. On 23-07-2008 I advised the Analytical Team and the Management Team that further investigations had uncovered events across both platforms. I provided further information to Justin Howes and the remainder of the management team via e-mail on 24-07-2008.
279. Please see **Exhibit 'ARM-108'** E-mail 2008-07-23 Use of Extraction platforms.pdf.
280. Please see **Exhibit 'ARM-109'** E-mail 2008-07-24 Re Plates.pdf.
281. An e-mail sent on 24-07-2008 from Paula Brisotto to the Management Team indicates that OQIs 19349, 19477 and 19768 were the first three that were identified as showing contamination from the automated DNA IQ process, and that subsequently OQIs 19330, 19767 and 20231 were identified as belonging to the same category.
282. Please see **Exhibit 'ARM-110'** E-mail 2008-07-24 OQI's.pdf.

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automated DNA IQ extraction processes. Note that in August 2008 Vanessa Ientile left the position of Managing Scientist and Cathie Allen had begun a period of acting in the role.

291. Please see **Exhibit 'ARM-113'** E-mail 2008-10-23 External Auditor.pdf.

**Question 51 – Was the cause of the issues or problems relating to DNAIQ identified? If yes, what was it?**

292. The Audit report for audit 8227 does not identify a specific cause of the cross-contamination, although it does identify potential areas of risk. These are outlined in the document "Audit 8227 DNA IQ FINAL".

293. Please see **Exhibit 'ARM-114'** Audit 8227 DNA IQ FINAL.pdf.

294. From my re-reading of the document and recollections, pipetting protocols on the liquid handling platforms, along with labware issues appeared to be the main areas that required further attention.

295. From my re-reading of the external review by Drs Sloots & Whiley, the seals used to seal off the individual reaction wells of plates appeared to have been identified as the cause of the cross-contamination.

296. Please see **Exhibit 'ARM-115'** 20081121 Sloots & Whiley external review.pdf.

**Question 52 – What immediate action was taken after the cause of the issues or problems was identified?**

297. The immediate actions taken once the issue was identified is covered in my response to Question 50. My recollection is that no single part of the process was immediately identified as the cause of the problems. Because of this, rectification involved making changes / improvements to the process and then carrying out tests to see if the improvements had been successful, thereby also providing information on what the likely cause of the problems were. Ultimately an improved process was implemented and these are outlined in my response to Question 56.

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303. Based on an e-mail sent by me on 11-11-2008, I provided Dr Sloots a copy of our draft SOP prior to their visit. I believe that they were auditing our improved protocol rather than the protocol that was in place when the cross-contamination occurred.
304. Please see **Exhibit 'ARM-116'** E-mail 2008-11-11 Fwd RE FSS DNA Analysis automated DNA IQ extraction SOP.pdf.
305. A copy of the final report is provided as document titled "20081121 Sloots & Whiley external review". I am not aware of any draft versions that were provided.
306. Please see **Exhibit 'ARM-115'** 20081121 Sloots & Whiley external review.pdf.

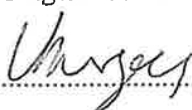
**Question 55 – How were the results of the audit by the external agency communicated to the DNA laboratory?**

307. I cannot recall and I have not been able to locate any documents to provide additional information.

**Question 56 – What permanent changes, or amendments to SOPs, were made as a result of identifying the problems related to DNA IQ?**

308. As the procedure for processing samples through automated DNA IQ extraction had changed, the corresponding SOP underwent an update – 24897 Automated DNA IQ Method of Extracting DNA from Reference and Casework samples. Attached are copies of the SOP before update and after update.
309. Please see **Exhibit 'ARM-117'** 24897 - V4.0 - Automated DNA IQ Method of Extracting DNA from Reference and Casework samples.pdf.
310. Please see **Exhibit 'ARM-118'** 24897 - V5.0 - Automated DNA IQ Method of Extracting DNA from Reference and Casework samples.
311. My recollection is that, upon resumption automated DNA IQ extractions, processing proceeded using extensive cross-contamination checking, including processing samples in a "soccerball" and "checkerboard" layout. A "soccerball" layout is one where each sample is completely surrounded by reagent blank / negative control

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314. According to the Minor Changes register, the manual method for DNA IQ extractions was re-introduced on 19/06/2009. On ~~20/08/2009~~ automated DNA IQ extraction recommenced on Extraction platform B (MPII instrument B).
315. On 22 August 2011, the Maxwell-16 MDX instrument was implemented for routine use. The Maxwell is a small automated platform that uses a cartridge system for DNA extraction. The kit that is used with the Maxwell-16 MDX instrument is a type of DNA IQ kit that is designed specifically for that instrument. The "16" refers to the capacity of the instrument – 16 samples can be processed in a single run. Practically, this represents 14 samples, 1 one positive control and 1 negative control. The Maxwell MDX instruments have been replaced with updated Maxwell FSC instruments that continue to use the DNA IQ kit for DNA extraction.
316. On 21 November 2016, the QIASymphony instruments were introduced into routine use as a replacement to automated DNA IQ extractions on MPII instruments. The QIASymphony instruments are manufactured by Qiagen and use the Qiagen DNA investigator kit which is a similar technology to DNA IQ (magnetic bead based DNA extraction). It is my understanding that most Forensic DNA facilities use a magnetic bead based DNA extraction technology.
317. Please see **Exhibit 'ARM-119'** Copy of Change Register - Minor Changes and emerging or novel practices as at 20-09-2022.xls.

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