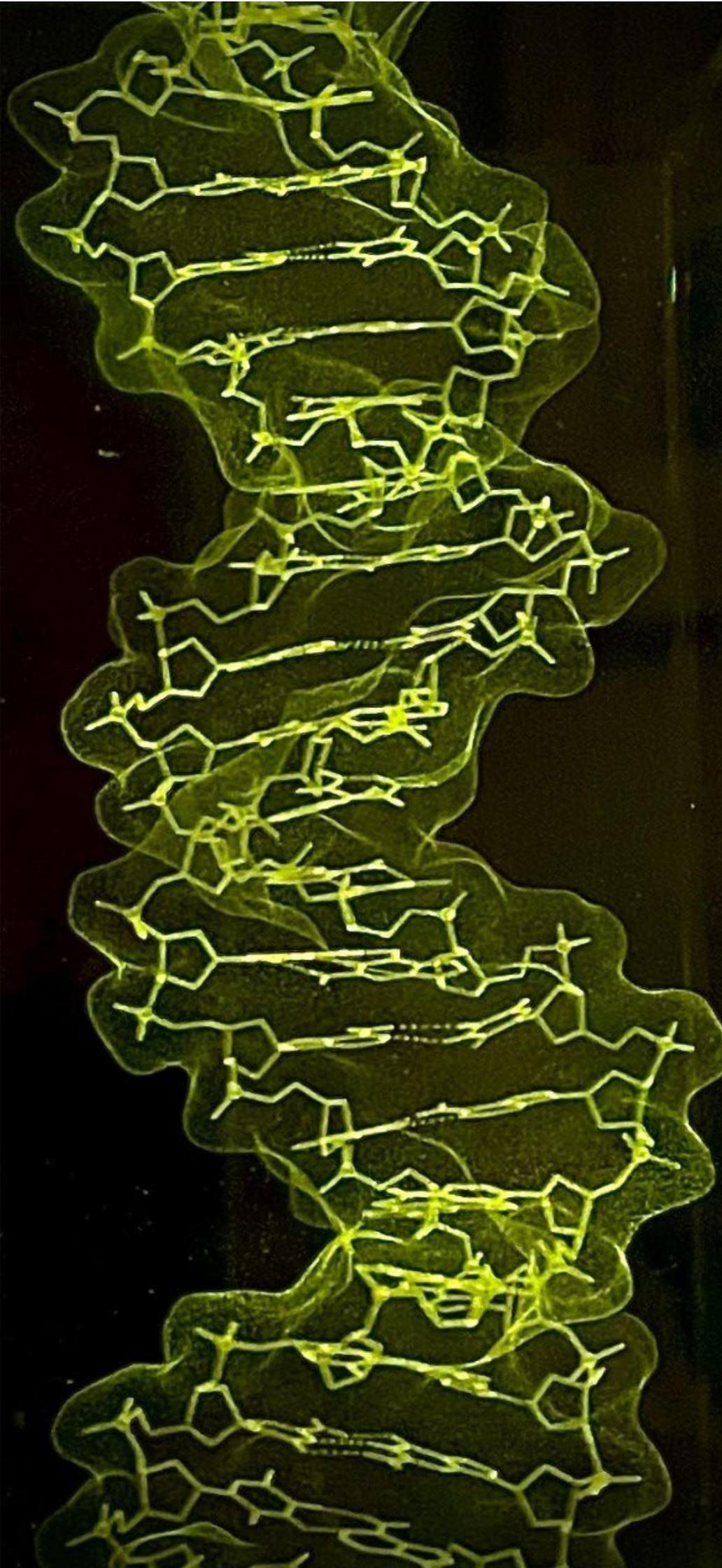


Final Report

Commission of Inquiry
into Forensic DNA testing
in Queensland

Walter Sofronoff KC

13 December 2022



Commission of Inquiry into Forensic DNA Testing in Queensland

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13 December 2022

The Honourable Anastacia Palaszczuk MP
Premier and Minister for the Olympics

The Honourable Yvette D'ath MP
Minister for Health and Ambulance Services

The Honourable Shannon Fentiman MP
Attorney-General and Minister for Justice, Minister for Women and Minister for the Prevention of Domestic and Family Violence

Dear Premier, Minister for Health, and Attorney-General,

I am pleased to provide you with a copy of my final report in accordance with my terms of reference set out in *Commissions of Inquiry Order (No. 3) 2022*, the Report of the Commission of Inquiry into Forensic DNA Testing in Queensland.

Yours faithfully



Walter Sofronoff KC

Commissioner

Commission of Inquiry into Forensic DNA Testing in Queensland

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FOREWORD

1. In the early morning hours of 9 February 2013, Shandee Blackburn was stabbed to death as she was walking home from work. She was 23 years old. A suspect was identified and later charged. The Crown case was that this man, John Peros, had once had a relationship with Ms Blackburn, that he had killed Ms Blackburn in jealous rage and that he had driven to and from the scene of the bloody murder in his car. It was naturally thought that the accused and his car must have been stained with Ms Blackburn's blood. Police took many samples, including from his car, but none of these returned a positive result for Ms Blackburn's DNA.
2. Samples taken from Ms Blackburn's skin likewise did not evidence the accused man's DNA. Indeed, even some samples - taken at the crime scene - that appeared almost certainly to have been taken from spilled blood also did not return a positive result for anybody's DNA. The case included much other evidence separate to the DNA evidence. One submission made for the defence was that no DNA had been found. The accused man was acquitted.
3. In 2019 a coronial inquest began and, in 2020, the coroner found a series of facts that raised a strong inference that the acquitted man, John Peros, had committed the murder. In late 2021 Mr Hedley Thomas began to broadcast a podcast about the murder. To understand the significance of the DNA evidence in the case, he had obtained help from a well-credentialed forensic biologist, Dr Kirsty Wright, to whom he gave many materials relating to the DNA aspect of the case. Her opinion, which was broadcast, was that for a number of reasons it appeared that the DNA laboratory had mishandled the testing of samples. The publicity given to the case, and the potential errors at the laboratory, were reinforced by articles published in the Australian newspaper by Mr Thomas and his colleagues Mr David Murray and Ms Lydia Lynch.
4. In late 2021 this adverse publicity had reached such a pitch that the Premier and the Health Minister had to address the issues. Briefed by the department, which had relied

upon information provided by the leader of the laboratory, the Managing Scientist, Ms Cathie Allen, the ministers assured the public that all was well at the laboratory. They could not have known that Ms Allen had fed them misleading information and that, for a long time, she had actually been lying to her immediate supervisor and to senior police about the work of the laboratory. Several scientists employed there had been clamouring for years about a dangerous lack of scientific integrity that they believed was systemic at the laboratory. In a state of affairs in which there was a conflict between what a newspaper was claiming and the advice that ministers were solemnly being given by senior department figures, nothing was done.

5. Then, in May 2022 the Queensland Police Service (**QPS**) delivered a written submission to the Women's Safety and Justice Taskforce, chaired by the Honourable Margaret McMurdo AC. In that submission the QPS asserted their lack of confidence in the DNA laboratory.
6. This amounted to a public denunciation of the laboratory's integrity by an unimpeachable authority and the Government soon announced an intention to establish this Commission of Inquiry.
7. I have found that serious problems have existed within the laboratory for many years, some of them amounting to grave maladministration involving dishonesty. These findings are described in this report.
8. It is important that those who read this report know that these problems at the laboratory would never have been uncovered but for the persistence of certain determined individuals. Some of these people showed real courage in maintaining their demands for scientific integrity at personal risk to their health and careers.
9. *First*, there were certain scientists who were prepared to speak truth to authority. When this Commission was established, they took the great risk of coming forward to me to tell me about what had been happening at the laboratory. Their stories were supported by a wealth of detail and, later, by contemporaneous documents that I obtained. However,

when they approached me, they were not to know whether I would honestly investigate their concerns or sideline them as malcontents who would then suffer retribution in their poisonous workplace for having gone behind the backs of their bosses. I describe their evidence – almost none of which was challenged by anybody – in various places in the report. They are Ms Kylie Rika, Ms Emma Caunt, Dr Ingrid Moeller, Ms Angelina Keller, Ms Alicia Quartermain and Mr Rhys Parry. A former employee, Ms Amanda Reeves, also provided information to the Commission. Ms Reeves, in particular, was treated cruelly. There are others who prefer to remain anonymous. Their evidence and information was fundamental to my ability to perform and finish my work within the short time-frame that I was given. I am deeply grateful for their help.

10. *Second*, although Mr Thomas and his colleagues had been correctly asserting that the work of the DNA laboratory warranted a thorough investigation, the seriousness of the situation was brought home to the government because of the doggedness of Inspector David Neville who found traces of the truth in the lies that he had been told and was not dissuaded from his pursuit of that truth by many obstacles put in his way. But for his persistence, it is possible that the work of the journalists and Dr Wright might have been insufficient.
11. *Third*, the professional skill and determination of Mr Thomas ensured that there was not the slightest chance that the issues would subside. The scientists' voices had been suppressed for years and, but for Mr Thomas's tenacious agitation of senior political figures, it is possible that even Inspector Neville's efforts might not have been enough.
12. *Fourth*, it is uncommon for technical professionals to be willing to risk the dangers of publicity. For this reason, Dr Kirsty Wright must be singled out as a scientist who bravely took a public position upon a point of important principle only because the public good required her to do so. Had she given private advice to Mr Thomas, nobody would have judged her. In my opinion her willingness to take a public stand was an act of real bravery.

13. *Fifth*, I have been taken aback by the dignity and grace of Ms Vicki Blackburn, Shandee's mother. Everyone with children understands the depth of her grief. Nevertheless, in order to see that right is done, she has stood firm in order to maintain public and official interest in her daughter's murder, like Dr Wright, just for the public good. Her decision to cooperate with Mr Thomas, despite the fact to do so would mean a constant reawakening of her private horrors, was also instrumental in the establishment of the Commission and the final uncovering of the breakdowns at the laboratory and their hoped-for eradication.
14. A commission of inquiry is a very powerful engine for uncovering the truth. There are almost no limits to the powers conferred upon a commissioner to get information. However, those powers exist only in legal theory unless there are people who are in a position to use them. That position of practical power can only be attained by professionals with the requisite intelligence, skill, energy and determination. A commission of inquiry is not the commissioner of inquiry. It is the whole group of professionals who comprise it.
15. In this Commission, I caused the appointment of four barristers as counsel assisting. As the workload increased, each of these secured the appointment of further barristers and solicitors.
16. Unlike courtroom litigation, a commission like this one had no predetermined issues to consider and determine. It has to find out what are the issues for its determination. In the present case, not much could be done until the members of the team began to understand the arcane world of DNA testing. Over several weeks, as the volume of documentation grew, and as members of the team talked to potential witnesses, it became possible to identify discrete areas of inquiry.
17. We received hundreds of thousands of pages of documentation and scores of submissions and statements. All of these were assembled into a coherent form that could be studied. Our witnesses and our experts taught us what we needed to know. The quality of the

information given to the Commission by lay witnesses and experts can be inferred from the fact that very little of the evidence was challenged and almost none of the scientific evidence was disputed or even questioned.

18. Not many people know how a commission of inquiry works. It would be a mistake to think that a commissioner, like a judge, conceives and writes the whole report. The Commissioner's name is on the report and I take responsibility for every word in it but its compilation has been the result of a lot of work done by the lawyers of the Commission as well as the Executive Director. Their drafts have been studied by other members of the Commission and, in consultation, they have been changed and amended until they were finally settled by me. I wrote the first draft of some of the chapters, which were then studied and settled by my colleagues in the same way. The report and most of the steps taken to produce it have been a wholly collegiate effort.
19. A commission of inquiry has an obligation to be fair. Relevantly, before any findings are made, any person whose reputation might be affected by a finding must be given a reasonable opportunity to be heard in opposition. There is a variety of ways in which that can be achieved. Normally, potential adverse findings are raised orally at a hearing of a commission that is held for that purpose. The potentially affected persons can then make submissions as to why the findings ought not be made. Inquiries of the legal representatives for witnesses, QH and the QPS resulted in a firm preference being expressed by them to me that the process should be an entirely written one. That meant that, instead of raising these possible findings orally, they were asserted in writing in the form of a list of "Potential Adverse Findings" given to each person who had an interest in answering them.
20. A document like that must be written and delivered before the decision maker has made any of the potential findings – otherwise the process would be unfair. In the case of court litigation, a judge might not be told in advance what was going to be submitted by those who advocate for the findings. That is the job of counsel for the party who is pushing a particular viewpoint. A commission of inquiry is different.

21. A commissioner of inquiry is not a judge. I have been appointed to fulfil the function of an investigator who will report to the executive government. Unlike a judge, who would never meet privately with one set of legal representatives, a commissioner does not only have constant meetings with counsel assisting; they and I actually collaborate upon the work of the Commission every day. Moreover, it is not the work of counsel assisting me to try to persuade me to make a finding, like barristers must do in conventional litigation. I require assistance by way of illumination and not by way of persuasion.
22. The drafting of a set of potential adverse findings is done with those considerations and processes in mind.
23. In response to a particular set of Potential Adverse Findings, one witness's counsel made forceful and blunt submissions that imputed personal failings upon counsel who have been assisting me. They submitted, for example, that counsel assisting had "sought to attribute improper motivations and conduct without any hint or justification" and that they have "for reasons which remain entirely obscure, sought to see only the bad and none of the good" and that the "criticism" of counsel's client was "utterly unfounded".
24. I must respectfully point out that submissions of that kind, that are personally critical of counsel assisting were misconceived.
25. It was my duty to consider all possibilities that were open on the evidence. It was my legal duty, before making any findings, to offer these possibilities to potentially affected persons so that they could submit that the findings were not open on the evidence or, although open, ought not be made for some reason. It was necessary for the potential findings to be comprehensive; that is to say, the options for fact finding had to remain entirely open. This could only be done by putting forward all findings that were potentially open.
26. Like the chapters of my report, the documents containing potential adverse findings against individuals were not the result of a single person's efforts. In each case they were

the result of the work of several lawyers of the Commission and, in every single case, the final version of the document was the result of my own work.

27. A commission of inquiry depends upon staff other than its lawyers. In an inquiry like this one, the ability to proceed with work promptly, and the possibility of completing the inquiry on time, depended to a large degree upon two classes of administrators. The first of these two groups consists of the public servants who were seconded by the government to assist the inquiry. The choice of this leader is vital because, in the first place, it is she who must choose the other administrator and ensure that the technical procedures of government, such as funding processes and record keeping, are skilfully performed. Such matters are beyond the experience of most lawyers appointed to a commission. The vital function of this senior official of a commission, its Executive Director, is to forge relationships with government bodies who may be the objects of inquiry by the commission, often of an adverse kind. The ability of the Commission to proceed expeditiously depends to a degree upon the good will of officers of these bodies. I was fortunate in securing the appointment of Ms Jess Wellard as my Executive Director. Ms Wellard was able to ensure that, despite the often harsh and disruptive nature of a commission's demands, the QPS and Queensland Health never gave me any concern about their sincere willingness to assist me. She was also able to protect me from pitfalls into which I might have fallen because of my ignorance of public administration. By her knowledge of the Queensland Public Service, and the best officers in it, she was able to secure the services of Mr James Mann, Ms Kylie Schulte, and others. There was an enormous administrative burden for this Commission of Inquiry, in retaining experts, holding extensive public hearings and delivering a lengthy report; Mr Mann steadily bore much of that burden. I am indebted to all of them for keeping this commission functioning in important ways that are beyond any skills that I could have.
28. I must also acknowledge my debt to the legal representatives of the witnesses, the QPS and QH, whose representation of their clients was conducted at a high professional level.

My ability to complete my commission by its conclusion date is due very much to the way in which each of them conducted their respective cases for their clients.

29. By common understanding among all of us working at this Commission of Inquiry and from its very inception, we have dedicated our work to the memory of Shandee Blackburn.
30. Upon publication of the Report, it will immediately be put on to the Commission's website. The Commissioner of the inquiry into the Bundaberg Hospital, Mr Geoff Davies AO QC, said that reports of inquiries, and the evidence on which they are based, are a valuable public resource. Mr Davies observed that the websites of the Shipman Inquiry and the Bristol Royal Infirmary Inquiry in England remained as valuable public resources of fact and opinion. For that reason he recommended that the website of his inquiry remain in existence for 5 years. For the same reasons I also recommend that this website remain in existence for a period of 5 years from today.

EXECUTIVE SUMMARY

31. I was commissioned to report on whether the methods, systems and processes used in the collection, testing and analysis of DNA samples in Queensland were consistent with best practice. If there was any deficiency, I was required to identify the reasons for that failure.
32. I have the unfortunate duty to report that the methods, systems and processes used at the forensic DNA laboratory do not, in many ways, measure up to best practice. The laboratory has, for some time, focused on throughput and quick reporting of results to the detriment of high-quality science. That scourge has invaded many areas of the laboratory's practices: the validation of processes and equipment for use, the dedication of scientists' time to a proper review of cases, and the lack of resources for research, development and innovation. The laboratory has not been able to keep pace with this quickly developing science, and has, in some cases, failed to produce quality results.
33. The failings are serious. The laboratory serves the criminal justice system. I do not doubt that the failure to obtain all of the evidence available from samples has affected some cases. In most cases that will have reduced the prospects of conviction by a failure to obtain evidence which could support a complaint. It is possible, but unlikely that the failures could have resulted in a wrong conviction. None of the failures I have identified call into question the reliability of a match between a crime scene sample and a person's reference sample, the most probative evidence which often supports convictions. The number of cases actually affected, and whether with different processes those cases would have resulted in different outcomes, cannot be quantified.
34. The reasons for these failings are manifold. Some spring from the location of the laboratory as an appendage of the Department of Health, which is an inapt fit. Others spring from mismanagement and even dishonesty by senior managers. Others again from the culture of the laboratory which was ineffective at allowing scientific disagreement to be ventilated. Those features were illuminated by a number of episodes in the

laboratory's history. One was the setting a high threshold below which samples would not be tested. This reduced the number of samples that would be tested. Another was an over-long four-year investigation into an issue with the detection of spermatozoa in sperm samples, and the results obtained from samples. Yet another was the quality issues that arose in the Shandee Blackburn case.

35. The Commission engaged several highly qualified, eminent experts to provide their opinion on different elements of the practice of the laboratory, the Queensland Police Service who collect samples at crimes scenes and from people, and medical professionals within Queensland Health who collect samples in cases of sexual assault. Those experts made a myriad of recommendations to improve the practice of a number of aspects of the collection, testing and analysis of DNA samples. Many of those recommendations are reflected in this report.
36. Many of those experts also identified positive aspects in their reviews, including dedicated staff and appropriate processes.
37. For best practice to be achieved at the laboratory, there must be structural change. The laboratory should sit as an independent office within the Department of Justice and Attorney-General. There must be an independent and quality-minded scientist at its head, who keeps the scientific integrity of the laboratory and its purpose to serve the criminal justice system squarely in mind. Throughout the organisation, there must be new-found focus on scientific excellence, effective quality management and research and development. To achieve those ends will require substantial fresh funding from the government.
38. I have made over 100 recommendations. If those recommendations are implemented, with a strong focus on the laboratory's place as the independent provider of DNA evidence to the criminal justice system, the laboratory has the opportunity to become a best practice facility, in which the Queensland community can have confidence.

1. THE PAST, PRESENT AND FUTURE OF FORENSIC DNA ANALYSIS IN QUEENSLAND

39. By the unpredictable fluctuations of history, a laboratory whose sole purposes were to uncover evidence and information for use in investigating crime and to furnish evidence for criminal trials and coronial inquests, found itself operating as a unit of the Queensland Department of Health (**Queensland Health**). The work and expertise of the Forensic and Scientific Services (**FSS**) covers everything from medical examinations of persons for court proceedings, DNA profiling, forensic toxicology, forensic chemical testing of illicit drugs and coronial autopsies, as well as other fields. Some of these cannot sensibly be considered as having any relationship to “health” as a subject matter.
40. I was appointed to inquire into certain aspects of only one unit within FSS, the laboratory that conducts DNA testing and profiling. The terms of reference of my Commission appear elsewhere in this report.
41. The results of my investigations have been set out in succeeding chapters of this report. However, my conclusions can be summarised as follows.
42. *First*, the scientists who work at the DNA laboratory are, on the whole, first-class professionals. They are people of the utmost skill, dedication and integrity. Some of them have displayed real courage in their resolution to maintain the scientific integrity of the work done by the laboratory and to give evidence about these matters on oath and in public.
43. *Second*, the senior management of the DNA laboratory has largely failed to ensure that the work done by those scientists was done by them in a way that maximised their ability to get cogent evidence and the reliability of the evidence. Indeed, the management has distorted the aims of the laboratory and has placed obstacles in the way of the scientists actually doing the work. Notwithstanding these unnecessary burdens, the staff of the

laboratory have ensured that, on the whole and so far as they could do so in the circumstances in which they were placed, the Queensland community can have faith that the information given to police and the evidence relied upon in courts has been largely reliable.

44. *Third*, the governance structure under which the laboratory operated, while suitable for many spheres of public administration, is, for reasons that I will explain, wholly unsuited to forensic services. This historical outcome was nobody's fault but has contributed to what has happened.
45. *Fourth*, according to the Managing Scientist of the laboratory, Ms Cathie Allen, the reluctance of the government to provide more funds led her to do the best that she could with the little that she had. On the other hand, the current Director-General said that more funding had not been sought. This does not mean, however, that Ms Allen and other managers at FSS did not genuinely believe that there was no point in asking for more money. It is also true, as Ms Allen emphasised, the Queensland Police Service (**QPS**) were always pressing for faster results.
46. The fact of the matter is that, to the extent that there has been any scrimping, it has not worked out well. The delivery of forensic expertise to the QPS and to the courts does not come cheap. Any funding squeeze, if there was one, had now exploded in disaster. In my respectful opinion, the government now knowing about the true demands of such a service, it must make a genuine assessment of the cost and provide adequate funds to pay for it.
47. I shall first describe the ramifications of the management structure of the laboratory as part of Queensland Health and its significance for what has been uncovered.
48. The history that has led us here can be summarised as follows.¹ In 1872 an Act was passed in Queensland to prohibit the adulteration of food and liquor. In 1873 a "Government

¹ I have gratefully taken this history from Mr Gary Golding's interesting book, *Analytical Chemistry: an interesting career*, self published 2022.

Analyst” was appointed to uncover infringements under the Act. He was attached to the Department of Works and later to the Department of Public Works and Mines. His laboratory was also assaying samples of copper, gold and silver. The fourth officer to hold this post, John Brownie Henderson, held it for 43 years between 1883 and 1936.

49. In 1900 the Queensland legislature passed the *Health Act 1900*. Many of the health aspects of the Government Analyst’s work fell within the newly created Department of Health, the head of which was the Commissioner of Health, who was to be a medical practitioner. The Commissioner of Health had to respond to how to deal with a possible outbreak of bubonic plague, that had surfaced in Sydney, the 1918 influenza epidemic, allegations of ‘baby farming’ and adulterated milk.²
50. In the meantime, the Government Analyst established a laboratory that by 1920 was testing for lead in paint, for lead arsenate on vegetables and for impurities in drinking water. By the time Henderson retired in 1936, his laboratory was routinely testing 6000 samples of foodstuffs and other substances each year. The work of the laboratory came to include testing medical drugs. By the 1960’s the laboratory was also testing for water pollution, the location of pollutants and the fluoridation of water.
51. Between 1990 and 1994 the Laboratory of Microbiology and Pathology was amalgamated with the Government Chemical Laboratory (**GCL**). DNA testing had begun by then. In 1989 a new purpose-built laboratory was opened at Coopers Plains, in which parts of FSS have been located to this day. During the 90’s the chemistry laboratories, the microbiology laboratories and the hospital pathology laboratories were all brought together under a single manager. The mortuary and its associated units was also located at Coopers Plains.
52. According to Mr Golding, from whose book I have drawn this history, until this point GCL had been autonomous but once it became part of this larger amalgamated structure it had to be managed in a different way as befits a large and complex organisation. The GCL

² *Memoirs of the Queensland Museum*, Volume 2, Part 2, p1-2.

ceased to exist. It was replaced by a new structure within Queensland Health to be known as Queensland Health Scientific Services (QHSS).

53. At the same time, the new institution, QHSS, was divided into two broad areas: 'forensic science' and 'health science'. Whole sections that had previously existed were amalgamated and, according to Mr Golding, the new structure represented a focus on analytical processes rather than outcomes for "clients". Forensic chemistry laboratories, forensic biology laboratories and the mortuary and pathology units were combined under a single manager. The public health laboratories were combined under a different manager. Neither of these managers had subject matter expertise. "Turnaround times" became a concept. Management consultants came to be retained in an effort to improve "efficiency".
54. In 2005, a new director was appointed, Mr Greg Shaw. He had previous management experience in the private pathology laboratory sector. He restructured the laboratories so that the chemistry laboratories, including the DNA laboratory, came under a single manager. The organisation thus established was called Forensic and Scientific Services. He attempted to gain a substantial increase in scientific staff but this attempt was negated by a Cabinet decision of 2012 to reduce staff instead. The chemistry sections lost 27% of their staff. Mr Shaw retired in 2015. His position was re-named Executive Director and his replacement was Mr Paul Csoban.
55. Mr Golding was the Managing Scientist at the laboratory between 2007 and 2013. He refers to the 2012 staff cuts as the "dark days". A security officer noticed that henceforth the staff car park would be empty by 6 pm. Previously, staff would think nothing of working all hours to get the job done.
56. It was just a historical coincidence that, when it became clear that a scientist could have a role to play in generating information and evidence for criminal law purposes, the use of the government scientist and the laboratory operated by Queensland Health was an obvious, convenient and economic solution. This evolution of the administrative

structure of these various laboratories is a story of a natural organic progression with no evident consideration being given as to whether that progression required a change in organisation. The establishment of this Commission of Inquiry has provided an opportunity to reconsider the purpose and significance within our community of the several laboratories within FSS.

57. As a result of the position of FSS within Queensland Health, it operates under the normal Queensland public service hierarchical structure. The “Police Services Stream” at FSS is managed by a “Managing Scientist”. Ms Cathie Allen currently occupies that position. She is qualified, both formally and by experience, in the substantive science of the DNA laboratory and has some formal management qualifications as well. Above her sits an Executive Director. The qualifications of that office do not require any subject matter expertise. On occasion, an Executive Director might have had a formal scientific qualification but that was a coincidence. Above the Executive Director sit a succession of managers, and deputies of the Director-General of Health. None of these officers require subject matter expertise either. Their relevant expertise is management and administration.
58. The science and technology of DNA takes years to fully understand. Unlike many other areas of public service, the serious issues that can arise in this highly technical field cannot easily be understood by the untrained. In other specialised fields it may be possible for a lay manager to appreciate the substance of an issue that has arisen that may have significance for the integrity of work that is done. For example, the issues of concern that led to the establishment of the Bundaberg Hospital Commission of Inquiry were issues about a surgeon, Dr Patel, that were raised initially by nurse Toni Hoffman. Notwithstanding that they related to technical medical matters, it was possible for a lay person to understand their gravity: Dr Patel’s use of dated techniques, his false reporting of a patient’s condition on a chart and other matters of that kind. It might not be possible for a lay person to make a judgment about the soundness of such complaints; but it could immediately be seen that, of their nature, they required urgent investigation.

59. The position of the DNA scientists was not so clear. When in June 2022 the Director-General asked for the testing of samples to revert to the pre-2018 processes, neither he nor anyone above Ms Allen had the expertise to realise that Ms Allen had given them wrong and dangerously misleading advice – and, as I have found, deliberately so. When Dr Ingrid Moeller raised her concerns about this with Ms Lara Keller, the Executive Director, the latter was, understandably, not in a position even to work out if there was an issue that warranted her attention. She referred Dr Moeller to Ms Allen and Mr Howes who, for reasons explained elsewhere, would not have been likely to advance the matter.
60. Trusting to the good faith and expertise of the managers of the DNA laboratory, Queensland Health did not realise that any oversight body of qualified specialists should be necessary. The problems that led to the establishment of this Commission of Inquiry were of such a deeply complicated technical nature that they were not apt to be capable of resolution by the orthodox management structure that is suitable for the administration of other entities in the public service.
61. The incursion of a manager with a dysfunctional view of both her proper role as well as the functions of her workplace, and who had a strong personality that was able to quell dissent and challenge, has been a tragedy but Ms Allen’s appointment cannot be blamed upon anyone. In 2008 she appeared to be suitably qualified by training and experience. The absence of an adequate system of governance for this peculiar unit in Queensland Health, one that was able to take into account its particular mission and the impenetrability of its technical aspects, also cannot be blamed on anyone: it is a historical artifact whose deficiency has now come to light. Similar historical processes have driven the nature of the administration of DNA testing laboratories in other Australian jurisdictions. However, what has been uncovered has convinced me that a change is required.
62. Any consideration of an alternative management structure must first take account of the true character of the work done at the DNA laboratory. Its place within the machinery of the State must be understood. As will appear, the laboratory no longer belongs within

Queensland Health. Its proper place is within the sphere of the administration of criminal justice. The reasons why that is so now follow.

63. There is an insistence upon both the fact and the appearance of the impartiality of prosecution experts and, in the main, that requirement has been satisfied as a matter of course in Queensland. This is an aspect of the fair administration of the system of justice in our country. A premise of the Australian criminal justice system is that an accused person has a right to a fair and impartial trial. That right is manifested in the rules of law and of practice designed to regulate the course of the trial but the right extends to the whole course of the criminal process³ including in the rules about expert evidence.
64. Expert witnesses, like lay witnesses, are of course obliged to tell the truth, the whole truth and nothing but the truth; but expert witnesses have greater obligations than that. An expert witness's paramount duty is to assist the court and it follows from this that an expert must not be an advocate for a party to the proceedings. Accordingly, an expert must not accept instructions from any person to adopt or reject a particular opinion. This duty of impartiality overrides any obligation that the expert may have to the party that retained the expert or to any person liable for the expert's fees and expenses.
65. An expert's evidence must include all material facts upon which that evidence is based. The expert's reasons for each opinion must be expressed and must include reference to the evidence and any literature or other material relied upon to support the opinion. If the evidence may be incomplete or inaccurate without a qualification, the expert must express the qualification and explain it. The expert must state whether access to any readily ascertainable additional facts or matters would assist the expert in reaching a more reliable conclusion.
66. Crucially for present purposes, if there is a range of opinions about the matters that are the subject of the expert evidence, the expert must candidly explain that range of opinions and the reasons why the expert has adopted a particular opinion. If the expert

³ *X7 v Australian Crime Commission* [2013] HCA 29 at [40] per French CJ and Crennan J.

believes that the opinion given in evidence is not a concluded opinion, the expert must state, where the opinion is expressed, the reason for the expert's belief.⁴

67. For the system of criminal justice to operate as it should in our constitutional democracy, those who practice within it must bear in mind that, notwithstanding that they also work for personal profit, they work for the public good. A professional may well refuse to do work without being paid but a professional, unlike one who pursues a mere occupation, has voluntarily embraced an ethical obligation to adhere to standards of conduct that might not be able to be enforced either by legal orders or by the discipline of the free market.⁵
68. For these reasons, the work of the laboratory is not a business in which cost-benefit and speed of service can always dictate how work is done and these must never be allowed to dictate the accuracy of information given to police and evidence given in court.
69. The DNA laboratory has two functions. First, it tests samples submitted by the QPS in order to analyse any DNA within the sample so that information can be given to police to assist in the detection and disruption of crime. Second, the laboratory does the same thing in order to be able to give cogent expert evidence to a court.
70. The laboratory's main interaction is with members of the QPS but that relationship does not define its role. Its role is as a participant in the administration of criminal justice, the provision of accurate information and evidence to the QPS and offering expert opinion evidence to courts. In this respect, its purpose is the same as the fundamental purpose pursued by the officers of the QPS, by the lawyers who work in the Office of the Director

⁴ This compendium is based upon Schedule 1C to the *Uniform Civil Procedure Rules 1999*. These rules which constitute the Code of Conduct for Experts were derived from the practice of the courts.

⁵ Cf. *Shapiro v. Kentucky Bar Association* (1995) 29 Law Society Gazette No.1, 1 at page 5 per O'Connor J, with whom Rehnquist CJ and Scalia J agreed. As Sir Gerard Brennan observed in relation to barristers, a practice must be carried on so as to return a reasonable income and, in that respect, a barrister is in business as well as in a profession; but to treat the Bar as if it were a service industry is to profoundly misunderstand the purpose of the Bar's existence: see Opening address at the Australian Bar Association Conference, San Francisco, 18 August 1996. That statement applies with equal force to the scientists at the laboratory.

of Public Prosecutions (**DPP**), by defence lawyers and, indeed, by judges. The function of each of these professionals is to perform a distinct task in the administration of criminal justice. None of them can properly regard themselves as belonging to an “industry” of “service providers” to “consumers”. A model of that kind may be valid and useful when broad economic questions are under consideration by economists or policy makers. It is wholly inapt when one is attempting to understand the proper functions and duties of professionals who work within the justice system.

71. It is a remarkable fact that the head of each of the QPS, the DPP and the judiciary is not a person who has been appointed by reason of the possession of commercial or management qualifications and experience, although such qualifications may be relevant to a degree. Each of these institutions has, as its head, a professional in its relevant field. That is not a coincidence; it is a necessary concomitant of the nature and functions of each institution.
72. I will take the judiciary as the ultimate example of this phenomenon.
73. The function of the judiciary is to determine disputes justly according to law. The judiciary has no other function. A particular court may be praised or criticised for the pace at which it determines disputes or the number of disputes that are resolved in a period of time. Those are relevant factors against which a court can be judged. But the ultimate single criterion is whether or not a dispute has been determined justly according to law. The affairs of the court must be organised and administered so that a positive answer can be given to that question in every single case.
74. Like any human institution, a court must function in a world in which there are constraints. It may be desirable to have more judges, more courtrooms, more registry staff or better computer systems. But, however limited the resources, the outcome of every single case must conform to that absolute and inviolable criterion: the dispute has been decided justly according to law.

75. Much can be done to conform to the dictates of limited resources and much is done. Judges case manage disputes to ensure that only essential issues are raised for final determination. The court system has been organised so that less important cases are determined by less senior judicial officers. Rights of appeal are, in many cases, limited although this may preclude the correction of possible error. This is consistent with the ends of justice because in some cases the possibility of a second or third appeal may constitute an injustice by reason of its oppressive effect on one of the parties. These are examples of how resourcing constraints – and other relevant considerations – can mould procedures and limit the work that is done.
76. However, whenever procedures have to be manipulated and changed in order to work within resource limits, it is the professional head of jurisdiction who makes the final decision to do so and who takes responsibility for the form of the limitation. That is because the ultimate function and responsibility of the head of jurisdiction is to ensure that the judges of the court deliver justice according to law and the only proper decision maker about how that is to be done is a judge.
77. The Queensland judiciary is constrained by the resources that the executive government is able to give to it. One aspect of those resources is the public servants of the Department of Justice and the Attorney-General who constitute the court's registry office. The Chief Justice has available to her the advice and support of a highly qualified and experienced administrator, the Registrar. It is the Registrar who runs the court's bureaucracy and, in many instances, the Chief Justice is obliged, actually or practically, to act in accordance with the Registrar's views. Nevertheless, any decision that might impinge upon the integrity of decision making by judges is, ultimately, for the Chief Justice alone.
78. One consequence is that, if a point was ever to be reached at which a governmental requirement might encroach upon the essential function of the court, it would not be permitted to do so but, instead, the judiciary would require the relevant Minister to take responsibility for the failure to equip the court to perform its function. Proper functions would never be compromised to conform to an administrative exigency.

79. The same can be said of the QPS. Its head, the Commissioner of Police, is always a police officer. Indeed, while s 4.2 of the *Police Service Administration Act 1990* provides that the Governor in Council may appoint “a suitable person” as Commissioner of Police, s 2.2 provides that the Commissioner of Police is a police officer. Consequently, if a person who is not then a member of the Queensland Police Service, for example a senior police officer of another State, is appointed to that office, that person thereby becomes a Queensland Police Officer. While it is legally possible that a person who is not a police officer of any kind might be appointed, it is unthinkable that that would actually happen. It is inconceivable that a lay person would be able to carry out the functions of the leader of the QPS. Further, such a person could not expect to have the confidence of members of the QPS. These matters are so obvious that they are never discussed.
80. Similarly, a person appointed as Director of Public Prosecutions is required to be an Australian lawyer of at least 10 years standing.⁶ That person is always a barrister with long experience of practice in criminal law. As a matter of law-making policy, no other person would ever be considered. The leader of the Bar Association is always a practising barrister and the leader of the Law Society is always a practising solicitor.
81. The reasons for these kinds of appointments to these particular offices is that the technical and moral integrity of the work done within each of these professions, in accordance with applicable ethics and best practice, is the *raison d’etre* of each of these institutions and it is only a professional who could be alert to these demands.
82. To be sure, the administration of justice is not the only field of public administration in which an absolute ultimate standard has to be applied. Medicine is an obvious other profession that has the same kinds of demands and, even in the administration of public health, systems have been evolved to vindicate this requirement.
83. The administration of justice has this peculiarity. The judiciary is an arm of government and it can only function effectively as such if the integrity of its work cannot be

⁶ Section 5 *Director of Public Prosecutions Act 1984*.

questioned. The courts cannot function without the assistance of the legal profession. It follows that, like judges, lawyers conform to comparable ethical standards. The QPS is subject to the unique demands of policing but, insofar as the work of the QPS concerns the courts, police are bound by similar ethical constraints and, what is more, they require an adequate knowledge of law to be able to perform investigative tasks usefully.

84. The laboratory is also part of the same system and, for that reason, finds itself bound by similar ethics.
85. My point is that, to ensure that the integrity of the work of the third arm of government is not violated, each organ of the administration of justice has required that ultimate administrative decision-making power be reposed in the hands of a professional because it is only a professional in the field of endeavour who can be trusted never to forget the ethical centre of the work being done.
86. The position of the laboratory within the justice system requires the same.
87. There is a second reason why the laboratory has not been able to achieve the standards that are expected of it. It is a failure of actual management that is unconnected to the structure of management.
88. The failure of management is sufficiently demonstrated by an examination the way in which laboratory processes were changed in accordance with the proposal put forward in the so-called "Options Paper" in order to avoid the need to do a category of work.
89. The Options Paper is dealt with in detail in a separate chapter in this report. However, its genesis lies earlier than 2005, before the current managers at the laboratory held their positions, when the attention of the managers of the laboratory became fixed upon backlogs of work and delays in reporting results: what came to be thought of as "turnaround times".
90. In early March 2005 the Courier Mail newspaper printed a series of articles by Hedley Thomas about the work of the DNA laboratory. By then it was notorious within the legal

profession that the laboratory had been unable to cope with its workload. Judges were becoming increasingly dismayed by the failure of the laboratory to produce witness statements in time for trials that had been scheduled. The Premier at the time, Peter Beattie, had committed his government to providing substantial extra funding for the work of the laboratory. This did not stop the criticisms. Mr Thomas wrote that he had obtained access to an internal report which revealed that a certain process had not been properly validated and that, as a consequence, scientists were worried about the truthfulness of the evidence that they were expected to give. He reported that that a particular scientist was so concerned that she had resigned.⁷ Other stories published in the same month asserted that “errors are being made” while, at the same time, the Premier, the Police Commissioner and the laboratory’s senior management were insisting that they were all confident in the reliability of the work of the laboratory.⁸ The Courier Mail’s editorial on 5 March 2005 claimed that Queensland Health had admitted that the laboratory did not have the “cutting-edge technology often needed” and that “a backlog of 11,000 samples had grown to 13,995 despite a \$5 million funding injection”. Another scientist resigned in the same month and, in her letter of resignation, she referred to the “highly political climate of disharmony and divisiveness” at the laboratory.⁹

91. One response by Queensland Health was published in a newsletter circulated by the department in April 2005 in which the Director-General of the day said that he regarded much of what had been said in the media as “misleading and scare-mongering”. He said that there was no reason to doubt the validity of DNA testing. The Minister ordered a “probe” into the source of the leak to Mr Thomas – which merely appeared to affirm the reliability of the story.¹⁰
92. In the early 2000’s the laboratory employed a small number of senior scientists. There was a Chief Scientist but no elaborate management structure. As a result of this political

⁷ *DNA test doubts*, Courier Mail, 1 March 2005.

⁸ *DNA evidence at risk of unravelling*, Courier Mail, 4 March 2005.

⁹ *Fresh Swipe at DNA labs*, Courier Mail, 7 March 2005.

¹⁰ *Witch-hunt targets scientists*, NSW Community News Network Archive, 30 March 2005.

attention, more staff were employed. Scientists were divided into teams to test samples from Major Crime and Volume Crime. There were then about 99 staff members.

93. Very quickly other changes were made. Police began to assign priorities to their cases. Priority 1 cases were investigations requiring the most urgent attention. Priority 2, or Major Crime cases, were crimes of violence. Priority 3, called Volume Crime cases, concerned property offences. That categorisation has continued to the present day.
94. The laboratory reorganised itself to respond accordingly and samples came to be tested in accordance with those priorities.
95. Ms Allen had graduated with a science degree in 1994, majoring in Microbiology. She earned a degree of Master of Science in 1995 and, later it seems, a further Master's degree in 2002 in Forensic Science. She joined what was then QHSS in 1999 as a laboratory technician. In 2002 she was promoted to the position of Casework Scientist, responsible for analysis and interpretation. In 2004 she was promoted to a management position and in 2006 she was further promoted to the position of Team Leader of the Volume Crime team. Given the history of delays just before her promotion, she must have been acutely aware of the pressure that had been applied to scientists to get their results out in a timely manner.
96. The laboratory reorganised itself into segments¹¹ so that:¹²
 - a. The Evidence Recovery Team was responsible for the sampling of items and subsamples.
 - b. The Analytical Team was responsible for the extraction of DNA from samples, quantitation, amplification and electrophoresis.
 - c. The Reporting Teams were responsible for interpretation of DNA profiles.

¹¹ The following history of the reorganisation of the laboratory is taken from Exhibit 171, Statement of Catherine Allen, 16 September 2022, [16]-[25].

¹² The responsibilities are, obviously, wider than I have expressed, but that is sufficient for present purposes.

- d. The Intelligence Team was responsible for uploading profiles to the national DNA database (“NCIDD”) and work associated with database entries and links.
97. Ms Allen was a part of the group that decided upon these changes. The other members were the Managing Scientist of the day, another scientist who was a Team Leader and Mr Howes. Their proposal was given to the then Senior Director, who approved it.
98. This group undertook no detailed analysis to justify the scientific propriety of the system of work that they had decided upon and no analysis was ever done subsequently. Ms Allen has acknowledged that no comparisons of costings, percentages of DNA profiles obtained or profiles uploaded to NCIDD were ever performed.¹³
99. Until these changes took effect, scientists would negotiate the timeframe for the delivery of results with police investigators. When the changes were made the QPS wanted results within 72 hours. This was not possible. A 10-day turnaround was agreed and there would be three to five day turnaround for Priority 1 samples. The expression “TAT” entered common use.
100. A new system was introduced to allocate work. It was called the “worklist system”. Ms Allen explained what she saw as an advantage of the new worklist system.¹⁴ She said that samples for a case might be delivered on different days or even weeks. Waiting for results on all items before providing results would mean that there would be a delay in the provision of intelligence information. The worklist system, under which a scientist deals with discrete items without regard to their place within the context of an investigation, meant that results could be reported as soon as they became available to the laboratory. Scientists were required to take the next listed sample from the worklist, whatever its relation to any particular case, and to work on it. Case context was unavailable.

¹³ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [11].

¹⁴ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [72] *et seq.*

101. Ms Allen said that the process of a scientist handling a case from end to end would not assist with timely provision of results which can “impact” the investigations.¹⁵
102. The laboratory had to restrict the ways in which scientists would now work. As Ms Allen spelled out,¹⁶ movement between teams could reduce the number of competent staff members in the team, which could mean additional work for the remaining team members. The team "receiving" the new staff member must devote time to train that person and would have to assign a mentor. Scientists became fixed in their positions on the production line.
103. As a result, some staff members in Evidence Recovery became concerned that they would lose their skills by not being able to examine whole items.¹⁷ They were told that, once they had mastered their training in Evidence Recovery, they would have the chance to learn other tasks, including interpretation of profiles.¹⁸ However, this was not true for the reason already discussed. Ms Allen has explained that this “concept” of gaining skills was discussed but never resolved.¹⁹ Staff asked for annual refresher training in how other teams worked, but this too, said Ms Allen, was difficult to achieve.²⁰ Another consequence of this system of work has been that it was difficult for staff to apply for promotion.²¹
104. The unchallenged evidence before the Commission is that this is a deficient system for reasons that can easily be understood.
105. Each scientist who undertakes a process is isolated in his or her own silo. This has the advantage that scientists avoid being biased in their thinking by the possession of irrelevant, but influential, knowledge. However, there are other ways of addressing the

¹⁵ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [22].

¹⁶ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [22].

¹⁷ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [14].

¹⁸ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [14].

¹⁹ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [18].

²⁰ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [19].

²¹ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [21].

issue of unconscious bias and nobody would suggest that a silo system of work should be instituted just for that reason.

106. Under such a system of testing, a scientist is not dealing with a case but with a “sample”, the next item on the worklist, a product on a virtual conveyor belt. One immediate result was that when the QPS submitted multiple samples, as they often do, every sample would be processed. Thus, for example, if 10 samples were submitted in a sexual offence case, none of which would, if it yielded a profile, offer any greater cogency as evidence than any other sample, the laboratory would unthinkingly test every single one. Without contextual knowledge derived from managing a whole case, including speaking to investigating police to learn its particular circumstances, a scientist is never in a position to appreciate that two or three, or even one result, may be sufficient to prove a case.²² One consequence of this was that, while many unnecessary samples were being fully tested, in accordance with the Options Paper other vital samples were being shelved in aid of faster TATs.
107. During the period when samples with quants below 0.0088ng/μL were not tested, such samples would not appear on a reporting scientist’s worklist. If all samples in a case fell into that category, no reporting scientist would ever see the results. If, as happened, samples that ought to have returned a result because of the nature of the biological material from which they were derived, such as observed sperm or blood, nobody would be aware of that fact because of the lack of contextual information. Although police took the trouble to photograph the sample source, and although the photograph was available, those carrying out the work up to the point of the rejection of the DIFP sample did not bother to look. Police would merely be informed that the DNA was insufficient for further processing, with consequences that have been explained elsewhere. In this way, a case would effectively be closed so far as the laboratory’s assistance to the QPS

²² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [36(c)].

was concerned without a reporting scientist, the laboratory's actual experts for this purpose, ever having considered a single sample.

108. Even the delivery of results on a worklist to a reporting scientist that might yield an interpretation was fraught with the potential for error. The system ensured that scientist A would attempt an interpretation and post a result. This would be reviewed by scientist B. If they agreed, the result would be posted for perusal by police. The next sample might be considered by scientist C and reviewed by scientist D. In this way, multiple results in a case might be the product of half a dozen or more minds. If a witness statement had to be prepared, then it might be scientist X who then has regard to all results in order to prepare a statement with a view to giving evidence. Scientist Y would have to review that work. If either of them disagreed with the views of the earlier scientists who considered each sample in isolation, as has happened, there would be an inevitable delay while the conflict was sorted out but, more than that, potentially a change in a reported result which led to frustration on the part of police investigators, who may have been embarrassed in the conduct of their investigation because they had relied upon the results; or embarrassment to the laboratory for apparent indecision.
109. In any event, reworking of samples would be, and in fact was, discouraged. It was met with the negativity borne of a desire to avoid any unpleasantness in relations with the QPS.
110. It is well understood that in the case of some samples several different processes can be used to maximise the chances of getting a profile. To take one obvious example, a sample with a low quant might have to be concentrated. Depending upon the particular circumstances of the case, this should be done to 35µL or to full. A professional judgment has to be made. If the sample is concentrated to 35µL when it should have been concentrated to full, any later realisation that was wrong will be reached after a loss of valuable DNA by having used some of it in a wasteful procedure. The potential to get cogent evidence would be permanently prejudiced.

111. A whole of case review by a reporting scientist would only take place if all samples had to be collated into a witness statement for court. This happened only in about 10% of cases.²³ By then, the results have been reported to police in accordance with the intent to convey them on a sample-by-sample basis as soon as they were available. This would be an appreciation of the whole case gained for the first time at the very last stage. A request to initiate work on a sample that has been rejected under the laboratory's arbitrary system of thresholds, would create difficulties with possible police criticism of earlier wrong results or by reason of delays when a statement is needed for court. Any such interference with the fast flow of work was overtly discouraged. TATs were everything.
112. I was repeatedly told by reporting scientists about the grave disadvantages of this system of work and the validity of their concerns has now been confirmed by eminent experts.
113. I observe that when this production line system was first implemented, and ever after, no information or advice was sought by the laboratory managers from anybody outside the jurisdiction. Nor were matters of the kind that I have described considered by them, although they should have been. The whole exercise was implemented without the slightest attention being given to the paramount duty of the laboratory: to get reliable evidence from samples.
114. Instead, as Ms Allen openly asserted, it is her opinion that a case management system could "no longer be sustained" because it "doesn't assist with timely provision of results". She pointed out with pride that a national report had found that, applying the criterion of speed of results, Queensland "was the top performer".²⁴ The result of this success has been that it is now necessary to retest thousands of samples that have been incompetently dealt with – despite there being highly competent scientists in the laboratory who were always ready, willing and able to try to get a profile.

²³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [36(f)].

²⁴ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [22].

115. The result of this distorted thinking led to the disastrous Options Paper. Its purpose was to improve turnaround time in delivering “results” to the QPS. The result line in the Forensic Register “DNA insufficient for further processing” is one that can speedily be reported because it is the consequence of an arbitrary decision not to do work. But it does, nevertheless, fit the definition of a “result”. I have dealt with the forensic ramifications of these processes in my interim report.
116. The fascination with turnaround time has led to other damaging distortions. One of these is that the managers of the laboratory have had trouble deciding what to do when scientists differ in their opinions about results. Ms Allen was asked what difficulties had been caused by such differences. She said that sometimes there was a difference of opinion about the level of concentration that should be used. Sometimes there were differences about interpretations. This could frequently happen when there was a question whether or not an observable peak signified yet another contributor or whether it was just an artifact that should be ignored. Ms Allen said that differences of this kind had led to resentment and grudges.
117. Ms Allen said that the “resolution” of these difficulties “sits with the line managers”. She said that in some cases these disputes have been placed before the Executive Director for resolution, although the person who occupied that office was not qualified to do so.²⁵
118. The whole problem is actually a misconception that has arisen because of the laboratory management’s failure to understand what the scientists are supposed to be doing and why.
119. As I have already said, the paramount duty of an expert is to assist the court. In the course of litigation it is common for experts to disagree about an issue. They ought, of course, to attempt to resolve their differences in conference with each other but, if they cannot do so, the question is not one for another expert to “resolve”, much less for a senior administrator without qualifications to resolve it. The person who will resolve it is

²⁵ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [89]-[97].

the person who is the tribunal of fact: the judge or the jury. For that reason, all opinions that are reasonably open have to be put forward for consideration.

120. If a manager's concern is speed in reporting a "result", that manager cannot afford to tolerate dissent that can slow the process. However, if the proper concern is to put forward expert scientific opinion evidence, dissent is a problem for the fact-finding tribunal to resolve in accordance with all of the evidence in the case – much of which a reporting scientist cannot know. There is no difficulty. If two DNA scientists have opposing views about a matter, both views should have been presented in a result and in a witness statement.
121. It was the management's failure to understand the technical legal task being performed that led to an inability to solve this "difficulty" and this, in turn, led to dissatisfaction among staff and disharmony. The core function of giving expert evidence was not appreciated as such by managers who were blinded by the need to communicate results quickly.
122. The concentration of intellectual effort on the part of management upon turnaround times has had other serious consequences.
123. DNA profiling employs science and technology that is under constant development and improvement around the globe. Sometimes the improvement is found in equipment. The purchase of new generation genetic analysers for the laboratory was an example of this. Sometimes it is found in the chemical kits that are used. Powerplex 21 is an example. So too are Y-STR testing and mitochondrial testing. These kinds of advances require effort on the part of the laboratory, not only to become aware of them, but to have the ability to take advantage of them. Money to buy the new technology is one thing although some of these new techniques are not expensive.
124. The laboratory must have staff with the necessary skills as well as the time to devote to earnest consideration of these kinds of matters, their study, their validation and implementation. This is a function of the ability of management to understand the

significance of new technology to the task at hand; but one does not need new technology when speedy reporting of results is the focus. In fact, new technology might increase the work that has to be done.

125. The failure to appreciate that the laboratory's work required it to have a real research and development unit meant that very little has been achieved in getting new technology that is common in other jurisdictions.
126. The laboratory has a Standard Operating Procedure that concerns the carrying out of "Projects" as part of "Change Management". The Options Paper began as such a project. Additionally, any new process or equipment that is to be introduced must be validated. The laboratory has an elaborate set of Standard Operating Procedures that govern these kinds of undertakings. Yet, as the part of this report which led to the Options Paper shows, some of the intellectual quality associated with this kind of work has been dismal. The validation of Y-STR testing has not yet succeeded despite years of effort. Several completed validations were flawed, sometimes in elementary ways. The desire to demonstrate a triumph of speed led to the laboratory being the first laboratory in Australia to be able to implement Powerplex 21 and STRmix. As demonstrated in a chapter of this report, the speed of effort led to errors in validation. All that was actually achieved was a triumph of speed over scientific integrity.
127. The reason for these kinds of inadequacies, in a laboratory that is full of highly competent scientists, is that the management's single-minded absorption with "TATs" has meant that they have been blind to their other obligations, quality research among them. In relation to projects, Ms Allen said: ²⁶

Staff members can undertake projects to further improve laboratory processes, and may be mentored by another staff member or Senior Scientist through this process. Staff members can advise their line manager that they'd like to be involved in a project at any time or they can raise it during their Career Success Planning session with their line manager. The time required for project work will vary depending on the project so the line manager will liaise with the project

²⁶ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [22].

leader and staff member to assess time required for project work. Some parts of the project work may be part time; an example is that during experiments they may be able to be set up and then other core tasks can be undertaken. Other parts of the project work may require more time, such as the report writing phase. Project work is prioritised dependent on the urgency of the outcome ... Staff members need to maintain competency in the tasks that they undertake, so the movement of staff across teams for periods of time can impact on maintaining competency.

128. There are important implications in this passage of evidence.
129. *First*, it reveals that the current managers of the laboratory have no conception that it is any part of their duty to keeping abreast of recent developments in their science and their craft so that they are better able to carry out their fundamental duty: to provide reliable evidence. There is no understanding that, as in other fields of science, a failure to employ the latest methods of work spells failure in itself and can also lead to failures, or at least inefficiencies, in the core function of the institution.
130. *Second*, it reveals that laboratory has no research function and no idea that one is necessary. For this reason, for example, Y-STR competency has not been achieved: there is simply nobody who has been made responsible for validating it on a full-time basis. That is why the spermatozoa slide issue took four years to resolve – and inadequately at that. Research and development have been regarded as part-time tasks of secondary importance compared to work done to get the results out as quickly as possible. According to the current ethos of the laboratory, seconding a member of a ‘team’ to do such work just slows things down.
131. Ms Baker and Dr Kogios were critical of this lack. They said that validations and addressing scientific issues is not just another task to be done when casework has been completed but should be a dedicated focus for specialist staff with the requisite skills. They referred to an overseas report that regarded such work as something that should be regarded by government as a “critical need for investment funding”.²⁷

²⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [244].

132. These two experts also noted the absence of any connection between the laboratory and a tertiary education provider, thereby not availing itself of the advantages of a university's research capabilities and science programmes.²⁸
133. This lack actually contradicts even the management's current focus on TATs. Ms Baker and Dr Kogios say that sole reliance on staff with casework roles to do the essential work of research and development will inevitably lead to delays. For example, the results of validations directly affect service delivery. They say that a lack of research and development capacity has prejudiced the ability of the laboratory to operationalise new capabilities in a timely way.
134. When asked by the Commission to explain why Y-STR testing and mitochondrial testing were not implemented long ago, as they have been elsewhere, Ms Allen's answer was:²⁹

The laboratory has not sought accreditation for Mitochondrial DNA, low copy number DNA and interpretation of greater than 4-person mixed DNA profiles. There are low numbers of samples per annum requiring this specialist type of testing.

135. Later, referring to Y-STR testing and MiniFiler testing, which the laboratory cannot perform, she said:³⁰

The laboratory has not invested in this technology due to financial costs and the difficulty of maintaining the accreditation and necessary competency for very few samples annually.

136. Yet, the process put forward in the Options Paper was premised upon the understanding that there were *too many* low quant samples to process.
137. This mismanagement was the direct result of Ms Allen's total emphasis on communicating a written result about a sample to the QPS as quickly as possible. Her ability to manage the laboratory for over a decade in accordance with such a wrongheaded idea at the

²⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [247].

²⁹ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [73].

³⁰ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [75].

forefront of her thinking, however, was also due to the unsuitability of the general and orthodox management structure to the nature of the laboratory's task within the criminal justice system.

138. This disconnection between management, on the one hand, and those doing the substantive work in accordance with applicable ethical standards, on the other hand, is not new and has previously led to catastrophes in public administration.
139. In 1986 the space shuttle *Challenger* blew up shortly after launch, killing seven astronauts. A Presidential Commission of Inquiry was established to find the cause. One of its members was Richard Feynman, a Nobel prize-winning physicist. He uncovered that the cause of the explosion was a faulty O-ring seal – a relatively inexpensive, but vital, part. Years after his work on that commission, Dr Feynman wrote that, in his opinion, what we might call in the present context, the root cause of the disaster was something deeper.
140. After the success of the moon-landing missions, the most senior managers of NASA had a strong incentive to persuade Congress to keep funding new work. The space shuttle project was proposed. Dr Feynman wrote that is likely that members of senior management were telling political leaders that: ³¹

The shuttle can make so-and-so many flights and it'll cost such-and-such; we went to the moon, so we can do it!" Meanwhile, I would guess, the engineers at the bottom are saying, "No, no! We can't make that many flights. If we had to make that many flights, it would mean such and such!" And, "No, we can't do it for that amount of money, because that would mean we'd have to do so and so!" Well, the guys who are trying to get Congress to okay their projects don't want to hear such talk ... So pretty soon, the attitudes begin to change; information from the bottom which is disagreeable – "We're having problem with the seals; we should fix it before we fly again: - is suppressed by big cheeses and middle managers ... Maybe they don't say explicitly, "Don't tell me," but they discourage communication, which amounts to the same thing. It's not a question of what has been written down, or who should tell what to whom; it's a question of whether, when you do tell somebody about some problem, they're delighted to hear about it and they say, "Tell me more" and "Have you tried such-

³¹ *What Do You Care What Other People Think?*, Richard P Feynman, Penguin Books, 1988, Chapter "Afterthoughts".

and-such?” ... If you try once or twice to communicate and get pushed back, pretty soon you decide, “To hell with it.” So that’s my theory.

141. The same phenomenon was revealed on a previous occasion in Queensland in the Bundaberg Hospital Commission of Inquiry. Some will remember that that inquiry concerned the harm that had been caused to numerous patients who underwent surgery by one Dr Jayant Patel. Nurses were complaining to senior medicos and even to senior administrators but nothing was done for a long time to stop this doctor’s careless work. The commissioner of inquiry, Mr Geoffrey Davies QC AO, wrote: ³²

...it may now seem astonishing that the number and seriousness of the complaints against him did not cause either Dr Keating or Mr Leck to institute some thorough independent investigation of his conduct, at the latest by the end of October 2004. But their failure in this respect becomes less surprising, although no less reprehensible, when it is seen how they saw their role of running the Hospital, and where their priorities lay.

... In the first place, both saw themselves as running a business of providing hospital services. They were not solely at fault in this for that is how Queensland Health officers also saw their role. Indeed, the terminology used was that Queensland Health was ‘purchasing medical services’ from the hospitals and that patients were ‘consumers’ of these services.

142. The distinguishing feature of the problem that was revealed by three official inquiries is an abandonment or, as here an unawareness, of principle by senior management and a deafness to the good counsel of those in the know. Therefore, some of the learnings from the present investigation might usefully be absorbed in other areas of public service.
143. The third, and unique, feature of the present affair that led directly to the ruination of the scientific integrity of the work of the laboratory was the character of its Managing Scientist and her ability to suborn the principles that ought to have guided the laboratory. I refer to another statement by Dr Feynman: For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled.³³

³² *Report of the Queensland Hospitals Commission of Inquiry*, 30 November 2005, [1.18]-[1.19].

³³ Feynman, *op. cit.*

144. It is imperative for the structure now to be changed so that the people working within the laboratory can do good work as a matter of course and so that the kinds of mismanagement and misadventures disclosed in this report cannot happen again.
145. The principles that must guide the government in deciding upon an organisational structure must be:
146. The structure is one that ensures that senior management of the laboratory faithfully maintains the standpoint that the function of the unit is to serve the administration of criminal justice by providing reliable information to the QPS and reliable expert evidence to the courts.
147. The structure provides for independent oversight of the work of the laboratory and giving of expert advice to its head.
148. In order to fulfil the first of these principles, it is necessary that the unit be, and be seen by the community to be, independent and impartial. An obvious structural assertion of independence would also serve to inculcate in the unit's scientists a sense of their responsibility to serve the justice system by employing their high expertise to advance the truth.
149. There are many ways in which such a structure might be put in place but the current placement within FSS is not one of them. As a mere unit of a large department that has functions and purposes that are not allied with the functions and purposes of the laboratory, there will always be a risk that its true mission will be lost.
150. I have consulted with experienced administrators with the Department of Premier and Cabinet, Queensland Health and the Department of Justice and the Attorney-General. I have been greatly assisted by the candid expert advice that I have been given. I deal with these matters in Chapter 9.
151. If the catastrophes that brought about the establishment of this commission had not taken place, it might be thought that, after more than a century of forensic scientists

working within the Queensland Health, it was time in any event to stand back and have a good look at the place that forensic science should occupy in accordance with the needs of modern public administration. An underlying principle that has emerged from all sources of expert evidence is the need for scientists who are evidence gatherers to be independent of prosecution authorities and be seen to be independent and impartial. A scientific bent of mind lends itself to that state and the incorporation of the work of such people ought to augment that natural tendency rather than to degrade it.

152. In that respect, while it would have been unthinkable to place police scientific officers under the management of Queensland Health, consideration might now usefully be given to whether forensic evidence gatherers at scenes of crime would more naturally be placed alongside their fellow scientists. Practising side by side with other forensic scientists could only be an advantage to the expertise of scenes of crime officers and to the community. I have not heard evidence about such a proposal and, for that reason, I make no recommendation about it and, instead, I raise it as something for consideration.
153. A more immediate imperative, which the current circumstances offer, is to make plans to place the new forensic science institute at the forefront of the profession in this country. A serious initiative by government, accompanied by suitable recruitment, could make this a goal that is achievable in the foreseeable future. The establishment of a dedicated research centre within the institute, which has ties to a university and which encourages the formation of strong personal relationships with laboratories here and overseas, will sow the seeds for this kind of development.
154. In the body of this report I have dealt with the tasks that have to be undertaken to re-establish the work of the laboratory in the short term. A question arose about whether I ought to recommend that certain steps be taken within a stated period of time. Submissions from some stakeholders were to the effect that some matters (such as the

review of cases affected by inadequate processes) were critical to the criminal justice system and needed to progress quickly.³⁴

155. Queensland Health submitted that I should not give timeframes for my recommendations to be completed. It submitted there was no expert evidence to establish what was a reasonable and achievable timeframe for each recommendation, and that staff, throughput and backlog at the laboratory have been significantly affected by the Commission and will continue to be affected by implementation of recommendations which are adopted by the government.³⁵ The Department of Premier and Cabinet suggested that recommendations could be assigned an indication of prioritisation, and that very short timeframes such as two weeks or one month would be significantly affected by the final report date of 13 December 2022.³⁶ I accept there is substance in those submissions. However, any expert evidence as to what timeframes are achievable would necessarily be based on the staffing and resourcing of the laboratory or assumptions as to what, if any, work would be outsourced to external providers. Those features are not static. I accept that no timeframe should be shorter than one month, except where the recommendation is for immediate cessation of a process which can be implemented within current arrangements.
156. A small group of my recommendations must be urgently implemented to repair confidence in the administration of criminal justice. For those recommendations only I have set a certain period of time. The timeframe is what I consider is required for that purpose rather than what can be achieved with the current capacity of the laboratory. From the evidence I have heard, I expect those timeframes to be achievable.
157. If a timeframe is too short to be achievable, there is a risk that it could be implemented in a sub-standard way to meet the timeframe. Timely and prompt implementation must not be prioritised at the cost of quality and valid science. That kind of thinking brought

³⁴ Submission from Queensland Law Society, 6 December 2022, p3; Submission by Legal Aid Queensland, 2 December 2022, p3.

³⁵ Queensland Health Supplementary Submissions, 2 December 2022, [4]-[16].

³⁶ Letter, Director-General of the Department of Premier and Cabinet, 5 December 2022, p3.

about the present problems. For several reasons I think that the risk of corner cutting for such reasons is low. First, certain recommendations, such as the amendment of standard operating procedures to resolve issues identified by experts engaged by the Commission, should be able to be done promptly. Second, recommendations about performing validations should include an external review of the validation in accordance with other of my recommendations. This should act as a check on quality. Finally, if a timeframe is not able to be met for a valid, scientific reason (and not due to lack of resources that could have been provided but were not), the Minister or Director-General will be able to explain that to the public. The public has to be taken into confidence.

158. The lack of a timeframe in a recommendation should not be taken to indicate any lack of importance in its implementation. It reflects my acceptance that for many recommendations it is appropriate that those occupying new leadership positions in the governance of the laboratory take expert advice on how the recommendation should be implemented, including over what period and with what prioritisation in relation to other recommendations.
159. The timeframes that I have included should not be approached as arbitrary guidelines to be met with current resources. They should be seen as necessary for confidence in the criminal justice system, and so the laboratory and surrounding governance structures should be resourced so as to meet the timeframe. I deal with funding in more detail in Chapter 9, Governance and Funding.
160. I have a great deal of confidence in the scientists who work at the DNA laboratory and I have respect for their expertise. For these reasons, I am of the firm opinion that, provided government is willing to pay for the establishment of a sound administrative structure, supported by the employment of eminent leaders, the future of forensic science in Queensland will be a rich and fruitful one.

2. CURRENT OPERATIONS OF THE LABORATORY

2.1 Structure of the laboratory

161. In Queensland, the Minister for Health and Ambulance Services oversees the Department of Health (also known as **Queensland Health**). When the Commission began, the Queensland Health Forensic and Scientific Services (**QHFSS**), which includes the forensic DNA laboratory, sat within a division of Queensland Health.³⁷ The Executive Director of QHFSS currently reports to the Chief Pathologist, Pathology Queensland and Forensic and Scientific Services; who ultimately reports to the Deputy Director-General of the Prevention Division within Queensland Health.³⁸
162. QHFSS provides forensic services to the Queensland Police Service (**QPS**), the Coroners Court of Queensland and the Office of the Director of Public Prosecutions by way of forensic DNA analysis and forensic chemistry analysis of trace evidence, illicit drugs and clandestine drug laboratories.³⁹ It also provides a range of scientific services with capabilities in:⁴⁰
- a. Clinical Forensic Medicine;
 - b. Public and Environmental Health including inorganic and organic chemistry and radiation and nuclear sciences;
 - c. Public health Microbiology including a World Health Organisation accredited laboratory;
 - d. Public Health Virology;

³⁷ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [16]-[18].

³⁸ Exhibit 24, Statement of Lara Keller, 20 September 2022, [14]-[15].

³⁹ Exhibit 214.7, Internal analysis of Forensic and Scientific Services, Health Support Queensland, 30 July 2021; Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [19].

⁴⁰ Exhibit 24, Statement of Lara Keller, 20 September 2022, [12].

- e. Forensic Pathology;
 - f. Forensic Toxicology;
 - g. Scientific support; and
 - h. Research and Human Ethics.
163. Those employed at QHFSS provide expert analysis, advice and research as part of the Queensland Government's response to threats to public health and the environment, epidemics, civil emergencies, criminal investigations and Coroner's inquiries.⁴¹
164. Forensic DNA case work is shared between the QPS and Queensland Health, with both agencies bearing responsibility for the operating model.⁴² The QPS contributes through the collection of samples from alleged crime scenes for submission to the laboratory for testing.⁴³ As part of the submission, a case and associated exhibits to be tested will be categorised in line with the following priorities:⁴⁴
- a. Priority 1 (Urgent): Samples requiring processing with a three to five day turn around, following approval from a Senior Scientist, Team Leader or Managing Scientist;
 - b. Priority 2 (High): Allocated based on crime code and usually for crimes against a person; or
 - c. Priority 3 (Medium): Allocated based on crime code and generally used for crimes other than against a person (ie. property crime).

⁴¹ Exhibit 24, Statement of Lara Keller, 20 September 2022, [11].

⁴² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [18].

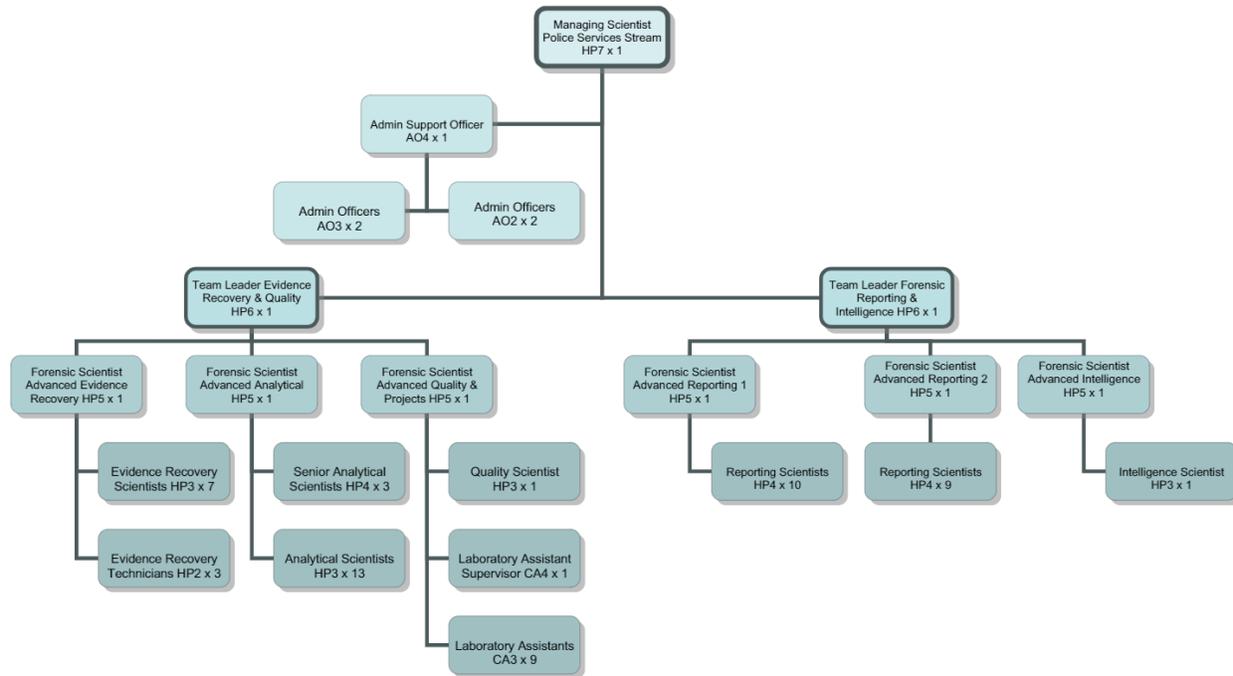
⁴³ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [27]; Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [30].

⁴⁴ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [25], CA-67, 33800v7 Examination of Items, 17 May 2022, p1691; Exhibit 3, Statement of David Neville, 26 August 2022, [24]-[27].

165. The QHFSS are responsible for processing those samples through analysis, interpretation and reporting. The results from testing are communicated back to the QPS DNA Management Unit for review and to consider further testing.⁴⁵

166. The laboratory's internal structure is depicted by the following chart:⁴⁶

Forensic DNA Analysis Team Chart



167. The laboratory has a managing scientist. A key responsibility of the managing scientist, according to the formal role description, is to provide strategic direction regarding forensic DNA analysis issues and coordinate the forensic DNA analysis services provided to QPS and the Department of Justice and Attorney-General.⁴⁷ The managing scientist has responsibility for both forensic DNA and forensic chemistry since 2013.⁴⁸ Since 2008

⁴⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [30].

⁴⁶ Exhibit 171, Statement of Catherine Allen, 16 September 2022, CA-10, Forensic DNA Analysis Team Chart, p208.

⁴⁷ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [8]-[9], CA-04, Clinical and Statewide Services Division Role Description (Managing Scientist), p254.

⁴⁸ Transcript, Day 23, 1 November 2022, p2801.12-19.

(taking into account periods of acting in the role), the managing scientist has been Cathie Allen.⁴⁹

168. There are two team leaders below the managing scientist, who manage scientists in the Evidence Recovery and Analytical Team and the Forensic Reporting and Intelligence Team. Since 2008, in acting roles until both were made permanent in 2012, the former has been Paula Brisotto⁵⁰ and the latter has been Justin Howes.⁵¹ The team leaders are to, in accordance with their formal role description, lead the delivery of forensic services within those speciality teams, operationally manage their team and professionally demonstrate a specialist level of knowledge and experience in Forensic Biology to be a reference for forensic advice and advocacy.⁵²
169. The laboratory is governed by numerous standard operating procedures which regulate how a scientific process or method is to be followed to ensure quality. All staff are required to have strict adherence to standard operating procedures.⁵³
170. There are specific teams within the laboratory in which specialised scientists are allocated specific tasks with a view of working towards obtaining a useable DNA profile from a sample. The pathway a sample usually follows is:
- a. the Evidence Recovery team would receive a sample, mostly ‘in tube’ items already screened and subsampled by QPS for processing and sometimes a ‘whole item’ (ie. sexual assault investigation kits, washed items for semen confirmation, syringes, condoms etc). Analysis of a ‘whole item’ requires a scientist to perform an examination of the exhibit to target DNA through presumptive testing or determining areas of interest (for example touch DNA areas).⁵⁴ This team also

⁴⁹ Transcript, Day 20, 27 October 2022, p2552.45-47.

⁵⁰ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [6].

⁵¹ Exhibit 145, Statement of Justin Howes, 16 August 2022, [4].

⁵² Exhibit 171, Statement of Catherine Allen, 16 September 2022, CA-11, Clinical and Statewide Services Division Role Description (Team Leader – Forensic Scientists), p265.

⁵³ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [47].

⁵⁴ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [121]-[125].

creates examination notes, peer reviews examination results, decides what to examine for whole items and provides feedback to QPS in relation to any issues. The sample would be then submitted to the Analytical team;

- b. the Analytical team completes the extraction, quantitation, amplification and capillary electrophoresis of all crime scene samples using laboratory instruments and equipment. The results obtained through testing are submitted to the Reporting team;
 - c. the Reporting team interprets DNA profiles derived from a crime scene sample in order to explain the result. Reporting scientists appear in court proceedings to give oral testimony about the testing of the sample and the DNA results obtained. This team also enters DNA results into the Forensic Register, prepares witness statements and DNA evidentiary certificates for court cases and peer reviews results; and
 - d. the Intelligence team uploads crime scene and person DNA profiles obtained from testing to the National Criminal Investigation DNA Database (**NCIDD**), and reviews linking information between NCIDD, AUSLAB and the Forensic Register.
171. The Forensic Register is the information management system used by the laboratory. This software stores forensic case information such as evidence recording and collection, continuity of samples, forensic examinations and reviews, digital files, examination and analysis results. It is also used as a communication tool with QPS, who can provide information for the laboratory staff to review and view some information entered by the laboratory. This software is managed by an external provider, bdna.⁵⁵

⁵⁵ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [154]-[155].

2.2 Operating model and workflow

172. The laboratory is an integral part of the criminal justice system in Queensland. It provides expert analysis and evidence to the QPS, the Coroners Court of Queensland and the ODPP.⁵⁶
173. It is not possible for providers of forensic DNA services to collect, test and report on every sample from every possible crime scene. That would be practically impossible, and is not needed for many cases.⁵⁷ However, it is essential that whatever restrictions are placed on the number of samples that are collected, tested and reported, those limits do not diminish the quality of the results provided to the criminal justice system.⁵⁸ The ultimate purpose of the laboratory is to provide quality results to the criminal justice system to assist in the just resolution of cases. The Queensland Government is obliged to fund the laboratory to achieve that aim.
174. Through the implementation of a divided operating model with the QPS, a “worklist” system within the laboratory, a lack of case management, implementation of hard quantification thresholds and removal of discretion and overview by reporting scientists, the forensic DNA services provided to Queenslanders have fallen below best practice, and have failed to produce quality results in all cases for the criminal justice system.
175. The laboratory and QPS must collaborate to develop a new operating model and workflows which remove inappropriate restrictions and review all sexual assault and major crime cases which may have been affected by those failings to determine whether any further testing or analysis should now be done.

⁵⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p11 [19].

⁵⁷ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p10 [14].

⁵⁸ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p10 [15].

176. I have drawn greatly in this section on a report on the current operations of the laboratory by Ms Heidi Baker and Dr Rebecca Kogios. Ms Heidi Baker has a Bachelor of Science with Honours in Genetics. She is currently a Forensic Senior Scientist at the highly regarded Institute of Environmental Science and Research or ESR in New Zealand.⁵⁹ Dr Rebecca Kogios holds a pHD in Molecular Biology and Bachelor degrees in Science with First Class Honours and Law. She is the Executive Director of the Forensic Services Department, part of the Victorian Police.⁶⁰ Between them, Dr Kogios and Ms Heidi have worked at four forensic service providers in three different countries and have a combined 40 + years of experience in forensic DNA.
177. I engaged these two eminent experts to carry out a full review of the laboratory's operations, determining any processes or procedures falling below best practice.⁶¹ They identified that, in some aspects, there is no recognized best practice. However, in many areas they were able to judge the laboratory against that standard or against what is accepted practice among other forensic service providers in Australasia.⁶²

Restrictions on case management, collection, testing and analysis of DNA samples

178. The current operating model and workflow incorporate significant restrictions on the case management, collection, testing and analysis of samples.
179. The most significant restrictions are the division of responsibility between QPS and Queensland Health and the work list system which mean that for very few cases is there any overall case management from collection to reporting.

⁵⁹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, Appendix 2.

⁶⁰ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, Appendix 3.

⁶¹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, Appendix 1.

⁶² Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p8, [6]-[8].

180. Since July 2008, Queensland has shared the end-to-end forensic DNA workflow between the QPS and the laboratory. Generally, QPS perform the collection and evidence recovery parts of the workflow and deliver samples to the laboratory “in tube” and ready for processing. The QPS limits its officers to collecting two DNA samples at a volume crime scene, with only one sample being a trace DNA sample. Its officers are not so limited for major crime scenes.⁶³ QPS officers determine, generally independently of the laboratory, which samples to submit for testing.⁶⁴ The system of collection used by the QPS is the subject of Section 3.2, Collection by the QPS.
181. The laboratory performs the analysis, interpretation and reporting tasks. One exception is the investigation of sexual assault, where collection is performed by Queensland Health doctors or nurses and evidence recovery performed by the laboratory. The laboratory performs evidence recovery functions for a small minority of other cases, when police deliver whole items.
182. That division of responsibility means that the persons involved in case management are also divided. Effective case management requires a continuous assessment of the samples available for collection and testing, what should be tested, in what order and using what techniques or re-work strategies.⁶⁵ Before collection, an examination strategy should be produced dependent on the context of the case. Given the division of responsibility, that task is ordinarily done by QPS officers who are (generally) not forensic DNA scientists.⁶⁶ Whatever examination strategy is produced is not generally discussed or shared with the laboratory scientists.
183. The “work list” system as it operates currently uses the Forensic Register to send a sample through a number of work lists which determine what task is next to be performed. For example, a sample may go through evidence recovery and then to a quantitation list. Depending on the quantitation value, it may be transferred (at times automatically by the

⁶³ Queensland Police Service, Collection of Biological Evidence, 3 November 2022, QPS.0020.0066.0001, p17.

⁶⁴ Queensland Police Service, Collection of Biological Evidence, 3 November 2022, QPS.0020.0066.0001, p17.

⁶⁵ Transcript, Day 23, 1 November 2022, p2849.19-2850.22.

⁶⁶ Transcript, Day 23, 1 November 2022, p2850.41-2851.8.

Forensic Register software) to an amplification or concentration list. After amplification, the sample would be transferred to a genetic analyser list, then to an interpretation list and finally to a review list.

184. Only the staff in the team relevant to the task have oversight of the sample at that point – either evidence recovery, analytical or reporting. Generally the first time a reporting scientist makes any contact with a case is after the sample has been progressed through evidence recovery and analysis.⁶⁷ The “work list” system within the laboratory pre-dated the change in allocation of evidence recovery tasks between QPS and Queensland Health. There was a work list system within AUSLAB (the Forensic Register’s predecessor system) from 7 October 2006.⁶⁸
185. Within the work list system, there are other significant restrictions on the ability of any scientist to holistically manage a case. *First*, only P1 samples are routinely allocated to a dedicated case manager. For P2 and P3 samples, a scientist may elect to allocate themselves as case manager on an ad hoc basis.⁶⁹ Some reporting scientists have done that informally as a “work around” for what they see as an imperfect system.⁷⁰
186. *Second*, the laboratory applies a “what we receive we test” approach, so that all samples received are processed.⁷¹ The laboratory is wholly reliant on the QPS for sample selection and prioritization, with generally no scientist allocated to apply their expertise when a sample arrives at the laboratory as to when or how it should be tested. An alternative approach, to reduce unnecessary testing by the laboratory and favoured by Dr Kogios and Ms Baker, is a staged process, where samples are tested in tranches.⁷² As results become available, a scientist reviews the results with whole-of-case context to determine whether

⁶⁷ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p15 [36(d)].

⁶⁸ Exhibit 175, Statement of Catherine Allen, 20 October 2022, [67].

⁶⁹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p14 [36(a)].

⁷⁰ Transcript, Day 2, 27 September 2022, p160.3-25.

⁷¹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p15 [36(c)].

⁷² Transcript, Day 23, 1 November 2022, p2849.12-2850.22.

further samples should be tested and how. Mr Cochrane, who reviewed the response of the laboratory to an issue with sperm samples, also favours this approach in the context of sexual assault casework.⁷³ The essence of the alternative process is to have a reporting DNA scientist, with their specialist knowledge, involved in decision making at all stages.

187. *Third*, the laboratory applies hard thresholds at the quantification stage, so that many samples do not progress to profiling at all. From early 2018 until 6 June 2022, two thresholds were in place: a “No DNA” threshold where samples with a quantification value below 0.001 ng/μL were reported as “No DNA detected” and the DIFP threshold where samples with a quantification value between 0.001 ng/μL and 0.0088 ng/μL were reported as “DNA insufficient for further processing”. The reporting of the result was based solely on the quantification result, was validated by scientists from the analytical team and did not include consideration of substrate type, preliminary test results or even the collection location photographs uploaded to the Forensic Register by the QPS.⁷⁴ Samples falling into either of those ranges were not processed further unless requested by the QPS or by a reporting scientist (in the event that a reporting scientist ever reviewed the case, which was not guaranteed).⁷⁵
188. *Fourth*, a reporting scientist only has whole-of-case context if a formal witness statement is required by the QPS. Prior to that, the reporting scientist would interpret DNA profiles obtained from individual samples from different investigations of various offences as well as review other scientists’ interpretations in similar isolation. In cases where all samples return a result of DIFP or No DNA, it is highly likely that no statement would be requested at all, so those samples would never be reviewed by a reporting scientist or by any scientist with a whole-of-case context.⁷⁶

⁷³ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [40].

⁷⁴ Statement of Luke Ryan dated 21 October 2022, [93]-[103]; Statement of Alanna Darmanin dated 21 October 2022, [66]-[80]; Statement of Paula Brisotto dated 18 October 2022, [17]-[30]; Transcript, Day 16, 21 October 2022, p1990.47-1993.8.

⁷⁵ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p16 [36(g)].

⁷⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p16 [36(h)].

189. Even then, the whole-of-case context that a reporting scientist has is confined by the information provided to the laboratory by the QPS on the Forensic Register. For many cases, this consists of photographs of where samples were taken and presumptive test results, but does not extend to comprehensive case context, for example other evidence in the case including witness accounts.
190. At statement preparation stage, a reporting scientist may ask for samples to be re-worked but needs the permission of the Managing Scientist, which can deter full use of that process.⁷⁷ Reporting scientist Alicia Quartermain explained that prior to the end of 2021, the process for requesting reworks was not well known by reporting scientists.⁷⁸ Sometimes the request would take a week or more to be approved by the Managing Scientist, which at times caused difficulty with deadlines imposed by courts for the delivery of statements.⁷⁹
191. Ms Allen gave evidence that Mr Doherty, then Acting Executive Director FSS, had instructed her to require permission for re-working of samples given QPS concern about change or retraction of results. She said that she had never refused a request for a re-work.⁸⁰ While she referred to the lack of “negative impact on the QPS case” as a factor stated in one email approving a request,⁸¹ Ms Allen submitted that was in the context of that information having been included in the request.⁸² While that is true, she accepted in oral evidence that she was concerned about a possible critical QPS response to a change of result.⁸³ She identified factors she took into account in her decision-making which were not related to the scientific need for the re-work.⁸⁴ This process inhibited scientists from acting freely to take the steps necessary to obtain a useable DNA profile for a sample.

⁷⁷ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p16 [36(i)(i)].

⁷⁸ Transcript, Day 7, 10 October 2022, p898.39-901.1.

⁷⁹ Transcript, Day 7, 10 October 2022, p898.39-901.1 (Alicia Quartermain); Transcript, Day 9, 12 October 2022, p1145.44-1146.19 (Rhys Parry).

⁸⁰ Transcript, Day 22, 31 October 2022, p2754.10-11.

⁸¹ Exhibit 181, Email from Cathie Allen to Josie Entwistle, ‘FW Rework requests’, 26 February 2020.

⁸² Written submissions on behalf of C Allen and J Howes, 28 November 2022, [46].

⁸³ Transcript, Day 22, 31 October 2022, p2755.4-2758.43.

⁸⁴ Transcript, Day 22, 31 October 2022, p2762.6-27.

192. Fifth, by the time whole-of-case context is applied to a case, a number of scientists will likely have reviewed individual samples in the case. Individual results will have been released to the QPS before other samples were considered and without overall case management. That workflow was directed toward providing fast individual results to the QPS. However, that process may lead to later differences of opinion at a late stage and the necessity to change results if the scientist preparing the statement disagrees with the initial interpretation.⁸⁵ Dr Kogios and Ms Baker noted that a difference of opinion can and often does arise between trained experts in DNA interpretation.⁸⁶ Ms Rika had noticed an increase in “incorrect” results since 2008.⁸⁷
193. As the original result was already reported to the QPS, a change in result is often met with QPS concern⁸⁸ and is also deterred by internal processes which require the original result to be labelled “incorrect” and reasons given for the “error” including “unintended human error”.⁸⁹ Dr Kogios and Ms Baker considered this labelling to be inappropriate from both scientific and quality culture perspectives.⁹⁰
194. It is apparent that these restrictions mean the laboratory is not applying a true case management approach. For very few cases is there ever whole-of-case oversight, let alone continuous assessment of the case and its testing and analysis demands. Perhaps there may be P1 cases where investigators share significant case information with scientists, and no thresholds are applied. For the rest of the cases, there is no whole-of-case review, or it comes too late in the process to be effective.
195. Some reporting scientists who work in the laboratory had previous experience with applying case management to cases, either prior to 2008 in Queensland or in other

⁸⁵ Transcript, Day 2, 27 September 2022, p214.29-215.36.

⁸⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p17 [36(j)].

⁸⁷ Transcript, Day 2, 27 September 2022, p214.29-215.36.

⁸⁸ Exhibit 3, Statement of David Neville, 26 August 2022, p63 [265].

⁸⁹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p17 [36(j)].

⁹⁰ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [37(d)].

laboratories. Ms Rika engaged in case management of P1 and P2 samples as part of a major crime team in Queensland prior to 2008. She considered that approach was more appropriate to those more complex crimes.⁹¹ Dr Moeller also supported greater case management, considering a scientist's "ownership" of the case and use of context was meritorious.⁹² Ms Quartermain identified a number of benefits of a case management approach including identification of anomalies between samples and a reduction in the number of changed results after reporting to the QPS.⁹³

196. The other laboratories from Australia and New Zealand who provided information to the Commission had far greater case management, case context and discretion than that in place in Queensland. The majority of them carried out in-house item examination and evidence recovery.⁹⁴ Of four who responded about case allocation, three had dedicated case allocation for major crime or complex case types.⁹⁵ None applied thresholds like DIFP; any thresholds applied were at the lower limit and where applied to major crime provided scientist discretion to overrule the threshold.⁹⁶

Consequences and rationale of the restrictions on case management

197. The most significant and concerning consequence of the restrictions on case management is the missed opportunity to obtain all forensic evidence relevant to a case.⁹⁷ That missed opportunity manifests in a number of ways. *First*, the lack of case management oversight to form an examination strategy and triage samples means that DNA in a sample may be wasted in unnecessary processing, leaving little or no DNA available for other testing.⁹⁸

⁹¹ Transcript 27, Day 2, September 2022, p210.34-213.46.

⁹² Transcript, Day 10, 13 October 2022, p1281.31-37.

⁹³ Transcript, Day 7, 10 October 2022, p888.41-889.42.

⁹⁴ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [41(a)].

⁹⁵ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [41(b)].

⁹⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [42].

⁹⁷ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [37(b)].

⁹⁸ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [37(b)].

Second, the lack of holistic case review means opportunity to make decisions about what testing should be done either in Queensland or in another laboratory, and whether any further testing should be done, may not be fully informed, leading to incorrect or inadvisable decisions. *Third*, the use of hard thresholds can mean that many samples simply are not tested at all and so whatever material is present that could result in evidence is lost.

198. Professor Wilson-Wilde, who reviewed the success rate data provided by the laboratory identified that between 4800 and 6400 samples were not processed as a result of falling below the No DNA or DIFP thresholds over each of the last five years:⁹⁹

Year	Number of samples received by laboratory	Percentage of samples categorized as No DNA or DIFP and not further processed	Number of samples
2018	25761	18.8%	4839
2019	23852	26.9%	6414
2020	25416	23.3%	5932
2021	23702	22.6%	5365
2022	27080	20.2%	5478

199. That gives some indication of the scale of missed opportunity caused by the thresholds alone.
200. Dr Kogios and Ms Baker also identified other negative consequences of the restrictions on case management at the laboratory. The laboratory might miss the detection of contamination or other unexpected results when looking at results sample by sample.¹⁰⁰ That may allow a result to be published which is inaccurate.
201. Further, the experts identified damage to the relationship between QPS and the laboratory and within the laboratory arising out of the lack of case management. The concerns raised by QPS about success rates, changed or “incorrect” results and

⁹⁹ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3e, p11.

¹⁰⁰ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p19 [37(c)].

thresholds, considered in Chapter 4, Testing thresholds and the “Options Paper” and Chapter 8, Engagement with stakeholders, in further detail, and the manner in which those concerns were communicated and dealt with demonstrates difficulty in the relationship between the QPS and the laboratory.

202. Internally, Dr Kogios and Ms Baker identified a lack of trust between scientists and management relating to numerous issues: inadequate communication about decision making, a perceived lack of autonomy, the inappropriate suggestion of error in the “incorrect” result process, fractures in the work group, inability to resolve differences of scientific opinion, and dissatisfaction with how scientific issues that were raised were resolved.¹⁰¹
203. In terms of rationale, Ms Allen identified the speed of returning results to QPS as the reason for implementing the split operational model and “work list” system. In particular, she said that QPS officers performing evidence recovery tasks meant less examination time by forensic scientists, and that reporting results sample-by-sample removed the delay that would be caused by waiting for all samples in a case to be processed.¹⁰² Despite that aim, Ms Allen was not able to identify any effect on laboratory efficiency of the change in 2008 and as Managing Scientist since 2008 had not undertaken any comparison of indicators of laboratory efficiency including costing or percentages of DNA profiles obtained or uploaded to NCIDD.¹⁰³
204. Ms Rika said that the changes did increase the speed that samples were processed initially, but in the long run the way the laboratory has been operating will cause a significant backlog. She predicted that the lack of quality review taking into account the entirety of the case would result in the laboratory now having to go back to review many cases.¹⁰⁴ That is the subject of a number of my recommendations.

¹⁰¹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p19 [37(d)], p80-81 [193]-[197]..

¹⁰² Exhibit 175, Statement of Catherine Allen, 20 October 2022, [72].

¹⁰³ Exhibit 175, Statement of Catherine Allen, 20 October 2022, Question 2, [10]-[12].

¹⁰⁴ Transcript, Day 2, 27 September 2022, p158.22-36.

205. Turn around times have continued to grow over time and are well in excess of the 10 day aim set by the QPS for NCIDD upload.¹⁰⁵ As Ms Baker and Dr Kogios said:¹⁰⁶

“The ... model in place at QPS and QHFSS offers potential for both high throughput and fast TAT. The model also represents risk from loss of [case manager] oversight. If the model isn’t actually delivering fast TAT and risk isn’t mitigated through appropriate safeguards, **benefit is lost and risk persists.**”

206. That has been the consequence of the management decisions at QPS and QHFSS.

An appropriate operating model and case management system for quality results

207. These findings have led me to recommend changes to aspects of the operating model and case management system used in Queensland, and recommend Queensland Health and the QPS reconsider others. That is necessary in my view to ensure Queensland’s criminal justice system is served by a best practice system that can hold the confidence of the courts and the public.

Division of responsibility with QPS

208. Dr Kogios and Ms Baker did not consider the division of responsibility between Queensland Health and the QPS is unworkable or must be changed. In fact, they say it falls within the range of accepted operating models in Australia.¹⁰⁷ However, the model as it operates in practice falls below best practice because of the absence of safeguards that must be implemented to ensure the risk of degradation of the quality of results are not realised.¹⁰⁸ Queensland Health accepted that this has been well illustrated by the evidence that has emerged during the Commission.¹⁰⁹

¹⁰⁵ Exhibit 3, Statement of David Neville, 26 August 2022, p19 [88].

¹⁰⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p22 [39].

¹⁰⁷ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p22 [43].

¹⁰⁸ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [40], p22 [43]-[45].

¹⁰⁹ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, [132].

209. The determination of whether and how responsibilities over the end-to-end forensic DNA caseflow should be split between QPS and the laboratory must be a decision of government. The reconsideration of many aspects of the laboratory's operations, both during this Commission and by its recommendations, presents an opportunity for government to reconsider that division in light of key principles that should govern how forensic DNA evidence is collected and analysed.

Rec 1. Queensland Health should engage in a consultation with the QPS and other participants in the criminal justice system to consider, and decide, whether the operating model will remain split in its current form between QPS and the laboratory or will be divided in some other way.

Information provided by police

210. For effective case management to be undertaken by scientists at the laboratory, they must receive more case information than is currently provided by the QPS. The QPS and the laboratory must collaborate about what information is needed and how it is best provided by the Forensic Register to allow appropriate safeguards against the risk of cognitive bias (the risk that a scientist may subconsciously interpret DNA evidence as supporting the police case rather than objectively).¹¹⁰

Rec 2. The QPS and Queensland Health should, within three months, agree on the information QPS holds that is necessary for case managing scientists to have to provide sufficient case context for the purpose of appropriate case management.

Rec 3. The QPS should, within one month of agreeing with Queensland Health, require changes to be made to the Forensic Register and the QPS operational procedures and policies to ensure the information agreed to be necessary is provided to the laboratory by the QPS for Priority 1 and Major Crime cases for use by scientists

¹¹⁰ See Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p24-25 [50]-[51].

Workstreams

211. A case management approach is now essential to ensure the quality of results produced by the laboratory. The case management approach must have at its core the holistic consideration of the case, with the intention of providing evidence of value to the criminal justice system.
212. This is one area in which urgent action is necessary. Cases are being processed at the laboratory with sub-substandard case management each day. The longer it continues, the more cases carry the risk of missed forensic evidence and the greater the burden on the laboratory to reconsider cases. I consider three months to be sufficient time to implement the key safeguards identified by Dr Kogios and Ms Baker¹¹¹ into a workflow for Major Crime and cold cases. This will be an interim case management approach, and is likely to be less comprehensive than a final case management procedure.
213. Over a longer period, the laboratory should establish distinct workstreams for all types of casework it receives, including a full case management procedure for Priority 1 and 2 samples.
214. The Director of Public Prosecutions submitted that the potential effect of a case management approach is that it aligns the scientists much more with an investigative role and risks undermining clear perceptions of independence.¹¹² This is a concern which must be considered during the development of the case management approach. Such an approach does not necessarily undermine independence, but is necessary to allow the best and most reliable evidence to be obtained in each case.

Rec 4. The laboratory should, within three months, implement a case management approach for Major Crime (including cold cases), which includes:

- a. appointing a reporting scientist as case manager to each case upon receipt of samples at the laboratory;

¹¹¹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p21 [40].

¹¹² Letter from the Director of Public Prosecutions, 2 December 2022. p1.

- b. obtaining sufficient case context from the QPS for the purpose of devising a fit-for-purpose examination strategy and case managing the case;
- c. conferring discretion upon the case manager to devise a fit-for-purpose examination strategy for the samples received in the case, including a triage or staged approach if appropriate;
- d. conferring discretion upon the case manager in relation to all aspects of the case prior to the release of results, including re-working, re-testing, re-interpretation, advising the QPS that a sample should be sent to an external provider for testing that is not currently available at the Queensland laboratory (including Y-STR) and requesting the QPS submit additional samples for testing; and
- e. the case manager reviewing the whole of a case before any final result is reported to the QPS or the criminal justice system (with the potential for a different approach to interim results reported with appropriate caveats)

Rec 5. The laboratory should establish distinct fit-for-purpose workstreams for all types of casework it receives. The workstreams should be developed by reference to scientific best practice, the recommendations in this report, and in consultation with the QPS and other participants in the criminal justice system

Rec 6. The workstream for Priority 1 and Major Crime (including cold cases) should include at least the elements identified in recommendation 4.

Use of thresholds

215. The use of thresholds by the Queensland laboratory has been a major focus of the Commission. The investigation has uncovered a focus on turn around times and throughput over quality, inadequate validation and scientific consideration and poor decision making over many years, from the PP21 validation in 2012 (see Chapter 6, DNA evidence in the Shandee Blackburn case), through to the Options Paper in 2018 (see Section 4.1) and the decisions made about concentration in 2022 (see Section 4.3).

216. To ensure quality of results and to remove the risk of significant missed opportunity, I consider the laboratory should not use any threshold above the limit of detection for Priority 1 and Major Crime (P2) cases. The application of the limit of detection threshold must also be amended, so that case context is considered before a “No DNA” result is validated, and so that a reporting scientist may overrule the threshold. Queensland Health accepted that it is essential that scientists can overrule any threshold based on assessment of all relevant information.¹¹³
217. Given the public interest and misapprehension about thresholds used in Queensland, how they were determined and used, I consider education of those involved in the criminal justice system and the general public must be undertaken by the laboratory.

Rec 7. The laboratory should not use any threshold above the limit of detection in Priority 1 and Major Crime cases.

Rec 8. The laboratory should, after the limit of detection is validated in accordance with recommendation 15 and the report of Dr Duncan Taylor, change its standard operating procedures for the application of the limit of detection threshold so that:

- a. For Priority 1 and Major Crime cases, the case manager or another reporting scientist should validate the result; and
- b. the ceasing of routine DNA testing for samples that fall below the threshold can be determined on a sample-by-sample basis at the discretion of a reporting scientist based on considerations including diagnostic information, case and sample context and availability of sample context and availability of alternative DNA profiling techniques.

Rec 9. The laboratory should provide written and video information and the opportunity for discussion to the QPS and other participants in the criminal justice system explaining the threshold and the way it affects the processing of DNA samples.

¹¹³ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, [141].

Rec 10. The laboratory should have written and video information explaining the threshold and the way it affects the processing of DNA samples publicly available on its website.

Change of results

218. The “incorrect” results procedure in place at the laboratory is flawed. I expect the introduction of case management, as recommended, will greatly reduce the number of changed results. Nonetheless, the laboratory must amend its procedure to cease denigrating a change based on difference of opinion, and educate those involved in the criminal justice system about how a change of results may come about. The laboratory must amend its procedures to deal with and communicate reasonable differences of opinion between scientists. This is discussed with in Section 3.4, Technical aspects: DNA Interpretation.

Rec 11. The laboratory should change its standard operating procedures for the retraction or changing of results so that those procedures:

- a. provide suggested wording for a change in result that is caused by a difference of opinion, including an explanation that a difference of opinion is an expected and not irregular occurrence in the practice of forensic DNA analysis; and
- b. removes the suggested wording of “unintended human error”, except for cases where that wording is true, for example where a result is released against the wrong sample or with a typographical error.

Rec 12. The laboratory should, after such a change is implemented, provide written and video information and the opportunity for discussion to the QPS and other participants in the criminal justice system about a change in result due to difference of opinion, including an explanation that a difference of opinion is an expected and not irregular occurrence in the practice of forensic DNA analysis.

Retrospective review of cases

219. The failure to undertake appropriate case management for many years has resulted in a significant number of cases in which the laboratory may have missed evidence. Some of that evidence may have been crucial or important in a case or may have supported other evidence. Those failures have created a real risk of miscarriage of justice in the criminal justice system. Generally, those risks relate to the failure to present evidence in aid of the prosecution case and so are more likely to have prevented or deterred complaints from being prosecuted rather than have resulted in a wrongful conviction. I cannot exclude that latter possibility entirely, although I note that none of the failures identified at the laboratory would result in an inaccurate match between a reference sample and a crime scene sample, which is the sort of evidence often used to strongly support a conviction.
220. The laboratory must now review cases that may be affected to ensure all appropriate testing had been done and, if not, arrange for that testing as a matter of priority. In accordance with the opinion of Dr Kogios and Ms Baker,¹¹⁴ I recommend reconsideration of cases which fall within categories which should have been subject to case management, or should have been tested further but were not because of the DIFP threshold, in accordance with best practice.
221. I note that after the delivery of my interim report, the Minister for Health announced that all samples that had been subject to the DIFP threshold since 2018 would be re-tested. My recommendation below covers that same class of samples, but proposes a review and prioritisation rather than an automatic re-testing. There will be some samples reported as DIFP which do not require re-testing, for example where the case has been resolved in the criminal justice system in a way that the DNA result would have had no effect on outcome or decision-making of the Crown or accused. It is a matter for the government how they determine to rectify the wrongs of the DIFP process through review or re-testing.

¹¹⁴ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p17-19 [40].

222. I note Dr Kogios and Ms Baker’s opinion that it is particularly important to take into account Y-STR testing when reviewing DIFP samples from sexual assault cases.¹¹⁵
223. Later in this report, I recommend review of other cases which were subject to processes which fell below best practice and which also carry the risk of missed opportunity to obtain forensic evidence. Sexual assault casework as a whole is dealt with in Section 2.5, sexual assault casework.
224. Queensland Health does not submit that there ought not be a retrospective review of certain categories of samples identified by Dr Kogios and Ms Baker, as long as there is a discriminating approach to identifying the extent of this work.¹¹⁶ The recommendations below provide a framework for the laboratory’s approach to the review.
225. Legal Aid Queensland submitted that the principles which guide the review of the cases should be developed in consultation with criminal justice stakeholders.¹¹⁷ Consultation with criminal justice stakeholders is envisaged by the characteristics recommended in Recommendation 14, below.
226. Both Legal Aid Queensland and the Queensland Law Society both suggested a 12 month time frame may be too long.¹¹⁸ While I accept that confidence in the system must be restored as soon as possible, this is a significant task and a shorter timeframe may be unachievable for the staff at the laboratory. The principles set out for the review will allow for the prioritisation of appropriate cases, for example those that are currently before the courts or in which a person is in custody.
227. The Queensland Government has to determine the way in which the review is conducted, in accordance with certain principles which I will set out. The exact method of the review

¹¹⁵ Transcript, Day 23, 1 November 2022, 2894.30-2895.4.

¹¹⁶ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, [164].

¹¹⁷ Submission from Legal Aid Queensland regarding possible recommendation that impact the criminal justice system, 2 December 2022.

¹¹⁸ Submission from Legal Aid Queensland regarding possible recommendation that impact the criminal justice system, 2 December 2022; Submission from the Queensland Law Society regarding possible recommendation that impact the criminal justice system, 6 December 2022.

should be developed after consultation with stakeholders from the laboratory, the criminal justice system, including the ODPP, Legal Aid Queensland, defence barristers and solicitors (through the Bar Association of Queensland and Queensland Law Society or other organisations as appropriate) and victims' support organisations. It may be that an ad hoc committee or working group should be established to enable consultation with relevant stakeholders. Such a committee would assist in refining the method of the review, or it may be that consultation and development of the method of the review can be achieved in another way.

228. The government must establish a set of written principles to guide the review. The principles must be published. I apprehend that experience during the review may mean that the principles will have to be amended from time to time. Those principles must cover how cases will be prioritised and reviewed, how necessary information for the review will be obtained, and how stakeholders in the criminal justice system may apply for a case to be the subject of further testing, analysis or interpretation. It will be for the laboratory to decide how testing is actually done on the sample in each case, for example by the use of particular testing techniques. A decision might be made that certain samples, or categories of samples, should be sent to external laboratories for testing.
229. The principles must also identify how victims are to participate in the process of review. The QPS and ODPP have a number of obligations to victims of crime, under legislation and their own guidelines, including as to the provision of information and consultation before decision-making. Officers of the QPS and the ODPP have great expertise in consulting with victims. I consider those processes are likely to be fit for purpose for this review. The QPS and the ODPP should, as part of their own review of cases to put forward cases for further testing, analysis and interpretation, consult with victims and bring to bear their views in finalising the position of the agency. I would expect that, except in extraordinary circumstances, if no charges were laid in a case because of a lack of DNA evidential support for a complainant, the QPS would not recommend further testing, analysis or interpretation without the victim agreeing to such a course. The QPS and the ODPP have

links with victim support services to which referral can be made if necessary to assist in this process of consultation. If the government considers greater assistance is needed, more can be provided.

- Rec 13. The Queensland Government should, within 12 months, retrospectively review the following categories of cases to determine which cases or samples should be subject to further testing, analysis or interpretation:
- a. Priority 1 or Major crime cases that include a sample or samples reported as “DNA Insufficient for Further Processing” since 2018; and
 - b. Major crime cases (including cold cases) received by the laboratory since 1 January 2012 that have fallen outside the QPS-defined “hot jobs” and “major incidents” categories such that they did not receive holistic case management.
- Rec 14. The review of categories of cases should be conducted in accordance with a set of principles developed by the Queensland Government in consultation with stakeholders in the criminal justice system and made publicly available, and include the following characteristics:
- a. identification, both internally and to parties in the criminal justice system (the QPS, the ODPP or the accused person’s lawyers (or the accused person if self-represented)) as to which cases fall into the categories for which retrospective review is to be conducted;
 - b. the creation of a mechanism by which parties in the criminal justice system (the QPS, the ODPP or the accused person’s lawyers (or the accused person if self-represented)) may identify a case in which they submit further testing, analysis or interpretation should be undertaken, and provide information and reasons for that submission;
 - c. consultation with victims should be conducted in a trauma-informed way and be by the QPS and ODPP in accordance with their procedures for

- consulting with, and the providing information to, victims in criminal proceedings where appropriate, or through some other mechanism;
- d. a review of individual cases which includes consideration of:
 - i. importance of the DNA evidence that has been obtained, or may be able to be obtained, in the context of the case, the real issues and the stage which the case has reached in the criminal justice system; and
 - ii. what further testing, analysis or interpretation may be appropriate to provide valuable evidence to the criminal justice system, including considering testing not available in Queensland.
 - e. prioritisation of those cases in which prosecutions or investigations are current, and in which persons accused or convicted are in custody, and those identified by parties in the criminal justice system;
 - f. any further testing, analysis or interpretation to be conducted and results released to the QPS promptly;
 - g. involve a written explanation being provided on the Forensic Register file, and notification to the parties in the case, to indicate that the case has been reviewed, the decisions made and the reasons for those decisions.

2.3 Validations of current instruments and processes

230. Validations are essential to a laboratory which is to produce reliable results. They must be performed before any new system or process is introduced into the laboratory and confirm that it is fit for the specific purpose for which it is intended.¹¹⁹ Manufacturers or developers of instruments and systems carry out 'developmental' validations to demonstrate the performance of their systems but proper scientific process requires each laboratory intending to implement a system to validate it itself to ensure its performance,

¹¹⁹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p16.479-480.

limits of use, and proper functioning within the particular laboratory.¹²⁰ Internal validation is required by section 7.2.1.5 of ISO 17025, the international standard to which the laboratory is accredited.¹²¹

231. In the laboratory, validations have been carried out by internal staff combined into a 'project team'.¹²² Staff can indicate their interest in working on a validation or they might be asked to participate by a line manager.¹²³ The Management Team is responsible for the validation. Its members are supposed to consider, provide feedback and approve the project plan for how the validation is to be carried out as well as the final report.¹²⁴
232. Dr Duncan Taylor is an internationally recognised expert in this field who holds a Bachelor of Technology in Forensics, a Forensic and Analytical Chemistry undergraduate degree, a PhD in Biology and a PhD in Statistics. I commissioned him to review the validations of seven instruments and systems currently in use at the laboratory. His review uncovered a number of failings of experimental design and statistical analysis. Those errors mean some validations that are currently relied upon by the laboratory are not reliable and must be re-done.
233. Two of the validations, the cleaning protocol for bone crusher vials and the Hamilton STARlet instruments' validation reports, were considered sound with no evidence of unreliable results.¹²⁵

¹²⁰ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p16.484.

¹²¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [88].

¹²² Exhibit 190.24, Statement of Alanna Darmanin, 21 October 2022, [41].

¹²³ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [100].

¹²⁴ Exhibit 190.22, 22871V17 Procedure for Change Management in Forensic DNA Analysis, 19 April 2022, ss 4.4-4.5.

¹²⁵ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p12.354-384, p14.457-458.

234. Dr Bruce Budowle and Professor Linzi Wilson-Wilde were commissioned to consider the concentration processes of the laboratory.¹²⁶ In his review, Dr Budowle found that a validation undertaken by the laboratory which set the elution volume at the extraction stage had not been carried out appropriately.¹²⁷ Professor Wilson-Wilde agreed.¹²⁸
235. Dr Rebecca Kogios and Ms Heidi Baker were commissioned to review the current operations of the laboratory. In their review they concluded that upon introducing the new 3500xL instrument the laboratory did not review the continuous applicability of the DIFP threshold and that was not acceptable practice.¹²⁹

Quantifiler Trio and Quant Studio 5

236. The Quantifiler Trio kit and Quant Studio 5 instrument are used together to provide a numerical value for the amount of DNA in a sample, called a quantitation result. The kit contains the reagents used in the process and the instrument is the machine on which the quantitation process is performed. Quant Trio was implemented in the laboratory in 2015 with a different instrument, and later with the Quant Studio 5 instrument in 2019.
237. The validations of the kit and instrument contained a number of experimental design errors and statistical analysis errors¹³⁰ and as such, certain experiments were not conducted in accordance with best practice.
238. One such error, in the experiment performed to determine the limit of detection of the machine, is a significant failing that calls into question the reliability of “No DNA detected” results reported to the QPS and the Courts. The limit of detection for quantitation is

¹²⁶ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022; Exhibit 27, Professor Linzi Wilson-Wilde, Report on concentration between 0.001 ng/μL and 0.0088 ng/μL, 7 August 2022.

¹²⁷ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, [14]-[15].

¹²⁸ Transcript, Day 3, 28 September 2022, p390.12-26.

¹²⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [96].

¹³⁰ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p7.196-199, p8.214-216, p8.238-241, p9.253-255.

ordinarily the lowest concentration of DNA a sample can have in which DNA can be detected by the instrument and kit 95% of the time.¹³¹ The laboratory's validation of Quant Trio only performed analysis of two samples of each dilution between ranges of 0.09 ng/μL and 0.001 ng/μL,¹³² all of which detected some DNA. It concluded that the limit of detection was 0.001 ng/μL.¹³³

239. The consequence of the scope of the experiment conducted is that:
- a. with only 2 samples at each dilution, it was not possible to say that DNA would be detected 95% of the time; and
 - b. without testing samples with dilutions below 0.001 ng/μL it was not possible to say that the limit of detection was not below that level.¹³⁴
240. Dr Taylor concluded that the Quant Trio validation did not find the limit of detection but, instead, set it at a level above the true limit of detection.¹³⁵
241. The limit of detection is particularly important for the laboratory's processes because it is one of the thresholds used by the laboratory to halt processing on a sample. Any sample that had a quantitation value below 0.001 ng/μL would be reported as "No DNA detected". As the limit of detection was not actually ever determined, the validation does not provide proof of the reliability of those results. There is a related question about the truth of the words used to report "No DNA detected" which was dealt with in my interim report.¹³⁶ Dr Taylor made two recommendations for further work to be done to identify

¹³¹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p32.1056-1058.

¹³² Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p32.1066-1068.

¹³³ Exhibit 89.2, Validation of Quantifiler Trio, September 2015, p40.

¹³⁴ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p32.1066-1073.

¹³⁵ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p32.1071-1072.

¹³⁶ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic And Scientific Services of Certain Evidentiary Statements, 15 September 2022.

the true limit of detection and provide information about the reliability of “No DNA detected” results:

- a. Additional testing be carried out to appropriately identify the real limit of detection. Specifically, the laboratory should test the ability to detect DNA over a range of concentrations with each step in the dilution series having 10 to 20 replicates. The limit of detection should then be set at the concentration where DNA is detected less than 95% of the time.¹³⁷
- b. If the limit of detection value is to be used as a decision threshold then, until the limit of detection is calculated appropriately, all DNA samples should be treated as though the quantitation result has exceeded the limit of detection.

242. Dr Kogios and Ms Baker also recommended that if the newly validated limit of detection is lower than 0.001 ng/μL, retrospective work be undertaken to review all samples with a quantitation value between the original and newly validated limit of detection for potential retesting.¹³⁸

243. Further issues were identified with the experimental design of the Quant Trio validation, including inadequate repeatability and reproducibility experiments.¹³⁹ The experiment testing repeatability did not provide any indication of variability in the data (such as a standard deviation¹⁴⁰) and the experiment testing reproducibility only extended to

¹³⁷ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p40.1324-1326, p82.2718-2727.

¹³⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [47 (c)].

¹³⁹ Repeatability experiments measure the amount of variation there is between results when one scientist runs them multiple times on the same day. Reproducibility experiments measures the amount of variation there is between results when the same test is run by different scientists on different days. See Transcript, Day 11, 14 October 2022, p1447.9-15.

¹⁴⁰ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p34.1143-1145. So it is unknown whether the plates performed equally with high variability or equally with low variability.

running one additional plate setup where best practice would have been at least three.¹⁴¹ This validation demonstrated the lack of experimental design expertise in the laboratory.

244. The Quant Studio 5 validation was performed comparatively to the previous instrument used (the 7500 machine) rather than against an objective value of reliability. Dr Taylor does not approve of that approach,¹⁴² and considered that acceptance criteria should be set based on absolute values rather than being relative to the performance of previous instruments, unless there is some specific requirement that two instruments perform equivalently.¹⁴³ The reason for that approach is it is more informative to say 'the Quant Studio 5 can quantify DNA at x' rather than the 'Quant Studio 5 performs better than the 7500'.
245. He also said that acceptance criteria should be set in a manner that specifies the type of testing that needs to occur,¹⁴⁴ such as 'when comparing two plates, the targets will provide a p-value of 0.05' rather than there being 'no significant difference', which is an ambiguous statement.
246. Dr Taylor also found that both validations, at times, used the wrong statistical tests for analysing the results of the experiments.¹⁴⁵
247. Dr Taylor agreed with the criticism of Rhys Parry, a reporting scientist, that a conclusion drawn from a misapplied statistical test was not correct¹⁴⁶ and that the report did not demonstrate sufficient knowledge of the amount of variability that exists in a

¹⁴¹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p36.1197-1198.

¹⁴² Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p41.1384-1387.

¹⁴³ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p80.2652-2659.

¹⁴⁴ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p80.2661-p81.2662-2673.

¹⁴⁵ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p35.1157-1158, p41.1373-1376.

¹⁴⁶ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p36.1216-p37.1223.

quantification result.¹⁴⁷ Dr Taylor concluded that, at worst, if the lack of knowledge of variability is misunderstood as meaning there is a lack of variability itself, this could lead to inaccurate decisions being made or information provided, such as how a reporting scientist identifies a profile is inconsistent with the quantification value, or how a stakeholder would interpret a 'No DNA detected' result. The Management Team of the laboratory, and in particular Ms Allen, the Managing Scientist, must bear responsibility for these significant and concerning errors in validation. Ms Allen accepted that, given the failure to test dilutions below 0.001 ng/ μ L, setting that value as the limit of detection was a basic scientific error.¹⁴⁸ Mr Howes conceded he had not turned his mind to the limit of detection,¹⁴⁹ despite approving the validations. Nor did he consider the significance of that limit to testing samples and, ultimately, to cases in the criminal justice system. One of the reporting scientists had written to Mr Howes in 2018 identifying statistical and experimental design errors in the Quant Trio validation (although not with the calculation of the limit of detection),¹⁵⁰ but Mr Howes took no action. Ms Brisotto said that she could give no reason why she hadn't realised that the limit of detection had not been properly validated, despite knowing that to validate the limit of detection you need to test samples below it.¹⁵¹

248. I find that Ms Allen did not exercise sufficient supervision and review over the validations of Quant Trio and Quant Studio 5 or ensure that properly trained scientists conducted each aspect in accordance with best practice. I find that, consistent with the approach of the laboratory to many scientific issues, there was an emphasis on speed rather than quality, so that the scientists and Management Team did not take the time to ensure the quality of the work.

¹⁴⁷ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p37.1230.

¹⁴⁸ Transcript, Day 22, 31 October 2022, p2693.11-20.

¹⁴⁹ Transcript, Day 19, 26 October 2022, p2453.8-11.

¹⁵⁰ Exhibit 67, Statement of Rhys Parry, 28 September 2022, RP-05, Attachment to email from Rhys Parry to Justin Howes on 8 March 2018 titled "Quant Trio Issues Report.doc".

¹⁵¹ Transcript, Day 16, 21 October 2022, p2005.20-39.

249. Queensland Health submitted that the project plan and the report went through the usual review process and it was the management who failed to identify issues.¹⁵² I do not disagree that the level of scrutiny applied during the endorsement process was inadequate.

Rec 15. The laboratory should within 6 months complete a full and appropriate validation to identify the true limit of detection of Quant Trio and Quant Studio 5. For Quant Trio, the validation should include testing the ability to detect DNA over a range of concentrations where each dilution series has 10 to 20 replicates to allow the limit of detection to be set at the concentration at which DNA is detected less than 95% of the time. The validation should be:

- a. performed by a scientist with formal qualifications or established expertise in both experimental design and statistics; and
- b. externally reviewed by an eminent Australian or international expert before it is implemented by the laboratory.

Rec 16. Until such time as a full and appropriate validation of the limit of detection of Quant Trio and Quant Studio 5 has been completed, the laboratory should not report any sample (P1, P2 or P3) as “No DNA detected” and all samples should be processed as though their quantitation result exceeded 0.001 ng/μL.

Rec 17. If the newly validated limit of detection is lower than 0.001 ng/μL, the laboratory should undertake a retrospective review of all samples with a quantitation value between the original limit of detection implemented from the Quant Trio validation in 2015 and newly validated limit of detection for retesting. That review should be conducted in accordance with the principles and method developed in recommendation 14.

¹⁵² Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p3.

Proflex System

250. The Proflex System (Proflex) is a thermal cycler instrument used at the amplification stage of DNA testing. It heats and cools samples to release the DNA from cells in the sample and allow it to be copied. The Proflex was validated and implemented in the laboratory in 2021.
251. Dr Taylor found a number of shortcomings in how the validation was performed and that it was not conducted in accordance with best practice.¹⁵³ *First*, it was done in isolation rather than incorporating multiple other instruments and kits, which was necessary to test the quality of the Proflex results.¹⁵⁴ *Second*, the validation did not include reconsideration of STRmix (profile interpretation software) to ensure its “Model Maker” settings were still appropriate¹⁵⁵ and to find trends in data which might be attributed to the Proflex instrument.¹⁵⁶ *Third*, the number and lack of variation of samples which were processed was not appropriate. *Fourth*, the grouping of all Proflex instruments in considering Model Maker parameters in post-validation work without testing whether the individual instruments were performing comparably.¹⁵⁷
252. Those errors meant that the validation did not prove that the results of DNA interpretation of samples processed by the Proflexes were reliable or unreliable. Dr Taylor concluded that there is a risk of unreliable results being produced and reported as likelihood ratios¹⁵⁸ as there was some superficial evidence that the Proflex instruments may be performing at different levels.¹⁵⁹

¹⁵³ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p72.2363-2364.

¹⁵⁴ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p67.2216-p68.2229, p72.2365-2369.

¹⁵⁵ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p70.2303-2305.

¹⁵⁶ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p72.2365-2369.

¹⁵⁷ Transcript, Day 11, 14 October 2022, p1450.40-p1451.6.

¹⁵⁸ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p72.2382-2384.

¹⁵⁹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p71.2339-2340.

253. The STRmix Model Maker settings were identified by the laboratory post-validation but had not been implemented by October 2022 because of an error made in the experiment. The laboratory was still using settings based upon the previous instrument.¹⁶⁰ Dr Taylor considered the results of samples processed on the Proflexes should not be relied upon until the STRmix Model Maker settings had been set by reference to the Proflex machines treated as a group as an interim measure.
254. In the longer term, to ensure the reliability of DNA interpretation results reported to QPS and the Courts, Dr Taylor recommended that further work be done to identify the differences in performance of each individual Proflex instrument.¹⁶¹
255. Again, the Management Team and Ms Allen must bear responsibility for the significant failings in this validation. A reporting scientist and a senior reporting scientist raised their concerns about not identifying Model Maker settings in the validation with Mr Howes,¹⁶² and were ignored. The Management Team signed off on the project plan and the report without reference to the significant errors that could affect reliability of results. As with the Quant Trio and the Quant Studio 5 validations, the Proflex validation was undertaken by analytical scientists who either did not have adequate understanding of the importance and downstream implications of the testing they were carrying out (specifically the limit of detection and Model Maker parameters) or did not appropriately apply their understanding to the validation design.

Rec 18. The laboratory should promptly perform testing to identify the Model Maker parameters for the Proflex instruments, initially in a pooled manner, to compare to the 9700 instruments and adopt into STRmix, in accordance with the report of Dr Duncan Taylor. Until that testing has been performed, the laboratory should

¹⁶⁰ Transcript, Day 9, 12 October 2022, p1234.39-42.

¹⁶¹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p82.2706-2709.

¹⁶² Exhibit 73, Statement of Emma Caunt, 7 October 2022, [47]; Exhibit 78, Statement of Kylie Rika, 6 October 2022, KR-04, Email chain between Kylie Rika and Justin Howes dated 13 April 2021; KR-04-1, Email chain between Kylie Rika and Justin Howes dated 7 April 2021.

not report any result for a sample that has been processed using the Proflex machines.

- Rec 19. The laboratory should, within 6 months, perform extra work on the Proflex validation to identify the differences between each Proflex instrument. Specifically, a DNA dilution series leading to DNA profiles that cover the full dynamic range of the 3500xL instruments should be created and profiles generated on each of the Proflex instruments. This dilution series should consist of at least 5 different references and total at least 50 samples. The generation of Model Maker parameters should occur for each instrument and experimentation comparing the likelihood ratios resulting from Hp and Hd true tests on constructed mixtures should be carried out. If performance of all instruments is similar (based on the alignment of Hp and Hd true likelihood ratios to some defined level) then the individual Proflex datasets can be combined into a single dataset and analysed in Model Maker to obtain STRmix settings.

Elution volume

256. To extract DNA a sample is submerged in a solution and the DNA is pulled from the cells into the solution. The laboratory uses the DNA IQ System to manually isolate and purify DNA from samples. The final extraction volume is 100µL.¹⁶³
257. A review of the laboratory's concentration practices by Dr Bruce Budowle found that this final elution volume differs from other laboratories' final extraction volumes, which range from 35µL to 50µL.¹⁶⁴ The benefit of a smaller elution volume is that the initial sample is more concentrated so that fewer samples will fall below quantitation thresholds such as DIFP and No DNA.¹⁶⁵ Also, there are fewer occasions when microconcentration is needed.

¹⁶³ Exhibit 241.65, Phase 1 Report- Verification of Promega DNA IQ for the Maxwell 16, undated, p4, p8.

¹⁶⁴ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, [12]. Professor Linzi Wilson-Wilde notes her laboratory in South Australia utilises a 65µL elution volume.

¹⁶⁵ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, [14]; Transcript, Day 3, 28 October 2022, p391.14-19.

258. The 100µL volume was implemented following a verification study of the Promega DNA IQ for the Maxwell 16.¹⁶⁶ In this study, two types of samples were tested with elution volumes of 50µL. One of these resulted in a low yield. The procedure was then modified in two ways:
- a. To add a chemical to the initial extraction stage; and
 - b. To increase the elution volume to 100µL.¹⁶⁷
259. Dr Budowle concluded that this was poor experimental design because two changes were made at the same time. If results change, the change that has been the cause cannot be identified.¹⁶⁸ Mr Howes agreed with this conclusion and agreed that it was part of his role as an endorser to have identified this issue.¹⁶⁹ The error was a basic scientific error that could have been identified by a competent forensic biologist who read the report carefully. Dr Budowle also found that the study had inadequate repeatability and reproducibility experiments.¹⁷⁰
260. Dr Budowle stated that he would have checked the original volumes¹⁷¹ and undertaken the repeatability and reproducibility tests prior to changing the elution volume,¹⁷² particularly given that other laboratories use such different elution volumes.¹⁷³
261. Given the issues identified in the study and the inconsistency with other laboratories, Dr Budowle concluded that there was a strong indication that this validation study was not sufficient to support the outcome of the 100µL elution volume.¹⁷⁴

¹⁶⁶ Exhibit 241.65, Phase 1 Report- Verification of Promega DNA IQ™ for the Maxwell 16, undated.

¹⁶⁷ Transcript, Day 5, 30 September 2022, p590.29-p591.1.

¹⁶⁸ Transcript, Day 5, 30 September 2022, p591.1-8, p591.45-p592.1-4.

¹⁶⁹ Transcript, Day 19, 26 October 2022, p2454.3-19.

¹⁷⁰ Transcript, Day 5, 30 September 2022, p592.11-20.

¹⁷¹ Transcript, Day 5, 30 September 2022, p591.29-33.

¹⁷² Transcript, Day 5, 30 September 2022, p592.6-18.

¹⁷³ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, p6. The DNA IQ System protocols by the Virginia Department of Forensic Science elute DNA in volumes less than 50 µL.

¹⁷⁴ Transcript, Day 5, 30 September 2022, p592.32-37.

262. Professor Linzi Wilson-Wilde agreed with Dr Budowle's conclusions. She also identified the disadvantage of concentrating samples after initial elution: additional cost and limited ability to automate. If a lower elution volume was used, the laboratory would have significantly less need to perform concentration.¹⁷⁵
263. The verification for DNA IQ for Maxwell in 2011 failed to investigate adequately whether a lower elution volume could be used, with the possible consequence that an unnecessarily high elution volume has been used and there has been over-use of concentration methods and greater loss of potential evidence given the decision not to test samples with a concentration below 0.0088ng/μL. This was not conducted in accordance with best practice.
264. Dr Kogios and Ms Baker noted that for both the automatic extraction kit (DNA Investigator) and the manual system (DNA IQ), publications validating the extraction methods utilised less than 100μL elution volumes.¹⁷⁶ Specifically, they noted that the elution volume used at the laboratory was optimised for samples with high quantities of DNA (which would yield good results with a large elution volume), but were not in line with manufacturer or external validations for lower quality samples.¹⁷⁷
265. They recommended that consideration be given to revalidate the extraction procedure in line with the approach followed by the manufacturer and published data.¹⁷⁸ Concentration can then be undertaken if the quantification indicates low levels of DNA, but this should be done at the discretion of a reporting scientist.¹⁷⁹

¹⁷⁵ Exhibit 27, Professor Linzi Wilson-Wilde, Opinion as to appropriateness of process by which scientists are not performing micro-concentration where quantification is between 0.001 ng/μL and 0.0088 ng/μL, 7 August 2022, p2-3.

¹⁷⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [93].

¹⁷⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [93].

¹⁷⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [93].

¹⁷⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [93].

Rec 20. The laboratory should reconsider the DNA IQ and DNA Investigator validations to investigate the use of a lower elution volume. The consideration should include experiments to attempt to validate a number of lower elution volumes than that currently used by the laboratory.

3500xL DIFP reassessment

266. In 2021, the laboratory implemented the 3500xL Genetic Analyser instrument for routine casework. The findings in the internal validation indicated that the instrument may be more sensitive than the previous instrument, the 3130xL.¹⁸⁰ That meant the electropherogram produced by the instrument would be likely to include more peaks and higher peaks than the previous instrument because it could pick up smaller amounts of DNA.
267. The indication of an increased sensitivity also meant that there should have been a reconsideration of the quantitation range for DIFP samples, because the later instruments could generate profiles from samples with much less DNA.
268. Dr Kogios and Baker considered the lack of review of the quantitation threshold upon the introduction of the 3500 was not acceptable practice, particularly given the laboratory's use of the threshold to cease processing samples.¹⁸¹
269. Senior Scientist Kylie Rika, who worked on the implementation of the 3500xL, had warned that there should be such a reconsideration. The Management Team decided that her proposition was not relevant to implementation and told her to put it in the post-implementation plan.¹⁸² On 11 January 2021, Ms Rika provided the Management Team with an Implementation Plan which specifically recommended that a review of the

¹⁸⁰ Exhibit 72, Statement of Emma Caunt, 16 September 2022, [25].

¹⁸¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [96].

¹⁸² Transcript, Day 2, 27 September 2022, p151.14-21.

quantitation range for DIFP samples be undertaken post-implementation.¹⁸³ This implementation plan was accepted by the Management Team but no review was ever done.

270. There was no reassessment of the DIFP quantitation range despite its necessity given the increased sensitivity of the instrument and scientists raising concerns on 11 November 2021,¹⁸⁴ 10 February 2022,¹⁸⁵ 29 April 2021,¹⁸⁶ 11 July 2022, 18 August 2022¹⁸⁷ and 1 September 2022¹⁸⁸ to both senior managers and the Executive Director.
271. Mr Howes, whose responsibility it was to undertake the reassessment as recommended in the Implementation Plan, said he delayed because he wanted a years' worth of data.¹⁸⁹ He stated that when tasked to review data in March 2022 from the last four years, it was a good time to begin this reassessment for the 3500xL as well.¹⁹⁰ I do not accept that excuse. Indeed, Mr Howes acknowledged that a review could have been undertaken in December 2020 with standardised samples.¹⁹¹ In my view, it should have been done much earlier than that but, apart from showing yet another failure in management, the point is moot because the whole DIFP idea was wrong.

Statistical analysis errors

272. Dr Taylor identified multiple validation reports which had inappropriate statistical analysis. That affects five different validation reports in relation to the 3500xL capillary

¹⁸³ Exhibit 145, Statement of Justin Howes, 16 August 2022, JH-34, Implementation Plan for 3500xL PowerPlex 21 Casework.

¹⁸⁴ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [27].

¹⁸⁵ Exhibit 2, Statement of Kylie Rika, 16 September 2022, KR-12, Email chain between Justin Howes and Kylie Rika dated 10 February 2022.

¹⁸⁶ Exhibit 24, Statement of Lara Keller, 20 September 2022, LK-11.1, Email from Alicia Quartermain to Justin Howes, 29 April 2021.

¹⁸⁷ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [28].

¹⁸⁸ Exhibit 2, Statement of Kylie Rika, 16 September 2022, KR-14, Email chain between Kylie Rika and Lara Keller, 7 September 2022.

¹⁸⁹ Transcript, Day 19, 26 October 2022, p2396.28-37.

¹⁹⁰ Transcript, Day 19, 26 October 2022, p2397.24-27.

¹⁹¹ Transcript, Day 19, 26 October 2022, p2421.20-26.

electrophoresis instrument (the machine that creates the electropherogram)¹⁹² and two validation reports for the QIASymphony instrument used for DNA extraction and purification.¹⁹³ Due to these issues, there were aspects of the reports that were not conducted in accordance with best practice.

273. These issues reveal a concerning lack of statistical expertise in the laboratory but do not raise a concern about the reliability of the DNA results produced or affected by the instrument or process. One reporting scientist with specific qualifications in statistics noted that he was rarely called upon to assist with experiment design or validations.¹⁹⁴ Again, the Management Team signed off on the project plans and the reports without reference to these errors.

274. I accept Dr Taylor's recommendations that the Standard Operating procedure for validations be amended to include information about what statistical tests to use and when,¹⁹⁵ and that a person with formal statistical training or qualifications be involved in all validations at the laboratory.¹⁹⁶

Rec 21. The laboratory should amend or create standard operating procedures for the performance of validations to include:

- a. the types of statistical tests that are applicable to and/or required for validations, including explanations, examples and limitations of any tests, and methods to graphically display results;

¹⁹² Exhibit 89.9, Verification of 3500xL B, January 2016; Exhibit 89.10, Validation of 3500xL Analysis of Casework PowerPlex21 WEN, June 2016; Exhibit 89.6, 3500xL Genetic Analyzer Validation for Reference samples Amplified with Powerplex21 using Direct Amplification, February 2015; Exhibit 89.7, 3500xL Genetic Analyzer for Extracted Reference Samples Amplified with PowerPlex21 Forensic DNA Analysis, June 2015; Exhibit 89.8, 3500 Genetic Analyzer Validation for Casework Samples Amplified with PowerPlex21 Forensic DNA Analysis, September 2015.

¹⁹³ Exhibit 89.18, Validation of the QIASymphony SP/AS Modules, November 2016; Exhibit 89.19, Validation of QIASymphony SP for bone extraction, April 2018.

¹⁹⁴ Transcript, Day 9, 12 October 2022, p1156.10.

¹⁹⁵ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p80.2632-2650.

¹⁹⁶ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p81.2675-2684.

- b. a requirement for acceptance criteria in validations to be based on absolute values rather than being relative to the performance of previous instruments;
- c. a requirement that acceptance criteria be set in a manner that specifies the type of testing that needs to occur in each validation to avoid ambiguity on how to measure its success, which should be devised by a professional statistician; and
- d. appropriate timeframes for the performance of validations.

Rec 22. The laboratory should carry out additional statistical work in relation to the validation reports for the 3500xL and QIASymphony instruments to address the issues raised in sections 6.1, 6.2, 6.4, 6.5, 6.6, 12.0 and 13.0 of Dr Duncan Taylor's report.

Best practice validations

275. Dr Taylor identified a number of general recommendations that would improve the way validations are performed by the laboratory. It was recommended that at least one person signing off the validation reports be external to the laboratory carrying out the validation. This would ensure consistency between laboratories.¹⁹⁷ As an assurance to stakeholders and staff that valuations align with best practice guidelines, he recommended that validations include some reference to which general validation guideline is being followed.¹⁹⁸ He also recommended that following the completion of any validation a presentation should be given to all laboratory staff explaining the tests completed and the meaning of the results to address any lack of understanding scientists have around the statements made in their own reports regarding the instruments' performance.¹⁹⁹

¹⁹⁷ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p80.2661-p81.2700-2703.

¹⁹⁸ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p82.2742-2748-p83.2749-2772.

¹⁹⁹ Exhibit 66, Dr Duncan Taylor, Review of the validation material from the Queensland Health Forensic and Scientific Services (QH), 7 October 2022, p83.2774-2779.

276. Dr Kogios and Ms Baker also found that that the lack of a Research, Development and Innovation capability appeared to have affected the laboratory's ability to operationalise new capabilities in a timely way and recommended investment in this capability.²⁰⁰ Further recommendations relating to this capability and its effects on validations can be found in Section 2.7, Quality management and oversight.

- Rec 23. The laboratory should amend its standard operating procedures related to validations to require that:
- a. when statistical analysis is required, an individual with formal training or qualifications in statistics should be involved in the validation team;
 - b. at least one person external to the laboratory should review, and approve the validation as having been performed in accordance with best practice, before the validation may be approved by the Management Team or implemented;
 - c. validation reports include reference to which general validation guideline is being followed (for example the Scientific Working Group on DNA Analysis Methods Validation Guidelines for DNA Analysis Methods) or which published study of a similar validation has been considered, and how it complies with that guideline or compares with the published study; and
 - d. at the completion of a validation, a presentation should be given to all laboratory staff to explain the work that was undertaken, the tests carried out and the meaning of the test results.

Half volume amplifications

277. Issues were also identified with a validation undertaken almost a decade ago, and while no longer relevant to the current operation of the lab, it existed at the time of Shandee Blackburn's case samples being processed through the laboratory.

²⁰⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [252].

278. In December 2012, the PowerPlex 21 amplification kit was validated and implemented for use in the laboratory.²⁰¹ The project involved validating both full and half volume amplifications²⁰² but ultimately recommended that half volume amplifications be the default as a cost saving measure.²⁰³
279. Prior to its implementation, Ms Caunt, Reporting Scientist, remembers telling Ms Brisotto that she did not believe half volume amplifications should be implemented because of the problems it caused with interpretations.²⁰⁴ Ms Brisotto does not remember such a conversation.²⁰⁵ The validation of half volume amplifications was part of a report endorsed by the Management Team, which included Ms Brisotto and Ms Caunt.²⁰⁶ In any case, Ms Caunt's concern did eventuate after the implementation of half volume amplifications, as reporting scientists began seeing significant stochastic variation and allelic drop out, making reporting more difficult and time consuming.²⁰⁷
280. Shortly after its implementation, half volume amplifications were ceased and on 22 February 2013, Mr Howes recorded in the Minor Change register that the laboratory had re-implemented full volume amplifications for routine analysis.²⁰⁸
281. While the issues with half volume amplifications were relatively quickly addressed after they were implemented, they were implemented as a cost saving measure and the decision led to difficulties with interpretation and ultimately, a reversion to full volume in February 2013.

²⁰¹ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-47, PowerPlex21– Amplification of Extracted DNA Validation.

²⁰² Exhibit 73, Statement of Emma Caunt, 6 October 2022, [76], A full volume amplification involved adding 15µL of sample to the amplification reaction, whereas a half volume involved adding 7.5µL, which required less reagents.

²⁰³ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-47, PowerPlex21 – Amplification of Extracted DNA Validation; Transcript, Day 16, 21 October 2022, p81.35-38.

²⁰⁴ Exhibit 73, Statement of Emma Caunt, 6 October 2022, [77].

²⁰⁵ Transcript, Day 16, 21 October 2022, p2003.14-19.

²⁰⁶ Exhibit 114, Statement of Paula Brisotto, 18 October 2022, PB-149, Final Report for Project #107.

²⁰⁷ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [37].

²⁰⁸ Exhibit 114, Statement of Paula Brisotto, 18 October 2022, [98].

282. Further analysis of the validation of PowerPlex 21 in 2012 is included in Chapter 6, DNA evidence in the Shandee Blackburn case.

2.4 Technical aspects

QHFSS Toolkit

283. A 'toolkit' refers to the available DNA profiling techniques within a laboratory. Queensland's toolkit allows for standard DNA profiling only. The laboratory is limited in its operations by the absence of several common capabilities, including:

- a. Y-STR testing;
- b. DNA mixture matching;
- c. enhanced detection methods (including Low Template DNA Analysis);
- d. optimised testing for degraded and/or inhibited samples (including AmpFISTR MiniFiler); and
- e. the ability to interpret 5-person plus mixtures.²⁰⁹

284. Y-STR testing is considered best practice. The laboratory has failed to meet this. The resulting loss of opportunity to obtain DNA evidence caused by this failure is substantial. This is discussed in Section 2.5, Sexual assault casework.

285. Ms Allen gave evidence that the laboratory has not sought accreditation for Mitochondrial DNA, low copy number DNA and interpretation of greater than 4-person mixed DNA profiles because of the financial costs and difficulty in maintaining the accreditation and necessary competency for a small number of samples annually.²¹⁰ Dr Duncan Taylor gave evidence of laboratories validating STRmix for use on five-person

²⁰⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [74].

²¹⁰ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [75].

mixtures more regularly due to its increased simplicity and coding efficiency.²¹¹ He said that while originally computing power put 5 person mixtures out of the reach of some laboratories, they could now be dealt with within STRmix with an ordinary desktop computer.²¹²

286. Dr Kogios and Ms Baker stated that the absence of dedicated research development and innovation capabilities make it difficult for a laboratory to maintain a suitably extensive suite of contemporary forensic capabilities and monitor developments.²¹³ This has the inevitable consequence of risking falling below best practice. That risk has been realised in several areas.

287. In circumstances where other testing methods exist but are not available internally, it is incumbent upon the laboratory to consider the forensic benefit of outsourcing samples, in circumstances where the result of external testing is likely to produce a more probative evidence than available through methods in the Queensland laboratory alone.²¹⁴ The laboratory provided the following figures indicating the number of samples sent to external laboratories for testing each year:²¹⁵

Year	No. of samples outsourced
2017	19
2018	30
2019	80

²¹¹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p35.1123-1130.

²¹² Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p35.1123-1130.

²¹³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [76].

²¹⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [80].

²¹⁵ Exhibit 214.6, List of samples sent away for further testing, undated.

2020	39
2021	12
2022	78

288. Ms Baker and Dr Kogios considered the laboratory outsourced samples “sparingly”.²¹⁶
289. Decisions to outsource are considered, made and arranged by the QPS.²¹⁷ While Dr Kogios opined that this is not necessarily problematic, QPS must be equipped with sufficient information, including scientific information known to the DNA scientist, in order to make an informed decision.²¹⁸ To achieve this, the laboratory must advise the QPS on outsourcing options and the benefits and risks based on the scientific factors particular to a sample. The limited outsourcing rates suggest this does not happen. Ms Allen did not know whether scientists turned their mind to consider whether a sample would benefit from a different testing process available at other laboratories around Australia.²¹⁹
290. The laboratory has failed to send, or advise QPS to send, all appropriate samples to other laboratories for testing by means of techniques not available in the Queensland laboratory, including Y-STR, DNA mixture matching, Low Template DNA Analysis methods, Minifiler testing or 5+ person mixture.²²⁰ The laboratory has not operated in accordance with best practice in this respect. These failures could have resulted in loss of sample, loss of opportunity to obtain all forensic evidence from a case and miscarriages of justice.

²¹⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [80]; Transcript, Day 23, 1 November 2022, 2890.22-29.

²¹⁷ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [126]-[129].

²¹⁸ Transcript, Day 23, 1 November 2022, p2895.6-2896.4.

²¹⁹ Transcript, Day 22, 31 October 2022, p2769.5-34.

²²⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [80].

291. The limitations of the Queensland laboratory's technical toolbox are potentially of most significant consequence for those who have been sexually assaulted.²²¹ This is discussed in Section 2.5, Sexual assault casework.

Rec 24. The laboratory should amend its standard operating procedures within 3 months to require scientists to consider the appropriateness of external testing of samples at all stages of testing and reporting, taking into account case context and results obtained by the laboratory, and proactively advise QPS about the scientific benefits of outsourcing testing where relevant.

Facilities and contamination management

292. Dr Kogios and Ms Baker found that the laboratory environment and facilities are well designed and fit-for-purpose.²²² They are consistent with the requirements of ISO 17025.²²³ However, there is no biohazard safety cabinets installed in the Evidence Recovery area. While the laboratory has two biohazard safety cabinet installed within the Analytical Laboratory, examination of large items is within the scope of Evidence Recovery work²²⁴ and suitable facilities must therefore be provided within the designated area. The laboratory has failed to do so. This was raised in an internal audit in 2021.²²⁵ It should be rectified.

Rec 25. The laboratory should consider installing a certified biohazard safety cabinet within the Evidence Recovery area.

²²¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [77].

²²² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [115].

²²³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(a)], [115].

²²⁴ Albeit this type of work is not undertaken frequently at the laboratory.

²²⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [115].

293. Contamination risk management within the laboratory is broadly within the range of accepted practice.²²⁶ Contamination risk management and detection is achieved through a range of factors including suitable standard operating procedures, automated processing, the use of positive controls, staff elimination databases and environmental monitoring.²²⁷ However, Dr Kogios and Ms Baker found that several areas have fallen below best practice.
294. *First*, the laboratory's procedure in relation to extraction negative controls does not comply with ISO 17025 Specific Accreditation Criteria section 7.7.1.²²⁸ Best practice requires extraction negative controls (reagent blanks) to be routinely processed with samples, including where samples undergo further processing following an original procedure. The laboratory does not process extraction negative controls with samples undergoing upgrade or concentration. While there can be sound reasons to deviate from best practice processing (such as the exhaustion of the original negative control), workflow inefficiency is not an acceptable ground.²²⁹ Although the failure to detect contamination through the absence of full processing of negative controls is low, if it eventuates, a failure could have serious consequences for a criminal investigation.²³⁰ This issue was the subject of an interim memorandum delivered by Dr Kogios and Ms Baker, which proposed prompt action be taken.²³¹ I agree with the findings of Dr Kogios and Ms Baker. The process falls below best practice and carries substantial risk. It must be rectified as a matter of urgency.

²²⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [116].

²²⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(d)-(g)].

²²⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [116].

²²⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [117].

²³⁰ For example, a person could be incorrectly excluded as the source of the biological material if a differing (contaminant) profile is detected in the case sample. Alternatively, if this contaminant profile relates to a different case sample, the (contaminant) profile could be loaded to the database and provide an erroneous link to the QPS.

²³¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, Appendix 7.

295. *Second*, the laboratory has failed to process high yield and low yield items in separate examination and batching areas. Separating items based on yield likelihood is necessary to safeguard against within-laboratory contamination.²³²
296. *Third*, the laboratory has failed to utilise the scraping method for DNA recovery in item examination. Other suitable methods exist for recovery of biological material. These are preferable from a health and safety and contamination minimisation perspective.²³³
297. *Fourth*, the laboratory has failed to comply with ISO 17025 Specific Accreditation Criteria section 6.3.4 by failing to sufficiently record access to the Forensic DNA Unit or Property Point. This is imperative to ensure that contamination can be investigated effectively. Although visitors are recorded when entering the FSS premises, there is no specific records of entry to the Forensic DNA Unit or Property Point.²³⁴
298. The laboratory has reported an observed reduction in well volume post-PCR amplification in wells A01, A012, H01 and H012 on a Proflex instrument. Dr Kogios and Ms Baker stated that reduction in sample volume post PCR is not unique to this laboratory and is likely caused by evaporation events relating to the well plate seal.²³⁵ The laboratory has advised that a new amplification plate mount for the automated plate sealers has been ordered to improve the sealing on the PCR plates.²³⁶ Dr Kogios and Ms Baker found that the approach taken by the laboratory in relation to reduced volume post PCR to be broadly acceptable. However, it is recommended that in the event of continued reduction in well volume post-PCR amplification, the Proflex instrument be removed from processing and

²³² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(i)].

²³³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(j)].

²³⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(k)].

²³⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [113].

²³⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [109(m)].

cleaned.²³⁷ Should the reduction continue, an investigation should be undertaken to consider the risks of continued use of wells A01, A012, H01 and H012.

- Rec 26. The laboratory should review its extraction negative control procedures within 3 months to require negative controls to undergo the same testing as the corresponding case sample (including further work), at the same time, unless the sample has been exhausted.
- Rec 27. The laboratory should amend its standard operating procedure to require the separation of likely high yield and likely low yield items in the Evidence Recovery area.
- Rec 28. The laboratory should complete a project investigating alternate procedures to the scraping method for recovery of biological material and adopt the most effective procedure.
- Rec 29. The laboratory and the QPS should amend their procedures so that all visitors to the DNA Analysis Unit and FSS Property Point and their time of entry are recorded, in addition to the check-in that is already completed at the general entry to FSS. Such records should be kept and accessible to the quality management team if required.
- Rec 30. In the event that reduction in well volume post-PCR amplification continues to occur in wells A01, A012, H01, H012 on the Proflex instrument, the laboratory must cease use of the instrument until such time as a full clean of the instrument has been undertaken, which should be done within one week of cessation. If the reduction in well volume post-PCR amplification continues after full cleaning, the laboratory should conduct an investigation, either internally or by external forensic service providers as to whether those wells should continue to be used and the associated risks and benefits.

²³⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [121].

DNA Interpretation

299. DNA interpretation is undertaken in the laboratory by reporting scientists using the assistance of software. First, the GeneMapper ID-X Software performs the first genotyping and plate reading of a DNA result. Then, an authorised scientist from the Analytical or Reporting Team performs a second genotyping and plate reading of the result. The sample profile is then classified as ‘simple’, ‘mixed’ or ‘complex’ and allocated to a worklist for a reporting scientist to interpret.²³⁸ A reporting scientist will then assess the profile for suitability to carry out a STRmix analysis. STRmix is a software program which analyses DNA profiles by employing statistical and biological models referred to as ‘probabilistic genotyping’.²³⁹ Following this process, a reviewing scientist is then allocated to review the interpretations of the first reporting scientist. The laboratory’s DNA interpretation procedures broadly fall within the range of best practice.²⁴⁰ However, several areas do not. These are discussed below.

Use of STRmix software in DNA interpretation

300. The general workflow that should be adopted when analysing DNA profiles using STRmix and comparing reference profiles is:

- a. a reporting scientist assesses the DNA profile for suitability to carry out a STRmix analysis;
- b. the reporting scientist assigns a number of contributors to the DNA profile;
- c. the reporting scientist assesses the case circumstances to determine whether any assumptions can, or should, be made about DNA contribution;
- d. STRmix analyses the DNA profile in a process called ‘deconvolution’;

²³⁸ Including interpreting peaks, determining number of contributors, comparison to reference samples (if appropriate) and likelihood ratio calculations.

²³⁹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p13.417.

²⁴⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [129].

- e. the reporting scientist assesses the deconvolution results to ensure that the analysis has completed successfully;
- f. using the case circumstances, the reporting scientist sets up an appropriate analysis that compares any available reference DNA profile(s) to the deconvoluted evidence sample to produce a likelihood ratio; and
- g. the reporting scientist assesses the likelihood ratio produced by STRmix to ensure the analysis has completed successfully.²⁴¹

301. I engaged Dr Duncan Taylor to conduct a review of the laboratory's use of STRmix and to provide an opinion as to whether that use is consistent with best practice and to what extent, if any, any deficiency in the current use could have or did have an effect on reliability or accuracy of results. Dr Taylor has extensive knowledge of STRmix, having contributed to its technical development. He has had 17 years of experience working in a forensic DNA laboratory.

302. Dr Taylor found that the use of STRmix in the laboratory is largely within the range of current best practice and is generally expected to lead to reliable and accurate outcomes.²⁴² However, the laboratory's practice regarding the assignment of the number of contributors in a DNA profile presents a risk of systemic overestimation that falls below best practice.²⁴³ Dr Taylor also identified several areas of inconsistency or non-optimal practice and made recommendations to rectify these accordingly. He concluded that clearer guidance should be provided to reporting scientists regarding the standard practice for certain topics of interpretation and recommended enhancements to the laboratory's use of STRmix.

²⁴¹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p13.415-14.429.

²⁴² Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p10.310-313.

²⁴³ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p7.174-182.

Number of contributors

303. STRmix requires a scientist to indicate the number of contributors in a DNA profile. When considering crime scene samples, the ‘true’ number of contributors in a sample is always unknown and unknowable. A reporting scientist is required to use knowledge, experience and expertise to provide the best estimate of the number of contributors based on the DNA profile and valid assumptions based on case and sample circumstances. Two factors that may complicate the assignment of the number of contributors in a profile:
- a. peak height variability (being a stochastic effect which results in the alleles from a single individual being unbalanced); and
 - b. stutter (an inevitable DNA replication error that occurs during PCR amplification where DNA strands move during copying).
304. Scientists may reasonably differ in their opinion of the number of contributors to a profile in some cases.²⁴⁴ Other profiles may result in only one reasonable interpretation.²⁴⁵ The risks of incorrect assignment of the number of contributors in a DNA profile include²⁴⁶ potential false inclusions²⁴⁷ and false exclusions.²⁴⁸ The usual practice when interpreting DNA profiles is to assign the minimum number of contributors that can reasonably explain the evidence in the profile, to prevent incorrect support for the inclusion of a non-contributor.²⁴⁹ Incorrectly assigning the number of contributors generally has a mild impact on the likelihood ratios produced by the statistical analysis but can have significant implications for how the findings are viewed in the context of the cases.²⁵⁰ In particular, overestimation of contributors can be highly significant in sexual assault cases. The risks

²⁴⁴ Transcript, Day 26, 25 November 2022, p3176.14-18.

²⁴⁵ Transcript, Day 26, 25 November 2022, p3180.33-38.

²⁴⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [125].

²⁴⁷ For example, evidence providing support for contribution when the individual is not present.

²⁴⁸ For example, evidence providing support for non-contribution when the individual is present.

²⁴⁹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p17.565-565.

²⁵⁰ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p19.649-654.

associated with incorrectly assigning contributors in such cases is discussed in Section 2.5, Sexual assault casework.

305. Mr Parry suggested that under current laboratory processes, if there is uncertainty as to the number of contributors, it is common to add an extra contributor to the minimum number.²⁵¹ Ms Caunt gave evidence that there are differing opinions between reporting scientists on this issue.²⁵² Mr Howes stated that a ‘proof-of-concept’ change management request was initiated to address inconsistencies in the assignment of number of contributors but has not been progressed.²⁵³
306. Dr Taylor found that some passages in the standard operating procedure ‘Basics of DNA Profile Interpretation’, if applied, would lead to a systemic bias towards overestimating the number of contributors to a DNA profile. This is below best practice.²⁵⁴ He stated that conforming to the standard operating procedure as written would “very regularly” lead to a DNA profile with an additional contributor added.²⁵⁵ His view is that the standard operating procedure should not suggest an additional contributor but, rather, it should require a scientist to conduct further analytical processes (such as a re-amplification or concentration) and use expertise to decide on a case-by-case basis whether a contributor should be added.²⁵⁶ STRmix also has the ability to analyse a profile which has been identified by the scientist as having originated from two or three contributors and report a likelihood ratio based on that range of contributors.²⁵⁷ The Queensland laboratory is not currently using this functionality.
307. Dr Taylor also identified FaSTR DNA, a DNA interpretation software, as a program to assist in determining the number of contributors. FaSTR DNA is an alternative to Genemapper

²⁵¹ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [35].

²⁵² Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [13].

²⁵³ Exhibit 148, Statement of Justin Howes, 6 October 2022, [150], JH-67.

²⁵⁴ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p7.174-182.

²⁵⁵ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p32.1006.

²⁵⁶ Transcript, Day 26, 25 November 2022, p3178.10-3179.13.

²⁵⁷ Transcript, Day 26, 25 November 2022, p3179.5-13.

and has an inbuilt tool that can be trained on a laboratory's own data to assign a number of contributors to a DNA profile. The tool may assist in achieving more consistent assignments of contributors.²⁵⁸

308. During his review of 15 casefiles, Dr Taylor identified seven instances where, in his expert opinion, the DNA profile should have been reported as originating from fewer contributors than was assigned by the reporting scientist. Dr Taylor said that a larger review of cases would be required to understand the extent to which any bias in assigning contributors is occurring systemically.²⁵⁹ In some of the cases identified by Dr Taylor, the risk of overestimation has come to fruition. The laboratory failed to prevent the unsound overestimation of the number of contributors in these DNA profiles. Further, the laboratory's failure to prevent overestimation of the number of contributors in DNA profiles has created a risk of detrimental implications in sexual assault cases involving sexual assault casework.
309. Dr Taylor recommended that the laboratory review the past 12 months of sexual assault cases in which three or more contributors were identified and all currently existing sexual assault cases where three or more contributors were identified in any sample to identify whether a systemic problem exists and to prevent a miscarriage of justice in a particular case by correcting an error. This recommendation is detailed in Section 2.5, Sexual assault casework. The overestimation of contributors can also have relevance to other types of cases such as murders or burglaries, although the risk of a miscarriage of justice is not as great as with intimate swabs.²⁶⁰
310. Dr Taylor found that the overestimation of contributors largely stem from scientists strictly applying stutter thresholds in circumstances where the threshold exceedance is

²⁵⁸ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p12.382-385.

²⁵⁹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p32.1033-1042.

²⁶⁰ Transcript, Day 26, 25 November 2022, p3187.39-3188.24.

mild and there is little to no evidence of a third contributor.²⁶¹ In one case, Dr Taylor agreed that the evidence supporting the addition of a third contributor was “far from enough”.²⁶² Stutter thresholds are considered further below.

311. Dr Taylor identified the following actions that could be taken to accurately determine the number of contributors to a profile:
- a. additional laboratory work (such as rework);
 - b. use of case context;
 - c. use of sub-threshold information;
 - d. modelling stutter types in STRmix; and
 - e. using the ‘range of contributors’ feature on STRmix.²⁶³

Rec 31. The laboratory should review its standard operating procedures within 3 months to remove any wording that could lead to systemic overestimation of the number of contributors in a profile, as identified in Dr Duncan Taylor’s report, and amend its number of contributor guidelines to adopt a conservative approach based on best practice.

Rec 32. The laboratory should consider:

- a. the validation and consistent use of the variable number of contributors feature in STRmix to assist in the interpretation of profiles where a single number of contributors cannot be assigned; and
- b. the validation and use of FaSTR DNA to assign the number of contributors to a profile.

²⁶¹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p9.255; Transcript, Day 26, 25 November 2022, p3184.26-43.

²⁶² Transcript, Day 26, 25 November 2022, p3184.41-43.

²⁶³ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, pp17.574-19.644.

Rec 33. The laboratory should review its wording of results in both the Forensic Register and formal witness statements to adequately explain the way the number of contributors was arrived at by the reporting scientist, and the strength of the evidence available to add a contributor.

312. Dr Taylor also recommended that the laboratory consider encouraging the use of the Forensic Register to report why the specific number of contributors has been chosen for a case.²⁶⁴ This is consistent with Dr Kogios and Ms Baker’s recommendations relating to the recording of decisions in the Forensic Register and transparent reporting (discussed in Section 8.3, Reporting in Witness Statements).²⁶⁵

Stutter interpretation

313. Stutter produces peaks immediately before or after a real peak. Stutter peaks do not indicate the true presence of DNA. They occur at known positions and at expected heights. Stutter is assessed during DNA interpretation by both STRmix and the reporting scientist. STRmix uses a built-in variance for stutter, whereby the instrument calculates a stutter threshold height to determine whether a peak is stutter or allelic. Reporting scientists then apply mathematical thresholds and some discretion to determine stutter peaks. Stutter peaks can appear before or after an allelic peak. Stutter types include back stutter (-1 repeat), forward stutter (+1 repeat), double-back stutter (-2 repeat)²⁶⁶ and ‘combined stutter’ (where a back stutter of one allelic peak is in the same position as forward stutter of another allelic peak).²⁶⁷

314. In July 2021, a number of scientists produced ‘Single Source High Stutter Guidelines’ which stated that in all instances the presence of one or two high stutters did not support an increased number of contributors in the DNA profile. The guidelines were added to

²⁶⁴ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p57.1808-1810.

²⁶⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [126(e)].

²⁶⁶ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [3]-[7].

²⁶⁷ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [9].

standard operating procedure 17117 'Procedure for Case Management'.²⁶⁸ Dr Taylor endorsed these guidelines and recommended that they apply not only to single source profiles with high stutters, but to any complexity of mixture.²⁶⁹

315. Dr Kogios and Ms Baker reported a lack of consistency in relation to stutter interpretation. They also found several inaccuracies in the standard operating procedure on DNA interpretation, including:

- a. stating that STRmix cannot model -2 repeat stutter peaks;²⁷⁰ and
- b. statements made about +1 repeat stutter and composite stutter.²⁷¹

316. The laboratory's standard operating procedure on DNA interpretation fails to meet best practice in circumstances where there are inaccuracies within section 16 and inconsistencies in the reporting of stutter. These inaccuracies should be corrected.

317. Mr Howes gave evidence that differences of opinion had arisen between staff regarding the interpretation and consideration of 'combined' or 'cumulative' stutter.²⁷² Ms Rika raised her concern about the differences of opinion and possible reduction in consistency of interpretation with Mr Howes by email in June 2020. After some negotiations, Mr Howes instructed Ms Caunt to update the standard operating procedures and training material accordingly.²⁷³ Senior-level conversations ensued between Mr Howes, Ms Rika, Ms Johnstone and Ms Lloyd about a suitable procedure, however, disagreement persisted.²⁷⁴ There is no evidence to suggest the diverging views on combined stutter have been resolved. Mr Howes gave evidence of a breakdown in discussion and

²⁶⁸ Exhibit 148, Statement of Justin Howes, 6 October 2022, [147].

²⁶⁹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p10.294-306.

²⁷⁰ STRmix has held this capability since version 2.6.

²⁷¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [126(h)].

²⁷² Exhibit 148, Statement of Justin Howes, 6 October 2022, [154].

²⁷³ Exhibit 148, Statement of Justin Howes, 6 October 2022, JH-70, JH-71.

²⁷⁴ Exhibit 148, Statement of Justin Howes, 6 October 2022, JH-72.

disappointment between senior scientists.²⁷⁵ Ms Allen has not maintained her competency in DNA interpretation and generally did not involve herself in issues of this kind.²⁷⁶ The failure to consider combined stutter could lead to overestimation of the number of contributors in a profile.²⁷⁷ Dr Taylor recommended that the stutter thresholds, and the strictness by which they are applied, be reassessed.²⁷⁸ He also found that there are differences in the way that reporting scientists deal with peaks in the N-2 repeat stutter positions.²⁷⁹

318. The laboratory has failed to provide clear and sound stutter thresholds which has inhibited consistency in DNA interpretation and increased the risk of overestimation of the number of contributors in DNA profiles. It has also failed to achieve consistency in the treatment of peaks in N-2 stutter positions.

Dropping loci and pull-up affected peaks

319. If a DNA profile possess a behaviour or feature that is not modelled in STRmix, it may be unsuitable for STRmix analysis. Under certain circumstances, a solution to this issue is to ignore (or drop) loci containing the unmodelled behaviour. Common DNA profile behaviours that are not modelled in STRmix are ‘unresolved peaks’ and ‘trisomy’. These are locus-specific effects meaning the underlying reason for the locus being ignored affects only one locus. Dr Taylor advised that in these circumstances, there is nothing wrong with dropping more than one locus but doing so will lead to less information being provided to STRmix to carry out deconvolution. Care should be taken so as to prevent adverse effects on the deconvolutions when dropping loci for this reason.²⁸⁰

²⁷⁵ Exhibit 148, Statement of Justin Howes, 6 October 2022, [153], JH-72, JH-73, JH-74.

²⁷⁶ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [109].

²⁷⁷ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [10]-[11].

²⁷⁸ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p9.255-257.

²⁷⁹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p50.1585.

²⁸⁰ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p20.663-696.

320. It is also possible to drop loci from a STRmix analysis for issues such as pull-up affected peaks. These peaks occur when one peak in a profile is so intense that during capillary electrophoresis the detection of that peak's dye 'bleeds' into the detection of other dyes. This results in the production of a peak that does not represent DNA.²⁸¹ Dr Taylor stated that while dropping loci for this reason alone is not problematic, if multiple loci need to be dropped for a profile-wide issue such as too much DNA being amplified (manifesting in the profile as pull-ups) then it may indicate there has been an issue with the generation of the profile. While there is no rule to say that multiple loci cannot be dropped, the better solution articulated by Dr Taylor is to carry out further laboratory work to attempt to fix the issue rather than attempting to deal with it by dropping loci.²⁸²
321. Ms Caunt gave evidence that reporting scientists in the laboratory have differences of opinion regarding the treatment of pull-up affected peaks²⁸³ and some scientists remove two or three loci from their STRmix analyses when interpreting profiles. The removal of loci is presently only recorded within a casefile and not on the Forensic Register. This means that the prosecution or defence would not be aware of loci being removed unless a casefile was requested.²⁸⁴ Dr Kogios and Ms Baker recommended that decisions and corresponding reasons be recorded comprehensively on the Forensic Register.²⁸⁵ This includes a decision to drop a locus or loci.
322. To respond to pull-up affected stutter, Ms Caunt developed a workflow and provided it to then-acting Team Leader of Reporting, Allison Lloyd, in October 2021. The email also contained a number of other interpretation issues and inconsistencies (for example saturation point, -2 repeat stutter, 4-person mixtures), accompanied with proposals on how to progress toward resolution. Mr Howes responded only in relation to single-source

²⁸¹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p21.697-702.

²⁸² Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p21.697-716.

²⁸³ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [16]-[17].

²⁸⁴ Transcript, Day 9, 12 October 2022, p1227.37-46.

²⁸⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [126(e)].

profiles and suggested it may be helpful for scientists to come together as a group to discuss.²⁸⁶ Ms Caunt followed up with Ms Johnstone, Ms Rika, Ms Lloyd and Mr Howes about the pull-up affected stutter workflow on 26 October 2021 and received no response. Ms Rika, also followed up with Mr Howes in November 2021. Ms Caunt was not advised of any actions taken regarding any of her concerns.²⁸⁷

323. In approximately December 2021, Mr Howes, in consultation with Ms Rika and Ms Johnstone asked the Biology Specialist Advisory Group for advice about dealing with pull-up affected stutter. Ms Caunt was not informed of the responses or that they were sought until May 2022.²⁸⁸ There is no evidence to suggest that Mr Howes or the management team have taken any further steps to rectify the inconsistencies surrounding pull-up affected stutter.²⁸⁹
324. Dr Taylor found that there is little to no guidance on dropping loci in the standard operating procedures. While he stated that Ms Caunt's suggested workflow seems reasonable, he identified that it only relates to dropping loci that are pull-up affected.²⁹⁰ Clear guidance must be established to minimise interpretation inconsistencies. He stated that there is no hard requirement for a maximum number of loci that can be ignored, however a maximum can be set in a conservative way to ensure interpretations always remain at the highest level of rigour.²⁹¹
325. The laboratory has failed to provide sufficiently clear and consistent guidelines to scientists about the appropriateness of ignoring a locus and whether (and under what conditions) multiple loci can be ignored.

²⁸⁶ Transcript, Day 9, 12 October 2022, p1229.33-1230.6; Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, EC-04.

²⁸⁷ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [21]-[25], EC-01, EC-02, EC-03; Transcript, Day 9, 12 October 2022, p1230.21-25.

²⁸⁸ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [26]-[28].

²⁸⁹ Transcript, Day 9, 12 October 2022, p1230.21-25.

²⁹⁰ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p7.185-203.

²⁹¹ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p7.185-197.

Interpreting sub-threshold peaks

326. Ordinarily, when DNA profiles are read using software such as Genemapper, a peak level is designated at which point peaks falling below the level are not labelled and treated as instrumental noise. This is called the analytical threshold, baseline, detection threshold or level of reporting. In some circumstances, it may be appropriate to use peaks below this threshold in determining the number of contributors to a profile.²⁹² Dr Taylor found that the laboratory's DNA interpretation standard operating procedure is unclear as to how scientists are able to use peaks below the level of reporting.
327. In 2020, Ms Rika and other reporting scientists wrote a report about reviewing the limit of detection on the Genetic Analyzer. That report stated that there was a belief among some reporting scientists that staff could interpret peaks below the validated threshold for detection on the Genetic Analyzer.²⁹³ Ms Rika, while reviewing a profile interpretation, believed that an extra peak lying just below the limit of detection indicated the possibility of more than 3 contributors (in contrast to the original scientist's interpretation). This caused difficulty and disagreement amongst the reporting team. Ms Rika gave evidence that she was directed by Mr Howes to follow standard operating procedures and not consider the peak below the limit of detection. She was ultimately removed as the reviewer for that profile.²⁹⁴ Ms Rika expressed concern over the differences in opinion about the limit of detection with then-executive director John Doherty.²⁹⁵ There is no evidence of any meaningful action taken by Mr Doherty to address this concern.
328. Mr Howes advised Ms Rika that a 'Change Management Process' would need to be conducted to investigate the concept of interpreting peaks below the limit of detection. That process never eventuated.²⁹⁶ Ms Rika gave evidence that she felt bullied by Mr

²⁹² Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p18.595-609.

²⁹³ Exhibit 148, Statement of Justin Howes, 6 October 2022, [149].

²⁹⁴ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [92]-[93].

²⁹⁵ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [96]-[100], KR-11, KR-12, KR-13.

²⁹⁶ Exhibit 148, Statement of Justin Howes, 6 October 2022, [149], JH-66.

Howes and ultimately stopped pursuing a potential change to the interpretation of peaks below the limit of detection because she felt unsupported and unsafe to raise further issues.²⁹⁷

329. The laboratory has failed to provide sufficiently clear and consistent guidelines to scientists regarding the:
- a. ability to use sub-threshold peaks in DNA interpretation; and
 - b. use of peaks between the limit of detection and limit of reporting for exclusionary purposes in DNA interpretation.
330. Dr Taylor recommended that the DNA interpretation standard operating procedures be reviewed and amended.²⁹⁸

Differences of opinion

331. Differences of opinion are inherent given the subjectivity of DNA profile interpretation. Guidelines about the interpretation of DNA profiles must be provided to reporting scientists to promote consistency and reliability in the reporting of results.²⁹⁹
332. Mr Howes gave evidence that there are differences of opinion between reporting scientists relating to DNA interpretation which are attributed to sources including the scientist's level of understanding of the behaviour of DNA profile and opinions based on experience versus empirical evidence.³⁰⁰ Ms Allen conceded that she was "not necessarily surprised" that difference of opinion might arise as a result of the laboratory's present workflow system, which requires results and interpretations of specific samples to pass through multiple scientists as opposed to one central case manager. She stated that it

²⁹⁷ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [96], [101], KR-14.

²⁹⁸ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p6.163-167.

²⁹⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [122].

³⁰⁰ Exhibit 148, Statement of Justin Howes, 6 October 2022, [140].

needed to be worked on.³⁰¹ Ms Allen referred to 2015 Project #194 (Development of Guidelines for the determination of number of contributors to a PowerPlex 21 profile),³⁰² the standard operating procedures³⁰³ and workshops conducted by external consultants '1st Call'³⁰⁴ as measures undertaken to resolve difficulties caused by differences of opinion. Mr Howes also referred to Project #194 and standard operating procedures.³⁰⁵ He also referred to discussions between colleagues and scientists' attempts to keep abreast with literature distributed by the FSS Information Service or personal research.³⁰⁶ He offered no evidence to support that these methods are used regularly or are effective. Ms Allen stated that a 'Profile Interpretation Meeting' was developed in 2021 as a forum for reporting scientists to use to discuss difficult DNA profile interpretations. Ms Allen gave evidence that three meetings of this type have been held.³⁰⁷ While Mr Howes referred to the forum, he did not give any evidence of the meetings having been conducted yet.³⁰⁸

333. Ms Caunt gave evidence that Mr Howes had previously organised Forensic Reporting and Intelligence team meetings to discuss issues and differences in opinion. She said the reporting team had not had a meeting of this kind in three or four years,³⁰⁹ but there had been approximately two 'Profile Interpretation Meetings' within the last year.³¹⁰
334. The main procedure for dealing with differences of opinion in DNA interpretation is the laboratory's standard operating procedure 'Procedure for Resolving DNA Profile Interpretation Differences of Opinion'.³¹¹ Dr Taylor reported that the procedures

³⁰¹ Transcript, Day 22, 31 October 2022, p2764.14-21.

³⁰² Exhibit 175, Statement of Cathine Allen, 20 October 2022, [100], CA-59.

³⁰³ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [100]-[101], [103], CA-56.

³⁰⁴ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [102], [105], [106]-[107], CA-60.

³⁰⁵ Exhibit 148, Statement of Justin Howes, 6 October 2022, [143]-[144], [147], JH-60, JH-61, JH-64.

³⁰⁶ Exhibit 148, Statement of Justin Howes, 6 October 2022, [139].

³⁰⁷ The meetings were held on 4 May 2021, 31 May 2021 and 30 September 2021. Exhibit 175, Statement of Cathine Allen, 20 October 2022, [104], CA-61.

³⁰⁸ Exhibit 148, Statement of Justin Howes, 6 October 2022, [148].

³⁰⁹ Transcript, Day 9, 12 October 2022, p1225.15-47.

³¹⁰ Transcript, Day 9, 12 October 2022, p1255.24-40.

³¹¹ Exhibit 258, 36061V1 Procedure for Resolving DNA Profile Interpretation Differences of Opinion, 10 September 2021.

contained therein fall into the range of current best practice for difference of opinion resolutions.³¹² However, he stated that the better method where a resolution cannot be found, and biological options such as rework are exhausted,³¹³ is to report the divergence of opinion in the statement of witness and provide both opinions from both scientists. The laboratory's current process is to have the case reassigned to a third scientist, which carries with it the risk of bias.³¹⁴ Dr Taylor's proposed method is consistent with the recommendation of Dr Kogios and Ms Baker to ensure transparency and provide sufficient contextual information in witness statements.³¹⁵ It is also consistent with the duty of expert witnesses, which I discussed in Chapter 1.

335. A change in interpretation required a result to be made 'incorrect' and amended to reflect the new interpretation. Differences in opinion were generally explained as an 'unintended human error'. This is inappropriate and misleading. In any event, in a true case management model, a laboratory is not faced with the concept of 'incorrects'. The use of 'incorrects' is dealt with extensively in Section 2.2, Operating model and workflow.

Rec 34. The laboratory should review and amend its standard operating procedures relating to DNA interpretation, in accordance with Dr Duncan Taylor's report dated 21 November 2022 and in consultation with its reporting scientists, to:

- a. reconsider its current stutter thresholds and associated processes, including the limits of applying thresholds and their performance on large alleles; and
- b. include guidelines aimed at making consistent scientists' approach to:
 - i. dropping loci;
 - ii. treatment of peaks in N-2 stutter position;

³¹² Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p36.1159-1160.

³¹³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [124].

³¹⁴ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p36.1161-1166.

³¹⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [66].

- iii. interpretation of mixed profiles;
- iv. using peaks between the limit of detection and limit of reporting for exclusionary purposes;
- v. using peaks below the limit of detection.

Rec 35. The roles and responsibilities for the team leader of reporting must be amended to include obligations to:

- a. facilitate and maintain a regular 3-monthly forum for candid scientific discussions between reporting scientists about DNA interpretation best practice reporting and any issues, challenges or disagreements arising in the course of their work; and
- b. resolve, consistent with scientific best practice, differences of opinion that arise between reporting scientists in relation to the approach to interpretation.

Rec 36. The laboratory should consider the validation and use of:

- a. expanding the models currently used in STRmix to include additional stutter types, including the modelling of double back stutter;
- b. adopting a policy whereby DNA profiles are read on plate reading software to the limit of detection but analysed in STRmix at the limit of reporting (using the inbuilt feature of STRmix which ignores peaks below the limit of reporting); and
- c. using the Y-chromosome quantitation and autosomal quantitation value from Quantifiler Trio to determine whether to carry out Y-STR analysis on SAIK swabs.

Rec 37. The laboratory should consider adopting a formal procedure that, in the event of irreconcilable differences of opinion between two reporting scientists about a DNA profile interpretation, both opinions are reported in the statement of witness (rather than the case being reallocated to a third reviewing scientist) and the disagreement should be reported, with both scientists signing the witness statement.

General findings about DNA analysis and interpretation

336. While most reporting scientists are trained in plate reading, some are not. The DNA interpretation process (including both the genotyping / plate reading and the profile interpretation) should be conducted by two scientists authorised in plate reading. The laboratory has failed to operate in accordance with best practice by allowing some reporting scientists to interpret and report results despite their not being competent in plate reading.³¹⁶ This must be rectified.
337. Dr Kogios and Ms Baker reported that some reporting scientists rely only on PDF electropherogram³¹⁷ to interpret results, whereas others view the results in the original GeneMapper-IDX software. The software offers a greater breadth of information and improves the ability to perform quality assessments. The laboratory has failed to achieve best practice DNA interpretation processes by allowing some reporting scientists to rely on PDF electropherograms to review results as opposed to viewing the electropherograms in the original GeneMapper ID-X software. The use of the original software is preferred and should be adopted by all scientists.³¹⁸
338. The laboratory's DNA interpretation practices are inadequate in circumstances where the rationale for interpretation decision-making is made as an 'aide memoir' rather than as part of the official case record on the Forensic Register.³¹⁹ Such information must be available to reviewers (following their blind review), auditors, defence scientists and lawyers.
339. Further, emerging best practice requires a scientist peer reviewing an initial scientist's findings to be fully blinded to that initial work to manage bias. This is particularly relevant for DNA interpretation. The Forensic Register presently does not support 'sequential

³¹⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [129(a)].

³¹⁷ Full version and zoomed version.

³¹⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [126(c)], [129(a)].

³¹⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [126(e)], [129(b)].

unmasking' of results and considerations that informed the interpretation of a DNA profile. This means that some information is viewable by analysts performing plate reading and profile interpretation. It also means that during a reporting scientist's peer review of an interpretation, the first scientist's interpretations are viewable by the second scientist prior to their conducting a review of the profile. This increases the risk of potential bias. Best practice requires measures to prevent this potential bias. Blind peer reviewing is further discussed in Section 2.7, Quality management.

Rec 38. The laboratory should:

- a. require all reporting scientists interpreting profiles be competent in genotyping and plate reading and, for any reporting scientists presently without competency, have those scientists complete their competency;
- b. regularly roster all staff competent in plate reading to perform that task;
- c. consider amending DNA interpretation standard operating procedures to require reporting scientists to interpret DNA profiles using the GeneMapper-IDX software as opposed to PDF copies of electropherograms;
- d. introduce policy within the standard operating procedures requiring recording of the reasons for all decisions made in the official case record on the Forensic Register, including by facilitating Forensic Register upgrades necessary to enable this function;
- e. introduce a regular court monitoring program where reporting scientists' evidence is observed and reviewed by a more senior scientist for the purpose of quality management; and
- f. adopt a 'blind review' policy in relation to the second reviewer of a DNA interpretation, including facilitating Forensic Register changes to ensure such 'blind review', which prevents a reviewer from seeing the first scientist's interpretation, or who the first scientist is, prior to the second scientist's review.

- Rec 39. The laboratory should conduct training sessions following the implementation of all standard operating procedure and general procedure changes. At minimum, the following training sessions should occur:
- a. a session with all reporting scientists explaining the amendments to standard operating procedures and procedural changes to DNA interpretation in detail; and
 - b. a session with all laboratory staff giving a general overview of the changes to DNA interpretation and the processes undertaken by reporting scientists.

Cultural issues within the reporting teams

340. Ms Allen gave evidence of relationship breakdowns between reporting scientists,³²⁰ including mistrust and disharmony within the teams.³²¹ She stated that “staff members may experience difficulties in resolving differences based on the perception or strongly held belief that a particular the [sic] staff member/s are difficult or not open to others’ views on the DNA profile”.³²² She also stated that some reporting scientists feel “inferior” to other reporting scientists who have more experience, or feel fear of being excluded from the group.³²³ Mr Howes identified similar concerns about the reporting teams.³²⁴ He stated that the personality diversity in a large work unit can lead to difficulties between scientists including scientists feeling uncomfortable to approach others, reluctant to interact and forming ‘groups’ of friends. Mr Howes stated that such factors affect the willingness of staff to interact and work positively and productively together.³²⁵
341. Ms Caunt stated that some historical disagreements between reporting scientists in the laboratory had escalated into heated arguments and scientists were reluctant to engage

³²⁰ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [90]-[96].

³²¹ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [94].

³²² Exhibit 175, Statement of Cathine Allen, 20 October 2022, [92].

³²³ Exhibit 175, Statement of Cathine Allen, 20 October 2022, [90].

³²⁴ Exhibit 148, Statement of Justin Howes, 6 October 2022, [140]-[141].

³²⁵ Exhibit 148, Statement of Justin Howes, 6 October 2022, [141].

in respectful scientific debate.³²⁶ Ms Rika also gave evidence of her concerns about being bullied and not having her interpretation concerns properly considered.³²⁷

342. Such a culture prevents cohesiveness and compromise the ability for scientists to speak freely and work together to achieve the best scientific outcomes. It also creates difficulties when attempting to resolve differences of opinion from the perspective of best scientific outcome. For example, in September 2020, Mr Howes, Ms Johnstone and Ms Rika could not agree on appropriate direction to provide reporting scientists about dealing with combined stutter. Mr Howes was not able to resolve the situation and so scientists were left without consistent guidance from their managers on a key scientific issue.

2.5 Sexual assault casework

343. A number of findings in this report have particular relevance to the processing and reporting of samples and results in sexual assault cases. When considered both individually and cumulatively, the laboratory's failings have reduced its ability to obtain the best possible evidence in sexual assault cases. While there is no evidence to suggest unreliable results were obtained from samples in sexual assault investigation kits (**SAIKs**), the propensity for historic and continued missed information is significant. This is particularly concerning for victim-survivors of sexual assault in circumstances where DNA evidence can sometimes provide particular strength to a case, if corroborative, or by its absence suggest weakness in a case which may be unwarranted. This has likely resulted in miscarriages of justice.

DIFP and No DNA thresholds

344. In May of 2022 the QPS made a submission to the Women's Safety and Justice Taskforce.³²⁸ The submission included information about the results obtained from 47

³²⁶ Exhibit 73, Statement of Emma-Jayne Caunt, 6 October 2022, [2].

³²⁷ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [101].

³²⁸ Exhibit 192.5, QPS Taskforce Submission to the Women's Safety and Justice Taskforce, undated.

samples from sexual assault cases originally reported as DIFP in 2021 which were processed at the request of police. It reported that the overall success rate in obtaining a useable profile when QPS requested testing was 66%.³²⁹ That figure is not based on a random group of samples reported as DIFP because the QPS applied knowledge and experience when asking for certain DIFP samples to be tested. Still, the number is striking. The QPS had been concerned about the high number of samples which upon further work yielded a useable profile since at least November 2021 and were privately asking questions of the laboratory. That issue is dealt with in Section 4.3, Removal of the DIFP threshold.

345. I engaged Professor Linzi Wilson-Wilde to undertake a review of the testing and results data provided by Queensland Health for the previous 5 years. That data was required by the Commission to identify the number of samples that were reported as DIFP or No DNA, were later processed further and resulted in a profile that could be compared to a reference sample. Queensland Health were not able to guarantee the accuracy of the last class of data.³³⁰ In addition, there were a number of limitations of, and difficulty surrounding, the data and subsequent analysis. These are identified in Section 2.6, Success rates.

346. In relation to semen and high vaginal swabs tested between 2018 and 2022 and reported as DIFP, the statistics showed:³³¹

Sample type	No. of samples reported as DIFP	% of DIFP samples tested further	% of DIFP samples tested further and produced a profile
Semen	19	58%	100%

³²⁹ Exhibit 192.5, QPS Taskforce Submission to the Women’s Safety and Justice Taskforce, undated, p22.

³³⁰ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3b.

³³¹ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3d.

High vaginal swab	176	77%	47%
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347. In relation to semen and high vaginal swabs tested between 2018 and 2022 and reported as No DNA detected, the statistics showed: ³³²

Sample type	No. of samples reported as 'No DNA detected'	% of 'No DNA' samples tested further	% of 'No DNA' samples tested further and produced a profile
Semen	64	53%	26%
High vaginal swab	29	76%	27%

348. Semen and high vaginal swabs represent only two out of a number of sample types tested in relation to sexual assault cases but they are nonetheless often important sample types in these cases.

349. The 'success rates' of obtaining a DNA profile after further work from samples originally reported as DIFP and 'No DNA' detected in semen demonstrates that I can confidently conclude that evidence has been missed in other cases. Ms Quartermain gave evidence of her observations that some sexual assault samples originally reported as 'DIFP', when tested, provided usable DNA profiles.³³³ She shared anecdotal evidence of a case where her decision to rework a DIFP sample, based on her own knowledge of the strength of DNA from SAIK samples, resulted in the first and only DNA profile in the case that identified foreign male DNA obtained from internal swabs taken from the complainant.

³³² Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3b.

³³³ Exhibit 59, Statement of Alicia Quartermain, 21 September 2022, [79]-[83].

These results were crucial in establishing the offence of penetrative rape in that case.³³⁴ I observe that the laboratory had no system to monitor such outcomes and, as a consequence, it was only the dedication of some of the scientists, like Ms Quartermain, that meant that vital evidence was made available to the courts – and for this Commission.

Sexual Assault Investigation Kits

350. The laboratory designs and produces SAIKs and supplies them to the QPS and to hospitals. In the event of an alleged sexual assault, generally the QPS transport the complainant to a Hospital and Health Service and supply the SAIK to an authorised doctor for administration. At times, the hospital may provide it. I commissioned Associate Professor Kathy Kramer to review the collection process, including the makeup of Queensland's SAIK. Professor Kramer stated that, while there is no single agreed upon list of consumables to include in a SAIK, medical practitioners must be involved in the design of the Queensland SAIK.³³⁵ She made a number of recommendations regarding improvement to the current SAIK, including the removal of wooden-stemmed swabs, consideration of rayon-tipped swabs (as opposed to cotton tipped), the inclusion of glass microscopic slides and a specimen jar, and the use of DNA-free SAIK components. The collection of biological material by Queensland Health using SAIKs and Professor Kramer's report are discussed in Section 3.3, QH collection.

351. Ms Anna Davey was also commissioned to review collection processes including those from SAIKs. She found that the assembly of the Queensland laboratory's SAIK is not compliant with ISO 18385:2016 'Minimizing the risk of human DNA contamination in products used to collect, store and analyse biological material for forensic purposes – Requirements'.³³⁶ That standard is international best practice³³⁷ and should be complied

³³⁴ Exhibit 59, Statement of Alicia Quartermain, 21 September 2022, [56]-[65].

³³⁵ Exhibit 210.1, Report of Associate Professor Kathy Kramer, 16 October 2022, p18.471-487.

³³⁶ Exhibit 208.1, Amended Expert Report of Anna Davey, 15 October 2022, [61].

³³⁷ Exhibit 208.1, Amended Expert Report of Anna Davey, 15 October 2022, [68].

with.³³⁸ Dr Kogios stated that accreditation provides assurance that performance is occurring to a certain standard and has been subject to external scrutiny.³³⁹ She recommended that the laboratory should consider attaining accreditation to the relevant standard or procuring SAIKs from an accredited provider.³⁴⁰

352. Dr Kogios and Ms Baker examined the design of Queensland's SAIK as part of their review of the laboratory's current operations. Their recommendations supported those detailed by Associate Professor Kramer.³⁴¹ Dr Kogios and Ms Baker supported the inclusion of the necessary consumables to collect a reference sample from a complainant while administering a SAIK, when appropriate.³⁴² They also suggested consumables be added to enable the collection of fingernail scrapings³⁴³ and creation of a microscope slide at the time of collection, and sufficient swabs and instructions on optimal sampling technique.³⁴⁴ Dr Kogios and Ms Baker accepted Mr Cochrane's finding that SAIKs are routinely submitted without inclusion of a slide made at the time of collection and that this falls below best practice.³⁴⁵

353. As part of their recommendations, Dr Kogios and Ms Baker recommended an interagency working group be established to focus on best practice in relation to sexual assault cases.³⁴⁶ Associate Professor Kramer made similar recommendations.³⁴⁷ The working group should include the laboratory, QPS, and victim-survivor support groups. A trauma-

³³⁸ Exhibit 208.1, Amended Expert Report of Anna Davey, 15 October 2022, p26.

³³⁹ Transcript, Day 24, 2 November 2022, p2922.11-18.

³⁴⁰ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [171].

³⁴¹ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [165].

³⁴² Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [166].

³⁴³ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [166].

³⁴⁴ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [172].

³⁴⁵ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [164(a)].

³⁴⁶ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, Recommendation 34.

³⁴⁷ Exhibit 210.1, Report of Associate Professor Kathy Kramer, 16 October 2022, p8.130-133.

focussed approach is paramount. This calls attention to the specialised nature of sexual assault investigation. The existence of a functional and dedicated body is paramount. I accept this recommendation and detail it in Section 3.3, QH Collection. The laboratory should, in consultation with that group, conduct research into optimal kit composition and sampling guidelines, explore emerging research and provide feedback between the laboratory, health practitioners and the QPS.

Overservicing and workflow

354. I engaged Mr Clint Cochrane to review concerns regarding the scientific testing methods undertaken for sperm microscopy in the laboratory. Mr Cochrane has worked as a forensic biologist for 21 years and has particular expertise in sexual assault-type casework, including the presentation of sexual assault investigation kit evidence.³⁴⁸ He reviewed the laboratory's response to an issue that arose in 2015 and 2016 about accurately detecting sperm in the laboratory. That issue is dealt with below in Section 5.3, Sperm microscopy.
355. Mr Cochrane considered the workflow of the laboratory in relation to sexual assault cases that was implemented after the completion of a project into sperm microscopy in 2020. Currently, the laboratory is submitting all samples received in a SAIK for processing when received.³⁴⁹ Further, all samples are being submitted for differential lysis (the process of splitting the sperm fraction of a sample from the epithelial (skin) fraction).³⁵⁰ There is no case management by a scientist at receipt of the samples at the laboratory to determine which samples should be processed, by what means and in what order.³⁵¹
356. Ms Brisotto contended that Evidence Recovery staff devise a case examination strategy for SAIK cases but confirmed that all samples get submitted for differential lysis and sperm

³⁴⁸ Transcript, Day 12, 17 October 2022, p1510.4-8.

³⁴⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [39].

³⁵⁰ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [42].

³⁵¹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [40].

microscopy.³⁵² I do not accept that process is consistent with the purpose of an individualised examination strategy. Having a blanket-rule that limits scientific discretion is particularly problematic in circumstances where the unique nature of sexual assault case work bestows examinational strategy decision making upon the scientist at first instance, rather than the QPS.³⁵³ Dr Kogios and Ms Baker gave evidence of similar concerns about the overservicing model used by the Queensland laboratory,³⁵⁴ which are dealt with above in Section 2.2, Operating model and workflow.

357. The laboratory's processes present two significant issues. *First*, it may limit the ability to perform appropriate re-work strategies or alternative testing such as Y-STR on samples at a later time, because at least some of every sample has been progressed and used up in some form.³⁵⁵ One example of the effect is that Y-STR is less effective after differential lysis has been performed.³⁵⁶
358. *Second*, the over-testing of samples creates additional processing and reporting work for scientists and an unnecessary expenditure of time and resources.³⁵⁷ A case may be resolved by testing only one sample (for example the high vaginal swab or the oral swab depending on the allegation) and testing of other samples is then an unnecessary duplication.³⁵⁸ This overservicing is incongruous in a laboratory that is wholly focussed on turnaround times but it is emblematic of management myopia.
359. Mr Cochrane,³⁵⁹ Dr Kogios and Ms Baker³⁶⁰ and Dr Taylor³⁶¹ all commented on the undesirability of the current approach. Mr Cochrane found the approach to fall below

³⁵² Transcript, Day 16, 21 October 2022, p1997.8-19.

³⁵³ Transcript, Day 23, 1 November 2022, p2855.20-33.

³⁵⁴ Transcript, Day 23, 1 November 2022, p2856.9-2858.24.

³⁵⁵ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [44].

³⁵⁶ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [17(c)].

³⁵⁷ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [45].

³⁵⁸ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [40].

³⁵⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [40], [45], [55]-[56].

³⁶⁰ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [164(c)]; Transcript, Day 23, 1 November 2022, p2856.9-2858.24.

³⁶¹ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p42.1344-1352, p54.1702-1705.

best practice.³⁶² Dr Kogios and Ms Baker agreed.³⁶³ Dr Taylor gave an example from a casefile he reviewed where the complainant had alleged digital assault. Despite this, the vaginal swabs from the SAIK were screened for semen. This, on its face, is unnecessary given the nature of the alleged offence. However, there may be some legitimate reasons for screening for semen in any event, particularly if there is uncertainty around the factual circumstances. Notwithstanding this, despite the swabs returning negative results for sperm and semen screening, both swabs were still processed using differential extraction. Based on the case context and the presumptive test results, this type of extraction could have been avoided and a standard extraction performed.³⁶⁴

360. The alternative approach is one that is informed by a well-developed examination strategy based on case context.³⁶⁵
361. Ms Brisotto submitted that many other laboratories still perform microscopy to detect the presence of sperm, including those that currently offer Y-STR profiling.³⁶⁶ The use of sperm microscopy by the laboratory is not criticised. Nor is the benefit of differential lysis and spermatozoa detection questioned.³⁶⁷ The criticism relates to the laboratory's blanket, factory-line approach whereby all samples are tested using differential extraction without any consideration of the case context or preservation of samples for other testing opportunities.
362. Mr Cochrane reported that SAIK workflows, particularly the upfront examination of all potential semen samples, should be reviewed to consider the preservation of samples for

³⁶² Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [46].

³⁶³ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [164(c)].

³⁶⁴ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p42.1344-1352.

³⁶⁵ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [40]-[41]; Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [164(c)].

³⁶⁶ Submissions on behalf of Paula Brisotto, 30 November 2022, [61].

³⁶⁷ Submissions on behalf of Paula Brisotto, 30 November 2022, [62].

Y-STR testing.³⁶⁸ A review of this kind should be conducted following introduction of Y-STR testing.³⁶⁹

363. The laboratory's failure to apply adequate case management to all sexual assault cases may have resulted in miscarriages of justice. It is not possible to confirm or quantify such miscarriages, although some may be identified in the review of cases I recommend at the end of this section.

Y-STR testing

364. Y-STR testing is revolutionary for sexual assault investigations.³⁷⁰ It is particularly beneficial in cases where it is alleged that semen has not been deposited.³⁷¹ Low levels of male DNA can be detected which would otherwise not be detected using standard DNA testing.³⁷² Y-STR testing is routinely used in almost all Australian forensic laboratories.³⁷³ It has been available for over a decade³⁷⁴ and has been commonly offered by Australian forensic service providers as part of their standard toolkit for the last 5 years.³⁷⁵ The laboratory has been attempting to validate and implement Y-STR testing capabilities for 7 years since 2015.³⁷⁶ Despite all other Australian forensic service providers offering Y-STR testing,³⁷⁷ the Queensland laboratory has not been able to complete its implementation. This is a failure to operate in accordance with best practice³⁷⁸ and a lost

³⁶⁸ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [65].

³⁶⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [67].

³⁷⁰ Transcript, Day 23, 1 November 2022, p2890.40.

³⁷¹ Transcript, Day 23, 1 November 2022, p2890.41-2891.10.

³⁷² Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [75].

³⁷³ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [75].

³⁷⁴ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [46].

³⁷⁵ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [81].

³⁷⁶ Exhibit 282, Statement of Paula Brisotto, 30 November 2022, [14].

³⁷⁷ Transcript, Day 23, 1 November 2022, p2891.16-18.

³⁷⁸ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [80].

opportunity to significantly improve the laboratory's sexual assault investigation capabilities.³⁷⁹

365. Ms Gregg gave evidence that she was aware the laboratory had been attempting to validate Y-STR testing for “about five years without success”.³⁸⁰ Despite being aware it had not been implemented, Ms Gregg only became cognizant of details relating to the implementation project in September 2022 through an unscheduled discussion with Mr Nurthen. During that discussion, she was informed that \$20,000 worth of Y-STR kits that the laboratory had purchased to do the validation were about to expire within two and a half weeks. Those kits have since expired and been thrown out.³⁸¹ This is a gross example of the laboratory's inability to prioritise implementation of new processes. Mr Nurthen also informed Ms Gregg that the laboratory was awaiting QPS permission to use suspect samples to generate a Queensland based indigenous data set for Y-STR testing as part of the validation. Ms Gregg's evidence is that the laboratory and the QPS have not yet agreed on how that might be done.³⁸² The agencies should work together as a matter of priority to facilitate the implementation of Y-STR testing.
366. The laboratory has failed to manage the validation of Y-STR. The nature of the failure was known to Mr Howes³⁸³ and Ms Allen.³⁸⁴ Despite this, no urgency was attached to the completion of its implementation.³⁸⁵ There has been no dedication of staff to the project full time. In my view, this has been an unacceptable failure of the laboratory and its management.
367. Compounding this failure is the laboratory's sparing use of outsourcing of samples to external laboratories for testing that is not available at the Queensland laboratory. In

³⁷⁹ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [77].

³⁸⁰ Exhibit 243.5, Statement of Helen Gregg, 16 November 2022, [63].

³⁸¹ Exhibit 243.5, Statement of Helen Gregg, 16 November 2022, [63]-[66].

³⁸² Exhibit 243.5, Statement of Helen Gregg, 16 November 2022, [66]-[73].

³⁸³ Transcript, Day 20, 27 October 2022, p2462.1-3.

³⁸⁴ Transcript, Day 22, 31 October 2022, p2768.14-17.

³⁸⁵ Transcript, Day 20, 27 October 2022, p2462.20-25.

2022, only ten samples were sent externally for Y-STR testing. I have no doubt that other samples not sent would have benefited from such testing. This issue is discussed in Section 2.4, Technical aspects: QHFSS Toolkit.

- Rec 40. The laboratory should take all necessary steps to achieve the validation and implementation of Y-STR testing as a matter of urgency, with the aim of validating and implementing the technology within 6 months.
- Rec 41. Within two months of implementation of Y-STR testing, the laboratory should conduct a review of sexual assault investigation kit workflows to integrate the use of Y-STR testing. This review should cause all relevant standard operating procedures to be updated and published to reflect use of this technology in sexual assault casework at the laboratory.
- Rec 42. The laboratory should provide training to staff regarding use of Y-STR testing in sexual assault casework in accordance with updated standard operating procedures.
- Rec 43. Until Y-STR testing is available in the laboratory, scientists should routinely advise QPS about outsourcing Y-STR testing to an accredited provider, including advising QPS about the benefits of Y-STR for suitable samples and the possibility of obtaining probative information otherwise unattainable through regular DNA testing. That advice should be given, when appropriate, at all stages of processing a sample from examination strategy to reporting.

DNA profile interpretation in sexual assault cases

- 368. Dr Kogios and Ms Baker recommended a review be undertaken into the laboratory's use of STRmix.³⁸⁶ I engaged Dr Duncan Taylor to undertake that review. One issue to be investigated was the process of reporting scientists asserting the presence of an additional contributor of DNA for mathematical purposes in circumstances where the only indication of an additional DNA contributor was stutter above the laboratory's

³⁸⁶ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, Recommendation 27.

guideline and/or allelic imbalance. Dr Kogios and Ms Baker identified the potential harm the over estimation of contributors could do in a case, stating:

An example of this is invoking an additional DNA contributor in the sperm fraction of a high vaginal swab in a sexual assault case. To an end user, this could imply an individual has had an additional sexual partner than any disclosed, causing serious harm to the individual complainant and their credibility.³⁸⁷

369. In his review of the laboratory's use of STRmix and DNA interpretation procedures, Dr Taylor found there was a risk of systemic overestimation of the number of contributors when interpreting DNA profiles from parts of the standard operating procedures which appeared to preference over-estimation. He found that in 7 samples in 15 cases the laboratory had in fact over-estimated the number of contributors. His findings and recommended resolutions are detailed in Section 2.4, Technical aspects: DNA interpretation. If substantiated on a systemic level, this has significant consequences for sexual assault cases.
370. The nature of sexual assault cases is such that DNA evidence is compelling. If a complainant has given a version of events in which only he or she and the perpetrator or defendant are involved, a finding that there are three people's DNA on an intimate swab can be used to forcefully attack his or her credit. It may lead to an investigation or a prosecution not proceeding, or to an acquittal by a jury. It may also be highly distressing for a complainant to be told that the DNA results from an intimate swab have returned a third or a fourth contributor if that does not accord with what they said has occurred. Dr Taylor echoed this concern.³⁸⁸ The risk of overestimation is unlikely to make the reported likelihood ratio unreliable; generally the strength of the evidence of the contribution does not change.³⁸⁹ It is the risk of the false conclusion of the number of contributors as a fact that is presented.

³⁸⁷ Exhibit 187, Ms Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [135].

³⁸⁸ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p19.646-20.660.

³⁸⁹ Transcript, Day 26, 25 November 2022, p3187.23-37.

371. Mr Parry confirmed the laboratory's current practice of commonly adding an additional contributor in the face of uncertainty as to the correct number.³⁹⁰ He expressed concern about incorrectly suggesting to stakeholders that there was a third person's DNA present in sexual assault cases.³⁹¹ In evidence, Mr Parry stated:

If you're talking about a sexual assault investigation kit, arbitrarily adding in that third contributor, even though we need to do it for the [STRmix] analysis, can be misleading in terms of the impression it gives to the legal system.³⁹²

372. Queensland Health accepted that the laboratory had overestimated the number of contributors in a sample in some sexual assault cases which could have had consequences to the investigation and prosecution of cases, including the potential for miscarriages of justice.³⁹³

373. Dr Taylor recommended an external review of swabs from SAIKs in previous sexual assault cases to determine which have been reported as originating from three or more people. For those cases, a review of the reasoning behind the choice to interpret the profile as originating from the higher number of people should be undertaken, including consideration of the strength of the evidence for the extra contributor (i.e. one or two high stutter peaks, an imbalance, or simply a low number of minor peaks). If, upon review, it is determined that the profile should have been reported as originating from a lower number of contributors the profiles should be reanalysed and reported in addendum DNA statements. The review should cover all applicable cases for the previous one-year period, to provide a random sample of cases in sufficient number to identify whether a systemic bias towards overestimating the number of contributors exists.³⁹⁴ Current, unresolved sexual assault cases should also be included in the review.³⁹⁵ The review satisfies two

³⁹⁰ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [35].

³⁹¹ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [39].

³⁹² Transcript, Day 9, 12 October 2022, p1149.12-23.

³⁹³ Supplementary Submission on Behalf of Queensland Health, Appendix D, [QH121].

³⁹⁴ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p9.258-271.

³⁹⁵ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p9.272-274.

purposes: to determine if there has been systemic overestimation of contributors, and to prevent miscarriages of justice in individual cases.³⁹⁶

374. If systemic overestimation is established, any profile in any type of case could be affected. Given that breadth, it is unlikely that it will be feasible to review every case. For that reason, Dr Taylor recommends that if systemic over-estimation is demonstrated, all stakeholders should be notified with the offer of reassessment by the laboratory of any case where stakeholders believe an overestimation may have occurred.³⁹⁷ That notification must be sufficiently detailed to allow stakeholders to identify whether a particular case may have been affected. It must also inform stakeholders to a level that allows for clear understanding of the nature of the issue, probable types of cases and results effected, the opportunity for reassessment and the possible variation to results.
375. Regardless of whether a systemic bias is established, the way in which the number of contributors is reported in the Forensic Register and witness statements must be amended to provide a sufficient explanation of the certainty of the results and the strength of the evidence which has informed the number of contributors. The way the results are currently reported as “3 person” or “X person” mixtures suggests that this is a number which has been objectively ascertained, whereas the evidence of Dr Taylor establishes that it is the scientist’s opinion based on the profile and their expertise.³⁹⁸
376. Dr Taylor also suggested that the standard operating procedures in the laboratory do not allow for informative reporting of unknown contributors that may be particularly helpful to courts in sexual assault cases. For example, Dr Taylor reviewed a case where three clear contributors were identified in the sperm fractions of the high and low vaginal swabs. The complainant had identified that their last previous sexual interaction was one day prior to the alleged assault. It was quite possible that the unknown component in both samples was that previous partner. Dr Taylor stated that this is an instance where it may have

³⁹⁶ Transcript, Day 26, 25 November 2022, p3189.42-3190.4.

³⁹⁷ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p9.283-287.

³⁹⁸ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p15.494-16.496.

been useful for the scientist to report to the court that there was an interpretable component from an unknown individual that was common to both samples.³⁹⁹ These issues are discussed generally in Section 8.3, Reporting in witness statements.

- Rec 44. The laboratory should, within 12 months, retrospectively review sexual assault cases in the following categories to determine which should be subject to re-testing or re-analysis:
- a. Cases received by the laboratory since 1 January 2017 to the time Y-STR testing is available in the laboratory which did not undergo Y-STR testing;
 - b. Cases received by the laboratory since 1 January 2012 that have fallen outside the “hot jobs” and “major incidents” categories such that they did not receive holistic case management;
 - c. Cases processed by the laboratory between 1 January 2008 and 8 August 2016 where spermatozoa was not identified on the evidence recovery slide for a sample, and the laboratory did not perform further testing on the sample;

That review of cases should be conducted in accordance with the principles and method set out in Recommendation 14 (Section 2.2, Operating model and workflow).

- Rec 45. The laboratory should, within 6 months, retrospectively review all results of SAIK swabs which have been reported to the QPS or in a formal witness statement as originating from three or more people in the previous 12 month period, and current unresolved sexual assaults cases, and for each result:
- a. review the reasoning behind the attribution of the number of contributors; and
 - b. if, upon review, it is determined that the profile should have been reported as originating from a different number of contributors than the number that was reported, the laboratory should re-analyse and re-report the amended result in an addendum statement.

³⁹⁹ Exhibit 254, Dr Duncan Taylor, QH STRmix review, 21 November 2022, p49.1545-1552.

- Rec 46. The laboratory should, based on the above review conducted pursuant to Recommendation 45, determine whether over-estimation of the number of contributors in sexual assault cases has occurred systemically. If systemic over-estimation is established:
- a. all stakeholders in the criminal justice system should be notified of the issue in a sufficiently detailed way to identify whether a particular case may have been affected, as discussed in this chapter;
 - b. the laboratory should offer to review the attribution of number of contributors for any sample in any type of case where parties to cases in the criminal justice system believe an overestimation may have occurred; and
 - c. if, upon review, it is determined that the profile should have been reported as originating from a different number of contributors than the number that was reported, the laboratory should re-analyse and re-report the amended result in an addendum statement.

377. I acknowledge that Queensland Health has informed me that it is already engaged in:
- a. negotiations with inter-jurisdictional forensic service providers to undertake further analysis of samples designated No DNA detected or DNA Insufficient for Further Processing in the period between February 2018 and June 2022; and
 - b. working to identify all samples for the testing period from 2008 to August 2016 that may have been affected by the sperm microscopy issue.⁴⁰⁰

2.6 Success rates

378. Success rate data can be useful to judge the performance of a laboratory.⁴⁰¹ Success rate in this context means the percentage of samples tested by a laboratory that progress

⁴⁰⁰ Appendix B, Queensland Health relevant actions and engagement to date, 25 November 2022, [5], [8].

⁴⁰¹ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [1].

through extraction, quantitation, amplification and interpretation so as to obtain a profile which can be used in some way, usually to compare to a reference sample.⁴⁰² Obtaining a profile, while often very significant, is not the only piece of forensic DNA evidence useful in criminal trials, so success rates do not provide the whole picture of the success of a laboratory.

379. Success rates can be significantly affected by laboratory policy. For example, if a laboratory has high thresholds which prohibit testing of samples with low quantity or quality of DNA, the success rates are likely to be higher because only high quantity and quality samples are tested.⁴⁰³ Professor Wilson-Wilde considered that the Queensland laboratory fell into the category of a laboratory with high thresholds because of its DIFP and No DNA thresholds.⁴⁰⁴ Success rates achieved in that wrong way might nevertheless make the managers of the laboratory look very good.
380. Queensland Health provided the Commission with a range of testing and results data for the previous five years. The data included success rates for different types of samples (blood, sperm, saliva, high vaginal swab), different priorities (P1, P2, P3). It also included numbers of samples that were reported initially as DIFP or No DNA, that were nonetheless processed further and that produced results. In most cases, the key figure was the percentage of samples from which a profile was obtained.
381. The data contained several limitations and Queensland Health was unable to guarantee the accuracy of some of the data.⁴⁰⁵ Generally, Professor Wilson-Wilde said there was difficulty in determining and verifying how the quantity of samples progressing through

⁴⁰² Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [3].

⁴⁰³ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [5].

⁴⁰⁴ Transcript, Day 26, 25 November 2022, p3139.16-40.

⁴⁰⁵ They were not able to guarantee the accuracy of the data relating to samples reported as DIFP or no DNA which were later processed further and resulted in a profile that could be compared to a reference sample. This was because that class of data included sub-samples.

each DNA analysis stage was determined (and by what search criteria).⁴⁰⁶ For the key criteria, Queensland Health provided a list of search terms that had been used to compile the data from the Forensic Register but it was not clear whether all of them related to profiles that could be compared to a reference sample, or whether more than one search term could apply to one sample.⁴⁰⁷ Some of the limitations of the data were evident in the data itself, for example in the first half of 2022, where the number of samples and sub-samples which produced a useable profile exceeded the number of samples which were reported as No DNA and further processed.⁴⁰⁸ That produces a success rate on further processing of over 100%. Further, for high vaginal swabs, the statistics for producing a useable profile include those that identified the profile of the person from whom the sample was taken as well as others.⁴⁰⁹ The former class of profiles provide nothing of evidential value to a case. Given these limitations, Professor Wilson-Wilde could only be satisfied the statistics were “somewhere around an estimate” of the true figure of what was occurring at the laboratory.⁴¹⁰

382. Taking into account those caveats, Professor Wilson-Wilde considered the data showed the laboratory’s success rates were generally within the expected range for a laboratory in Australia.
383. For all samples of all priority types from 2018 to October 2022, there was a 50% success rate, with priority 1 and 2 samples generally having higher success than priority 3.⁴¹¹ Professor Wilson-Wilde was not surprised by that result because there tends to be a

⁴⁰⁶ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [9].

⁴⁰⁷ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [9].

⁴⁰⁸ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3b.

⁴⁰⁹ Transcript, Day 26, 25 November 2022, p3144.13-18.

⁴¹⁰ Transcript, Day 26, 25 November 2022, p3142.1-9.

⁴¹¹ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3f.

higher incidence of trace DNA samples in priority 3 or volume crime cases and these generally have a lower success rate.⁴¹²

384. The data showed success for blood samples as 82%, semen 81%, saliva 67% and high vaginal swabs 74%.⁴¹³ The labelling of samples as falling into those categories relies on QPS entries into the Forensic Register and presumptive testing and so is not a statement that a sample definitely contains the biological matter. Those percentages were also reasonably consistent across the years 2018 to 2022.⁴¹⁴
385. The data collected also captured the rates of contamination by QPS officers. Some contamination is to be expected. The rates between 0.09% and 0.21% were considered by Professor Wilson-Wilde to be within an acceptable range.⁴¹⁵
386. The data is, in light of the many caveats and uncertainties, a neutral result for the laboratory. If the results had shown low success rates it would have raised more questions about the success of many of the processes in the laboratory. The data does not answer the concerns raised in this report about missed opportunity, thresholds and inadequate processes, but may give some confidence that there are not more fundamental, undiscovered problems.
387. The laboratory does not routinely collect data on success rates.⁴¹⁶ It had some difficulty obtaining the data requested by the Commission. With more time, it may be that more accurate data could be obtained. The undesirability of not having access to success rate data and the need for data mining ability in the Forensic Register is dealt with in Section 2.7, Quality management.

⁴¹² Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [11].

⁴¹³ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [15].

⁴¹⁴ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, Appendix 3h.

⁴¹⁵ Exhibit 225b, Professor Linzi Wilson-Wilde, Report on QHFSS DNA profile generation success rates, 24 November 2022, [12].

⁴¹⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [54].

2.7 Quality management

388. Due to the complex nature of DNA forensic science, the end users of the service ordinarily have little understanding of the process that sits behind the results. In fact, very few people outside of the laboratory would be able to form a view on whether the results being produced are accurate and reliable. As a result, the laboratory itself is the primary driver of ensuring the quality of the results and improving and optimising in the work it performs.
389. Achieving, maintaining and improving the accuracy and reliability of work performed in the laboratory should be the primary focus of all staff involved in the laboratory's operations. This is achieved by way a positive quality culture. Dr Kogios and Ms Baker reported there is an understanding that quality is everybody's responsibility in the Queensland laboratory.⁴¹⁷ However, the only way in which the results that the laboratory produces, and the laboratory more generally, can be trusted by the community is by way of rigorous quality management. While a quality management system does not guarantee good science, by requiring a conformity to methods and practices it provide a mechanism for staff to identify, raise and investigate issues that arise in the laboratory.

Quality management in the laboratory

390. The laboratory is an extremely complex system involving numerous people and activities. Quality management of such a system is a significant task that requires a broad understanding of forensic DNA science, intimate knowledge of the laboratory's end to end operations and the staff who work within it.
391. There is currently no position within the laboratory which is dedicated solely to forensic quality management.⁴¹⁸ When asked to explain who was responsible for the quality

⁴¹⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [208]; Exhibit 35, Statement of Catherine Allen, 16 September 2022, [47], CA-17, FSS Quality Commitment; Transcript, Day 21, 28 October 2022, p2657.8-9.

⁴¹⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [205].

management of testing, analysis and reporting methods, systems and processes, Managing Scientist Ms Allen explained that all staff have responsibilities for quality and three staff have additional responsibilities for quality at the laboratory.⁴¹⁹

392. The first of these is the Quality Manager⁴²⁰ who is responsible for the quality management system across all of QHFSS.⁴²¹ She reports directly to the executive director and does not sit within the laboratory. Ms Helen Gregg has been the occupant of this role for the past 16 years.
393. The second is the Senior Scientist Quality and Projects, whose role involves co-ordinating and providing advice regarding the quality system within the laboratory. This role is classified Health Practitioner Level 5 and reports to the Team Leader of Evidence Recovery and Quality, who in turn reports to the Managing Scientist.
394. The third is the Scientist Quality and Projects who supports the Senior Scientist Quality and Project to complete her duties and tasks.

The Quality Manager's role

395. Ms Gregg described the Quality Manager role as being responsible for leading, maintaining and improving the quality management system across QHFSS, ensuring effective liaison between QHFSS and key clients and promoting QHFSS services and initiatives.⁴²² Ms Gregg noted that there are approximately 350 employees at QHFSS across five different areas of scientific services.⁴²³ Ms Gregg is responsible for the quality management of all of the units and laboratories across these areas. These range from DNA analysis to the Coronial Mortuary to Radiation and Nuclear Sciences
396. The role is focused on managing and maintaining the 'quality system' and 'quality systems issues'⁴²⁴ rather than ensuring the quality of the work performed in the laboratory in

⁴¹⁹ Exhibit 35, Statement of Catherine Allen, 16 September 2022, [47]-[49].

⁴²⁰ This role is also referred to as the Scientific Support Manager.

⁴²¹ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [7].

⁴²² Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [7].

⁴²³ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [8]-[10].

⁴²⁴ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17, FSS Quality Management System Guide.

terms of its accuracy and reliability. The Quality Manager is to provide “operational leadership and management” to ensure each laboratory complies with certification, accreditation and legislative requirements, and “apply laboratory knowledge” to give advice to FSS laboratories. The role must monitor and ensure the laboratory performs favourably against comparable organisations. Further, the Quality Manager has responsibility for managing aspects of the occupational health and safety and the learning and development of FSS.

397. Ms Gregg also supervises a team of 29 staff in the Scientific Support Services Unit.⁴²⁵ This Unit is broad in scope, including, among other things, the library which provides information and research services and the Forensic and Public Health Property Points which receive, register and distribute all samples for these laboratories.
398. Quality Manager role has been designed to be an oversight and advisory role for QHFSS generally. Ms Gregg does not have day-to-day oversight over quality issues in the laboratory.⁴²⁶ There is no formalised process for the escalation of issues from the laboratory to Ms Gregg.⁴²⁷ Quality issues are usually dealt with at a local level (seemingly without her involvement or knowledge) and quality issues are usually only raised with her when they cannot be resolved at a local level.⁴²⁸ Dr Kogios and Ms Baker noted that Ms Gregg described her role as advisory in nature, with limited influence on quality in forensic DNA as the group is very self-reliant.⁴²⁹
399. Ms Gregg’s limited involvement in the quality management of forensic DNA analysis is due in part by her lack of experience and training in forensic DNA analysis. She has no experience working in DNA testing or analysis, no qualifications in forensic sciences and has not undertaken any formal training in the area.⁴³⁰ Experience in forensic DNA analysis

⁴²⁵ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [14].

⁴²⁶ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [21].

⁴²⁷ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [22].

⁴²⁸ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [21].

⁴²⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [206].

⁴³⁰ Exhibit 57, Statement of Helen Gregg, 16 September 2022, [5]-[13].

may not be a requirement of her role, but its lack means that the person in that role cannot provide specialised advice to the laboratory.

400. The consequence of having a Quality Manager who has no qualifications or experience in the subject matter while carrying such a broad scope of responsibilities became evident in hearings when Ms Gregg was unable to provide an example where she had proactively raised a quality issue relating to the laboratory in the previous five years. Ms Gregg said she has more of a “reactive style” than a proactive style of approach to quality issues in the laboratory.⁴³¹ Ms Gregg provided some clarification of this evidence in her statement dated 3 November 2022.⁴³² While it is clear that she has led and been involved in initiatives and projects at QHFSS, Ms Gregg remains unable to identify any proactive step she has taken in respect of the DNA laboratory. The need for proactive rather than reactive quality management was recognised by both Dr Kogios and Ms Baker,⁴³³ and by Ms Gregg’s supervisor, Acting Executive Director Lara Keller.⁴³⁴
401. Ms Gregg also said that she had never identified a tension between QPS requests and quality of outcome.⁴³⁵ In my view, this tension obvious. The lack of consideration that Ms Gregg has given this issue suggests that the operations of the laboratory and the potential risks to the quality of work undertaken within the laboratory were not front of mind.
402. These shortcomings are not Ms Gregg’s fault. They are a result of the organisational structure of the laboratory which required the Quality Manager to carry out an oversight and advisory role across a range of highly specialised scientific services. Dr Kogios and Ms Baker found that the Quality Manager role is too broad and too far removed from the laboratory to perform the function of setting and enforcing quality standards and keeping

⁴³¹ Transcript, Day 6, 4 October 2022, p795.43-796.7.

⁴³² Exhibit 243.4, Statement of Helen Gregg, 3 November 2022.

⁴³³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [209].

⁴³⁴ Transcript, Day 17, 24 October 2022, p2067.42-2068.9.

⁴³⁵ Transcript, Day 6, 4 October 2022, p811.19-34.

abreast of best practice.⁴³⁶ It is difficult to see how anyone in that position could properly understand and assess the quality of the science or results produced. The current Quality Manager role is simply not the appropriate role to manage quality within the laboratory.

The Senior Scientist Quality and Projects role

403. The role of Senior Scientist Quality and Projects has duties and responsibilities in relation to quality management in addition to other duties of her role.⁴³⁷ The position has day-to-day responsibility for matters relating to quality. This includes coordinating internal audits and proficiency testing, administration and follow-up on change management, calibrations, OQIs and documentation.⁴³⁸
404. The Senior Scientist Quality and Projects has one staff member (the Scientist Quality Projects) to assist in completing the requirements of the role.
405. While the Senior Scientist Quality and Projects has authority over the day-to-day management of her team and their work, in most aspects of quality and projects in the laboratory the role is an advisory one. She has no authority over senior staff (senior scientists, team leaders or the managing scientist) and on occasion she even receives directions from team leaders or the managing scientist.⁴³⁹
406. The current Senior Scientist Quality and Projects, Dr Kirsten Scott, outlined a number of constraints placed on the Quality and Projects processes, including:⁴⁴⁰
- a. there is little time for proactive quality management such as trend monitoring and the development of new systems; and

⁴³⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [210].

⁴³⁷ Exhibit 243.4, Statement of Helen Gregg, 3 November 2022, [19]; Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [6]-[7].

⁴³⁸ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [7].

⁴³⁹ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [8].

⁴⁴⁰ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [149]-[150].

- b. there is a mismatch between responsibility and authority as, while the role has the responsibility to ensure quality activities are completed, there is no authority to require it.

407. Dr Kogios and Ms Baker expressed concern that the current arrangements do not sufficiently empower the Senior Scientist Quality and Projects to set or enforce practice in relation to quality standards and keep abreast of emergent best practice in the broader forensic community.⁴⁴¹ I agree. It does not appear that this role is designed to have responsibility to manage the quality in the laboratory.

Responsibility for quality management in the laboratory

408. While I accept that all staff in the laboratory have responsibility for ensuring the quality of the work they produce, there must be appropriate management of the quality of a laboratory and this should ultimately be someone's responsibility. In my view, the current structure of the laboratory does not have adequate quality management. Neither the Quality Manager nor the Senior Scientist Quality and Projects are the appropriate positions to manage the quality of the laboratory nor can they do so together. On the one hand, the Quality Manager is too far removed from the laboratory and does not have the forensic expertise to set and enforce quality standards and engage with issues as they arise.⁴⁴² On the other hand, the Senior Scientist Quality and Projects is limited by other responsibilities and lack of authority.

409. The notion that quality is everybody's responsibility was repeatedly offered in evidence given to the Commission by management of the laboratory. When questioned about the quality management at the laboratory, Acting Executive Director Ms Keller said that "scientific practice means that everybody in the laboratory is responsible for the quality, not just two people" (referring to Ms Gregg and the Senior Scientist Quality and

⁴⁴¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [210].

⁴⁴² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [210].

Projects).⁴⁴³ When asked who is responsible for ensuring the processes in the laboratory are best practice, Ms Gregg answered that “all of the scientists are responsible for ensuring best practice in the laboratory.”⁴⁴⁴ Ms Allen made similar comments in her evidence.⁴⁴⁵

410. Decisions which affect the quality of the laboratory are made by the Management Team as a group, on top of each member’s other managerial and operational duties. When quality issues arise in the laboratory, they seem to become the joint responsibility of all members of the Management Team or all scientists involved. For example, when Ms Allen was asked if she took responsibility for the failure of the laboratory to review whether there was a problem with the sexual assault investigation kits after issues had been raised regarding sperm microscopies, she said “I think that’s the responsibility of our management team”.⁴⁴⁶ And when asked about the laboratory’s failure to pick up on obvious errors in validations, Ms Allen said “we all take responsibility for that”.⁴⁴⁷
411. While it is trite that all staff in the laboratory have “quality responsibilities”, the focus of the laboratory on this dispersed responsibility has resulted in nobody taking personal responsibility for the quality management of the laboratory.
412. Dr Kogios and Ms Baker found that the organisational approach to quality falls within the range of best practice.⁴⁴⁸ Given the deficiencies identified in the two quality positions with some responsibility for quality, and the state of the scientific processes in the laboratory uncovered by this Commission, I nonetheless find it was inadequate. For example, the quality management arrangements did not identify serious deficiencies in validations and projects done to inform changes to laboratory process (such as the Quant Trio and Proflex validations). Those arrangements did not identify shortcomings in the

⁴⁴³ Transcript, Day 17, 24 October 2022, p2073.41-47.

⁴⁴⁴ Transcript, Day 7, 10 October 2022, p787.41-47.

⁴⁴⁵ Exhibit 35, Statement of Catherine Allen, 16 September 2022, [47].

⁴⁴⁶ Transcript, Day 22, 31 October 2022, p2698.1-6.

⁴⁴⁷ Transcript, Day 22, 31 October 2022, p2698.1-6.

⁴⁴⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [212].

toolkit available to the laboratory (for example the lack of Y-STR testing) although the responsibilities of the Quality Manager are to ensure the laboratory benchmarks favourably against other institutions.

413. This demonstrates the need for a specific Quality Manager role which is responsible for focusing their attention on the quality of the operations and processes within the laboratory.
414. The lack of an appropriate position or positions to manage the quality of the laboratory is a failure of Queensland Health to appropriately structure and resource the laboratory. This failure has contributed to the laboratory operating below best practice. Dr Kogios and Ms Baker recommended strengthening the approach to quality through the establishment of a Quality Manager role and a Quality Lead role within each of the teams with identified responsibilities and lines of reporting.⁴⁴⁹
415. Accordingly, I recommend an appropriate position be established to manage the quality of the laboratory. It is important that a person with the appropriate skills and experience in Forensic Sciences fill that important position. Further, I recommend that Quality Lead roles be established within each of the teams.

- Rec 47. Queensland Health should establish a Quality Manager role, dedicated solely to forensic DNA casework. The Quality Manager's role should:
- a. report directly to the Executive Director, or to the same person to whom the Managing Scientist reports;
 - b. be separate from the organisational structure to ensure independence from casework activity;
 - c. be responsible for setting policy to drive best practice in relation to quality in forensic casework;
 - d. oversee quality issue identification to ensure proper processes are followed and investigations undertaken to a suitable standard;

⁴⁴⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [213]-[214].

- e. review investigations to ensure the correct issue identification and resolution process has been followed;
- f. communicate information regarding all quality issues identified and associated remedies to relevant staff;
- g. be responsible for reporting to the Executive Director and senior management on high severity quality issues and on quality trends;
- h. work proactively to drive a quality culture that supports scientific best practice;
- i. be connected to the laboratory's Evidence Recovery, Analysis and Reporting Quality Leads and advocate on their behalf to ensure alignment of practice to policy, if required; and
- j. be connected to the broader Australasian forensic quality community, in part through membership of relevant national groups (i.e. ANZPAA NIFS QSAG).

Rec 48. Queensland Health should establish a Quality Lead role within each of the laboratory teams who should:

- a. have the primary focus of their role on the quality of the team;
- b. continue to perform, and remain sufficiently connected to, casework to maintain contemporary knowledge;
- c. support the team to align practice to policy to ensure quality;
- d. be connected to the Quality Manager and escalate matters if required; and
- e. provide mentorship to junior staff on quality issues and promote an attitude among staff that treats the integrity of the work and the results of that work as paramount.

The current quality system in the laboratory

416. Quality in the laboratory is managed by the QHFSS Quality Management System which is in turn informed by the QHFSS Quality Commitment.⁴⁵⁰ The QHFSS Quality Commitment states that “FSS will reliably provide quality products and services to its customers” through several objectives, which include supplying products and services that meet contractual and regulatory requirements and ensuring that products and services deliver the accuracy and timeliness expected by customers.⁴⁵¹
417. The ‘QHFSS Quality Management System Guide’ lists a number of aspects of the Quality Management System, including Quality Indicators (which is a list of indicators such as ‘audits overdue’, ‘critical OQI’s open >30 days’ and monthly budget reports), Document Control, Corrective/Preventative Action and Complaints (which is the OQI process and reporting of adverse events), Internal Audits, Management Review and Client Feedback.⁴⁵² This information and the Quality Management System more generally is coordinated through the Quality Information System (**QIS**) database. The database holds the Standard Operating Procedures, OQIs and internal audits, among other things.⁴⁵³
418. When quality issues arise in the laboratory, there are a variety of pathways to manage the issue. An issue or event can be reported by a scientist by recording information in the ‘batch results’, identifying and logging an ‘adverse event’, or raising an OQI.⁴⁵⁴ Should that issue then require investigation or further analysis, the matter will be investigated in the OQI process or by way of progressing a project.
419. Each of these pathways takes a very different approach and they appear to escalate in seriousness from a note in the batch results through to commencing a project to investigate the issue. There is no formal procedure for which pathway to follow in what

⁴⁵⁰ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17, FSS Quality Management System Guide.

⁴⁵¹ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17 FSS Quality Management System Guide

⁴⁵² Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17 FSS Quality Management System Guide

⁴⁵³ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17 FSS Quality Management System Guide

⁴⁵⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [215].

circumstances. The ‘Procedure for Quality Practice in Forensic DNA Analysis’ does not provide a framework for when or how to progress a quality issue.⁴⁵⁵

420. The Standard Operating Procedure regarding the adverse events log states that significant adverse events, or adverse events for which corrective action is needed, will require an investigation to be completed.⁴⁵⁶
421. The Standard Operating Procedure regarding OQIs is not specific to forensic science or the laboratory (applying to all of Health Support Queensland, the broader organisation in which QHFSS sits).⁴⁵⁷ It states that all staff may raise an OQI, however, a degree of judgment needs to be exercised in deciding what resources to expend on corrective and preventive action and associated record keeping. It lists occasions on which OQIs must, can or should not be raised. These are in broad terms, such as, where there is a significant deviation from the documented process and simply “problems that occur internally”.⁴⁵⁸
422. Dr Kogios and Ms Baker were advised by laboratory staff that there was a ‘grey area’ in terms of whether an OQI should be raised in relation to a particular issue and there was no risk assessment required when making the determination of how to raise the issue.⁴⁵⁹
423. If a quality issue requires a significant investigation, a project may be proposed and commenced as a tool to establish if there is an issue, to further investigate an issue, or resolve an identified issue, or validate or verify a new process.⁴⁶⁰ Projects are used across all teams, however due to the staff and cost involved in the completing projects, they are prioritised and progressed selectively by the laboratory.⁴⁶¹

⁴⁵⁵ Exhibit 190.27, Statement of Kirsten Scott, 22 July 2022, KS-10.

⁴⁵⁶ Investigating Adverse Events in Forensic DNA Analysis, Exhibit 35, Statement of Catherine Allen, 16 September 2022.

⁴⁵⁷ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17, Opportunity for Quality Improvement (OQI) Management Procedure (HSQ).

⁴⁵⁸ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17, Opportunity for Quality Improvement (OQI) Management Procedure (HSQ).

⁴⁵⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [217].

⁴⁶⁰ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [43].

⁴⁶¹ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [43].

424. There is no clear procedure for when to progress a project for a quality issue. Dr Kogios and Ms Baker reported that in their discussions with staff, concerns were raised about the lack of exploration, communication and formal methodology in the laboratory's approach to projects.⁴⁶²
425. I also note that there are no quality specific meetings or committees.⁴⁶³ Quality issues such as OQIs, internal audits and customer service issues are required to be considered as part of the agenda for the Management Team meetings amongst all of the other day-to-day issues that are discussed in those meetings.⁴⁶⁴ These meetings were reported to Dr Kogios and Ms Baker as being more information sharing than decision making in nature.⁴⁶⁵

The difficulties with the approach to quality issues

426. There are a number of difficulties with the laboratory's current approach to dealing with quality issues.
427. *First*, the culture one in which scientists are unwilling or unable to raise quality issues. Some scientists are fearful of retribution or reprisal action if issues are raised.⁴⁶⁶ Some scientists experienced that issues were raised but nothing was done to address the issue or it was regarded as a nuisance by the Management Team.⁴⁶⁷ During their time at the laboratory, Dr Kogios and Ms Baker heard of barriers to raising quality issues, concerns about the length of time taken to resolve quality issues and concerns regarding a lack of

⁴⁶² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [221].

⁴⁶³ Exhibit 35, Statement of Catherine Allen, 16 September 2022, [35]-[37].

⁴⁶⁴ Exhibit 35, Statement of Catherine Allen, 16 September 2022, CA-17.

⁴⁶⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [220].

⁴⁶⁶ Statement of Kylie Rika, 6 October 2022, [68]-[72]; Statement of Ingrid Moeller, 6 October 2022, [89]; Exhibit 60, Statement of Alicia Quartermain, 6 October 2022, [15]-[17]; Transcript, Day 1, 26 September 2022, p121.5-122.9; Transcript, Day 14, 19 October 2022, p1780.1-31.

⁴⁶⁷ Statement of Ingrid Moeller, 6 October 2022, [88]; Statement of Alicia Quartermain, 6 October 2022, [15]-[17]; Transcript, Day 1, 26 September 2022, p103.18-30; Transcript, Day 7, 10 October 2022, p907.30-908.22; Transcript, Day 10, 13 October 2022, p1275.5-1278.19 and p1295.45-1296.34.

commitment to quality on the part of some members of the laboratory.⁴⁶⁸ The current quality system relies heavily on scientists to raise quality issues and concerns. A system of this nature will only operate successfully where scientists are willing and able to be candid with higher authority.

428. *Second*, the way in which quality issues are to be raised is unclear and the progress of them is not transparent.⁴⁶⁹ There are a number of pathways for progressing a quality issue with no clear guidance on which pathway should be used, what should be done and how long the process should take.
429. *Third*, staff are not given the time to identify or investigate the quality issues.⁴⁷⁰ This is related to the breadth of the quality roles discussed above, the reliance on staff with casework roles to perform projects and investigations⁴⁷¹ and the laboratory's focus on throughput and turn-around times. When there is a focus on completing work quickly, the consequence is the loss of time to properly consider the work.
430. *Fourth*, when quality issues are raised a proper in-depth root cause analysis is often not performed and instead the reason 'unintended human error' is given as the reason for the problem.⁴⁷² Dr Kogios and Ms Baker recommended that where human error is identified as a contributing factor, this should be further explored to understand the underlying cause and how the systems and processes allowed the human error to occur.⁴⁷³

⁴⁶⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [208].

⁴⁶⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [221]-[222]; Transcript, Day 1, 26 September 2022, p133.20-45.

⁴⁷⁰ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [149]-[151]; Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [184].

⁴⁷¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [249].

⁴⁷² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [218].

⁴⁷³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [222(c)].

431. *Finally*, decisions relating to quality issues are made by consensus with the Management Team. Reaching a consensus can take considerable time and unnecessarily delay the resolution of a quality issue. Further, the spread of responsibility for reviewing and considering these decisions is likely to result in the diffusion of responsibility and inadequate attention given to each decision.⁴⁷⁴ Dr Kogios and Ms Baker were of the view that decision-making for quality issues relating to science should not be by consensus.
432. Dr Kogios and Ms Baker found that while the quality issues management had withstood scrutiny through accreditation, the laboratory is not managing risk in accordance with best practice. In my view, for the reasons set out above, the way the laboratory handles quality issues falls well below best practice.
433. Dr Kogios and Ms Baker were of the view that a national forensic quality management framework would be of significant benefit to the Australian forensic community and recommended that laboratory's representative propose to the Australia New Zealand Policing Advisory Agency's National Institute for Forensic Science (**ANZPAA NIFS**), the peak body for Forensic Science in Australasia) that a national framework be developed. I see the benefit that a framework would give and accordingly, I adopt this recommendation.
434. Assuming that ANZPAA NIFS develops this framework, it would be appropriate that the laboratory review its quality management system against any framework or guidelines developed by ANZPAA NIFS.
435. In terms of dealing with the issues identified in the laboratory's current approach to managing quality issues, I make a number of recommendations which are largely informed by the work performed for the Commission by Dr Kogios and Ms Baker.

⁴⁷⁴ For example, obvious errors were missed by all members of management when validating the limit of detection with the Quantifiler Trio and QuantStudio 5, see: Transcript, Day 19, 26 October 2022, p2453.3-11; Transcript, Day 22, 31 October 2022, p2691.43-2692.46.

436. Many of these recommendations are focused on improving the current situation with projects. To this end, I recommend that a Research, Development and Innovation team be established by Queensland Health to perform projects and validations, among other things. These recommendations are also aimed to address some of the issues with validations which are discussed in Section 2.3, Validations. They are based on Dr Kogios and Ms Baker's findings and recommendations regarding a dedicated Research, Development and Innovation capability to ensure that the laboratory is aware of and keeps pace with national and international developments, and also to ensure that validations and evaluations are conducted in line with standard research methodology.⁴⁷⁵ They noted that a dedicated Research, Development and Innovation capability exists within a number of forensic service providers in Australia and New Zealand, but not in Queensland. In my opinion the lack of such a capability has prevented projects and validations being completed in a timely way.⁴⁷⁶

Rec 49. The laboratory's representative should propose to ANZPAA NIFS, through the QSAG, that a national quality management framework, utilising a tiered approach informed by risk, is developed for quality issue investigation.

Rec 50. The laboratory should review its quality management system against any framework (or similar) developed by ANZPAA NIFS within three months of its release.

Rec 51. The laboratory, through its training, policies and procedures, should encourage staff to raise quality issues and scientific concerns with management and ensure that staff are able to raise these issues with any member of the Management Team (Technical Lead, Quality Manager and Operations Manager) as well as directly to the Executive Director, should they feel it necessary. To this end, a formal system of regular meetings devoted to open discussion of science and technology issues should be established.

⁴⁷⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [244].

⁴⁷⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [245] and [252].

- Rec 52. The laboratory should implement a transparent system by which quality issues and scientific concerns raised by staff are investigated and addressed and that the person investigating the issue or concern provides updates to the initiating staff member/s and all staff members throughout the investigation and a briefing at the conclusion of the investigation.
- Rec 53. The laboratory should amend its quality processes to:
- a. capture all issues in a single log so as to provide full visibility for trend analysis.
 - b. apply a formal risk assessment to classify issues on the basis of risk, impact and likelihood of occurrence. The laboratory should progress those issues via a timely, fit-for-purpose process, based on classification.
 - c. progress issue investigation with in-depth root cause analysis for all issues that might impact results
- Rec 54. In relation to projects, the laboratory should amend its processes to:
- a. implement a standardised approach to project methodology;
 - b. provide training to staff regarding project-related work; and
 - c. employ specific skill sets such as statistics expertise in project work, as and when required.
- Rec 55. Queensland Health should adequately resource a dedicated Research, Development and Innovation team for the laboratory to support proactive access to an up to date, fit for purpose suite of forensic techniques and technology and ensure the laboratory remains contemporary in terms of scientifically valid service delivery. That capability should include at least four scientists, including a Senior Scientist, and include a person with formal experimental design and statistical qualifications and/or expertise.
- Rec 56. The laboratory should implement rotations and secondments so that scientists from casework teams are seconded on a full time basis to The Research, Development and Innovation capability for periods of time to ensure that projects

and validations are completed in a timely manner and to advance their own learning.

Rec 57. Scientists completing projects should work full-time on those projects until they are completed, unless it is not necessary for the completion of the project in a timely manner.

Rec 58. The laboratory Management Team should treat projects and validations with the same level of significance as the day-to-day operations of the laboratory.

Internal quality assurance

Peer review

437. A fundamental aspect of the quality management system in the laboratory is peer review. This is performed at various stages of the workflow, including for example that all witness statements are peer reviewed in full by a second reporting scientist before they are signed and released.⁴⁷⁷ All results released to the QPS have been reviewed prior to their release.
438. Dr Kogios and Ms Baker found there was a strong understanding among laboratory staff of the importance of peer review, finding that the peer review practice at the laboratory fell within the range of best practice with one exception: the lack of peer checking of spermatozoa on a slide.⁴⁷⁸
439. It is not standard practice at the laboratory that a second scientist confirms the presence of spermatozoa on a low count slide. Dr Kogios and Ms Baker considered that peer checking of critical findings such as this an important element in peer review.⁴⁷⁹
440. Dr Kogios and Ms Baker also highlighted another area where the peer review practice could be strengthened. Scientists had reported to them that there was a tendency for

⁴⁷⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [141].

⁴⁷⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [146]-[147].

⁴⁷⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [143].

staff, when selecting profile interpretations to review, to preferentially avoid or accept particular scientists' work. ⁴⁸⁰ Dr Kogios and Ms Baker considered that random assignment of reviewers would be more conducive to a healthy quality environment and align with emergent best practice. ⁴⁸¹

441. Mr Howes' provided evidence to the commission that he was aware of the 'preferential reviewing' of others work. He stated: ⁴⁸²

A difficulty was raised that staff were preferentially reviewing each other's work, instead of reviewing a wide variety of scientist's work (the ideal state in order to prevent potential bias). This was discussed between senior scientists as a minor disagreement. I suggested a practical solution was to add an FR enhancement request to assist visibility of staff's work practices... I am not aware if the enhancement has been raised.

442. The laboratory's management has taken no substantive steps to determine if reporting scientists were preferentially reviewing other reporters' interpretations and to ensure that behaviour does not occur.

443. Emergent best practice goes even further than random assignment of review and requires the second scientist to be fully blinded to the first scientist's work to prevent bias, thereby performing the review without the influence an identified scientist's perspective. ⁴⁸³ To conform to this emerging best practice, the Forensic Register will need to be configured to ensure information about the first review and reviewer is not available until after the peer review is conducted to ensure the independence and impartiality of peer review.

Rec 59. The laboratory should implement peer checking of spermatozoa results on microscope slides in the Evidence Recovery team.

⁴⁸⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [143], [197].

⁴⁸¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [143], [146]-[147].

⁴⁸² Exhibit 148, Statement of Justin Howes, 6 October 2022, [151], JH-68.

⁴⁸³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [124].

Rec 60. The laboratory should implement a system, including through amendment of standard operating procedures and the Forensic Register, whereby a peer reviewer of a profile interpretation is randomly allocated so that scientists are unable to select whose work to review.

Internal audits

444. The laboratory conducts approximately eight to ten internal audits per year to review practice against a set of standards. Audit topics are suggested by management, and a schedule is created by Senior Scientist Quality and Projects which is approved by the Quality Manager. Topics can include review of training, new processes and areas based upon ISO 17025.
445. Audits are usually conducted by scientists within the laboratory but on occasion Queensland Health staff external to the laboratory will conduct the audit.⁴⁸⁴ Results are ordinarily collated by the quality team, recorded in a database and emailed to the Management Team.⁴⁸⁵ If something arises during the audit that needs to be addressed, an OQI is raised by the Quality Team.⁴⁸⁶
446. While Dr Kogios and Ms Baker found that the internal audit program fell within the range of best practice, they did observe that internal audits do not include ‘whole of casefile’ reviews and recommended that this be considered.⁴⁸⁷ The experts suggested that a topic such as sexual assault casework could be selected and then a selection of recent cases of that type be reviewed to identify issues or trends such as differences in interpretation or reporting style.

⁴⁸⁴ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [96].

⁴⁸⁵ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [95].

⁴⁸⁶ Exhibit 30, Statement of Kirsten Scott, 7 October 2022, [43].

⁴⁸⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [242].

447. In light of the issues identified in this Commission and the changes that are likely to result from it, I consider that regular audits involving whole of casefile reviews would be beneficial to managing the quality of the laboratory in the future.

Rec 61. The laboratory should include in its internal audit process every year:

- a. full casefile review of all types of casework undertaken by the laboratory;
and
- b. revisiting areas of non-compliance from prior audits.

Document management

448. Another part of quality management is document control. This is important in the laboratory because processes and procedures are detailed and technical. They need to be documented for other scientists to follow.

449. The laboratory conducts periodic reviews of Standard Operating Procedures by assigned staff. These are performed annually or as required by a change in process.⁴⁸⁸ Between reviews, authorised persons may add a comment to the electronic version of the standard operating procedure, including about fundamental issues. Dr Kogios and Ms Baker were concerned by the wide range of comments being added to Standard Operating Procedures and the time taken to incorporate them formally. They noted that a single person approving any changes to Standard Operating Procedures ensures a holistic overview and consistency.⁴⁸⁹ Ultimately, they recommended that the laboratory's document management could be strengthened through proactive oversight of comments added to Standard Operating Procedures, triaging those that can await the Standard Operating Procedures annual review, and action the review and feedback process for those that require more timely attention.

⁴⁸⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [228].

⁴⁸⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [230].

- Rec 62. The laboratory should implement a process to:
- a. proactively triage standard operating procedure comments and amendments;
 - b. ensure urgent comments and amendments are made promptly; and
 - c. ensure other comments and amendments are made within an appropriate timeframe.

Data collection

450. I was surprised to find that the laboratory does not control its own data. It cannot obtain data from the Forensic Register itself across multiple casefiles. To obtain data, the laboratory must seek a quote from bdna to construct a report for the data and that must be factored into budgetary considerations. This means that the laboratory cannot easily monitor trends or easily examine issues that arise, such as success rates from various items, result amendments, requests for further testing and turn around times.⁴⁹⁰ Ms Allen accepted this lack of capability was a problem in the laboratory.⁴⁹¹ A number of scientists also said they were concerned by the lack of data mining capability.⁴⁹²
451. The inability for the laboratory to interrogate data is likely to have a flow on effect of deterring managers and scientists from raising issues. A scientist who notices an issue does not know if the issue an isolated one or if it is part of a trend. As a result, scientists in the laboratory resorted to compiling their own spreadsheets when they noticed issues that they suspected were a trend.⁴⁹³
452. In terms of monitoring success rates, Professor Wilson-Wilde explained that the process for collecting success rates is very complicated and the data is difficult for a laboratory to

⁴⁹⁰ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [20].

⁴⁹¹ Transcript, Day 22, 31 October 2022, p2766.42-2767.20.

⁴⁹² Exhibit 78, Statement of Kylie Rika, 6 October 2022, [19]-[20]; Exhibit 67, Statement of Rhys Parry, 28 September 2022, [9], [128].

⁴⁹³ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [26]; Exhibit 64, Statement of Angelina Keller, 6 October 2022, [50], AK-19, Spreadsheet of bone sample results between 2019-2022.

gather.⁴⁹⁴ Despite this, when asked whether success rate data is of interest as a manager if a laboratory in terms of making decisions, Professor Wilson-Wilde said:⁴⁹⁵

It's extremely useful. Extremely useful. It can tell you whether your systems are working or not working, and if you can track your samples through the process you can potentially identify issues with components of the methodology, et cetera.

453. Professor Wilson-Wilde said she would advocate for a system that can produce that data in a readily digestible format.⁴⁹⁶ Professor Wilson-Wilde explained that the laboratory which she oversees in South Australia has recently implemented the ability to extract success rate data and that the Forensic Register is arguably better than the system used in South Australia at collecting this sort of data.⁴⁹⁷
454. The success of data mining depends on what data is collected. Queensland Health's inability to guarantee accuracy of success rate statistics because of the fields used to compile them and the concerns around samples and sub-samples indicates that further consideration should be given to how data is collected in the Forensic Register.
455. Further, the laboratory does not have a set of measures in place to judge its performance or effectiveness. That was recommended by the Queensland Audit Office in 2019.⁴⁹⁸ Some work has been progressed by the laboratory to develop Key Performance Indicators, although I note that many of these relate to turn around times and few to quality, accuracy and reliability of validations, processes or results. The laboratory should develop such measures in collaboration with their stakeholders, such as the QPS and the Coroners Court of Queensland.
456. The only current data regarding the laboratory's turnaround times measures the time from sample submission to a cold link on the NCIDD.⁴⁹⁹ It does not measure other

⁴⁹⁴ Transcript, Day 26, 25 November 2022, p3139.42-3140.16.

⁴⁹⁵ Transcript, Day 26, 25 November 2022, p3140.33-40.

⁴⁹⁶ Transcript, Day 26, 25 November 2022, p3140.42-3141.2

⁴⁹⁷ Transcript, Day 26, 25 November 2022, p3167.18-38.

⁴⁹⁸ Queensland Audit Office, Delivering Forensic Services, Report 21: 2018-19, 27 June 2019, p10.

⁴⁹⁹ Transcript, Day 2, 27 September 2022, p242.5-7.

turnaround times relevant to the criminal justice system such as comparison to a reference sample or preparation of a statement. This is not a comprehensive measure of the laboratory's performance.

457. In my view, the ability to data mine is crucial to the management of the laboratory. All efforts should be made by Queensland Health to implement a system by which data mining can easily occur.

Rec 63. The laboratory and the QPS should reach agreement with bdna to ensure that the laboratory can readily access data and perform data mining tasks appropriate for its functions within the Forensic Register, on its own initiative, by laboratory staff and at any time.

Rec 64. The laboratory, in collaboration with their stakeholders, should identify a framework within which the quality of results and the output of the laboratory can be measured using data. That framework should include consideration of the proportion of certain types of samples that return useable profiles (for example, blood, semen, saliva, SAIK samples), turnaround times for both NCIDD uploads and comparing to reference samples.

External quality assurance

The external review of the laboratory

458. There are two types of external review the laboratory undertakes, NATA accreditation and proficiency testing. Outside of the NATA accreditation process, the laboratory has not engaged in any in-depth external review of its scientific processes in the last 20 years.⁵⁰⁰

NATA accreditation

459. Currently the laboratory is accredited by NATA to the international standard ISO/IEC 17025. This international standard is for 'testing and calibration laboratories' and is a broad and generic standard for laboratories. It is not specifically written for forensic laboratories.

⁵⁰⁰ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [96].

460. Elements of the standard can be applied to forensic science, such as the maintenance and calibration of instruments and participation in proficiency testing. In many ways, the analytical phase of DNA analysis is similar to other laboratories, involving pipetting, automation, machines that need to be calibrated and a carefully documented system. It is the other phases where DNA forensic science diverges from a traditional laboratory, such as reporting and interpretation where DNA specific technology (such as STRmix) is used, subjective analysis is undertaken, judgment calls are made and the careful communication of information is required.
461. As a result, the standard against which the laboratory is accredited, as a generic standard for laboratories, would not consider the integrity of the forensic science aspects of the laboratory. Further, NATA accreditation provides only a high-level overview of the scientific processes. It is not part of NATA's assessment to determine whether the laboratory is actually operating in accordance with best practice.⁵⁰¹
462. Despite the obvious limitations of the accreditation process, the Director-General of Queensland Health, Mr Drummond said that he was given advice by Queensland Health staff that there was no reason for concern or for an independent review of the laboratory because the laboratory was NATA accredited, as if this amounted to an absolute validation of the laboratory's systems and processes.⁵⁰² This advice was misconceived.
463. Mr Drummond understood that NATA provides a high-level overview of scientific process but that it does not go into the detail. He explained that it was fundamentally flawed to say in answer to issues being raised that the laboratory is NATA accredited because NATA are not looking at how decisions are being made.⁵⁰³ That is particularly so in relation to what might be considered policy decisions, such as the level of a threshold for further processing.

⁵⁰¹ Transcript, Day 24, 2 November 2022, p2947.12-2948.32.

⁵⁰² Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [14]; Transcript, Day 6, 4 October 2022, p708.45-709.1.

⁵⁰³ Transcript, Day 6, 4 October 2022, p706.

464. In my view, the current NATA assessment, against ISO 17025 alone, is not sufficient external review for a forensic service provider and does not guarantee the scientific integrity of the work of an organisation.
465. Notwithstanding the limitations of accreditation, it is a useful tool to ensure regular external review of a laboratory. Dr Kogios and Ms Baker noted that NATA also offers assessment against four Australian Standards for Forensic Analysis specifically:⁵⁰⁴
- a. AS 5388.1 Forensic Analysis, Part 1: Recognition, recording, recovery, transport and storage of material
 - b. AS 5388.2 Forensic Analysis, Part 2: Analysis and examination of material
 - c. AS 5388.3 Forensic Analysis, Part 3: Interpretation
 - d. AS 5388.4 Forensic Analysis, Part 4: Reporting
466. The Forensic Analysis standard is in four parts, but it is said to recognise the end-to-end nature of the forensic enterprise from crime scene to the court.⁵⁰⁵ These standards were developed by well-respected members of the forensic community and the process was overseen by a committee with representatives from various stakeholders including police agencies, universities, and NATA. The standards were informed by existing protocols and methods used by jurisdictions and on other standards where these existed. Importantly, the authors of the standards emphasised that standards are aimed at acceptable professional practice, not best practice or even aspirational levels of best practice.⁵⁰⁶

⁵⁰⁴ James Robertson, Karl Kent & Linzi Wilson-Wilde (2013) The Development of a Core Forensic Standards Framework for Australia, *Forensic Science Policy & Management: An International Journal*, 4:3-4, 59-67, DOI: 10.1080/19409044.2013.858797.

⁵⁰⁵ James Robertson, Karl Kent & Linzi Wilson-Wilde (2013) The Development of a Core Forensic Standards Framework for Australia, *Forensic Science Policy & Management: An International Journal*, 4:3-4, 59-67, DOI: 10.1080/19409044.2013.858797.

⁵⁰⁶ James Robertson, Karl Kent & Linzi Wilson-Wilde (2013) The Development of a Core Forensic Standards Framework for Australia, *Forensic Science Policy & Management: An International Journal*, 4:3-4, 59-67, DOI: 10.1080/19409044.2013.858797.

467. I see no reason why the laboratory should not be accredited to the Forensic Analysis standards.

Rec 65. The laboratory should apply to NATA to broaden the scope of its accreditation to be assessed against Australian Standards 5388.1, 5388.2, 5388.3, 5388.4.

Proficiency tests

468. Proficiency tests involve commercial providers providing samples for testing with known DNA in them. The samples are tested and analysed by the laboratory and the results submitted for assessment. These aim to test the competency of the scientists in the laboratory. The laboratory uses a similar regime to other Australasian forensic services providers.⁵⁰⁷

469. There are three key limitations with proficiency testing in the laboratory.

470. *First*, all proficiency tests are either single source profiles or mixtures of DNA from two people.⁵⁰⁸ The current tests are also high quality and high quantity DNA samples.⁵⁰⁹ These are relatively straight-forward samples to test and interpret.

471. *Second*, scientists are aware that they are testing or interpreting a proficiency test sample.⁵¹⁰ This means scientists know that there is DNA in the sample, a profile to be reported and the result will either be single source or a two-person mixture. This is not a true test of the scientists' ordinary approach to their work.

472. *Third*, due to the operating model of the laboratory, the current proficiency testing regime does not test analytical scientists' competence individually. The analysis stage is tested

⁵⁰⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [152(a)].

⁵⁰⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [152(a)].

⁵⁰⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [153].

⁵¹⁰ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [111].

holistically.⁵¹¹ There is no external or internal proficiency test in use for individual analytical scientists. It was submitted on behalf of Dr Scott that it is more correct to say that the proficiency test is completed on an ad hoc basis where tests are deployed in a way in which they are not specifically allocated to a staff member as a test. In my view, this does not test individual analytical scientists.⁵¹²

473. While these are significant limitations in the current options for proficiency testing, it remains a valuable process to help monitor the performance of the organisation. When more complex proficiency tests become available on the market, the laboratory should take up those opportunities. In the meantime, the laboratory should implement full blinding in proficiency testing in line with emergent best practice and proficiency testing for individual scientists.

Rec 66. The laboratory should implement full blinding in proficiency testing so that scientists do not know they are testing a proficiency test sample.

Rec 67. The laboratory should implement proficiency testing for individual analytical and reporting scientists.

474. Due to the constant developments in science and technology, forensic science is continually evolving and the body of literature around forensics is growing.⁵¹³ Forensic service providers must stay informed and connected to others to ensure that they remain abreast of improvements and emerging practices.

475. Dr Kogios and Ms Baker explained that to transition to emergent best practice involves a steady process of transformation.⁵¹⁴ In order to do this, the laboratory must be constantly learning, adapting and evolving. They must be given the time and resources to do this.

⁵¹¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [152(d)].

⁵¹² Submissions on behalf of Kirsten Scott, 25 November 2022, [2.20].

⁵¹³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [7].

⁵¹⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [7].

476. The most obvious way for the laboratory to remain abreast of best practice is through their relationships with their peers in other laboratories. In evidence, Dr Kogios said that “(forensic service providers) all benefit from informal engagement with other forensic science providers outside of our own, a bit of a sense check if you like, and certainly the specialist advisory groups that are coordinated by the National Institute of Forensic Science are very good at doing that.”⁵¹⁵ This is true of any industry, where much is learnt from peers as to new and improved ways of doing things.
477. ANZPAA NIFS is considered the peak body for forensic science in Australia and New Zealand. ANZPAA NIFS has established Specialist Advisory Groups which meet and aim to support and promote the continuous improvement of forensic disciplines, encouraging collaboration and innovative thinking.
478. The laboratory is connected to the broader forensic science community through membership of Australian and New Zealand Forensic Executive Committee, and the Biology and Quality Specialist Advisory Groups. These groups are important opportunities for learning and improvement for the laboratory. It is important that the representative who attends meetings on behalf of the laboratory has knowledge of forensic science and involvement with the laboratory.
479. Despite the connection with the broader forensic community through these groups, the laboratory has not kept abreast of all areas of common practice in other laboratories.⁵¹⁶ Further, the laboratory does not encourage, and at times has discouraged, scientists to access expertise from interstate or overseas laboratories to assist in performing quality work.⁵¹⁷
480. Another way to maintain knowledge of emerging science and best practice in the area is to engage with academics and tertiary education providers. Educational institutions are

⁵¹⁵ Transcript, Day 24, 2 November 2022, p2950.10-16.

⁵¹⁶ Statement of Emma Caunt, 7 October 2022, [106] and for example, Evidence of Catherine Allen, 31 October 2022, p2687.22-31.

⁵¹⁷ Statement of Emma Caunt, 7 October 2022 [104]-[106]; Transcript, Day 20, 27 October 2022, p2459-9-2461-11.

constantly examining the areas in which they teach and often funding useful studies. The laboratory should be engaging with tertiary education providers regularly so that information can be shared between the organisations, which will improve processes at the laboratory and may in turn attract new talent to the laboratory's workforce.⁵¹⁸

Rec 68. The head of the laboratory, with the support of the Minister and Queensland Health, should engage with relevant tertiary education providers and discuss common ground in the research and expertise space with a view to establishing a memorandum of understanding to achieve work exchanges, mutual training, student placements and research opportunities.

Rec 69. The representative of the laboratory at the ANZPAA NIFS Quality Specialist Advisory Group meetings should be the Quality Manager (with specialised knowledge of forensic DNA analysis) or the Technical Lead so that they can contribute to discussion and learn from the other members.

Quality must be prioritised and resourced

481. I find that the lack of adequate quality management has had adverse consequences for the scientific integrity of the work of the laboratory. Significant scientific issues identified by all experts engaged by the Commission were not identified by the management of the laboratory. Quality must no longer hold an inferior priority position compared to the emphasis given to meeting turn-around times.

482. Dr Kogios and Ms Baker stated that they were concerned that there may be insufficient resources dedicated to the quality function, given the challenges facing the laboratory, the complexity of DNA work and its importance in the criminal justice system.⁵¹⁹ I also hold these concerns. The quality management of the laboratory must be appropriately funded and resourced by Queensland Health.

⁵¹⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [251].

⁵¹⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [210].

2.8 Management and organisational structure

483. As set out in Section 2.1, Structure of the laboratory, the current management structure of the laboratory has the Managing Scientist, Ms Allen, managing all aspects of the laboratory. Ms Allen has two team leaders who report to her. Mr Justin Howes, is the team leader of Forensic Reporting and Intelligence, and Ms Paula Brisotto, is the team leader of Evidence Recovery and Quality. Ms Allen also had a small administrative team to assist her.

The role of the Managing Scientist

484. The core responsibility of the Managing Scientist is to provide strategic direction and advice on a State, national and international level, about forensic DNA analysis processes, staff competency training and development, change management projects, workplace health and safety, risk management, client interfaces, business development, and planning for the future direction of the FSS Forensic DNA Analysis Unit.⁵²⁰

485. The duty statement of the Managing Scientist outlines the broad responsibility of the role. It states, among numerous other responsibilities, that the role is:⁵²¹

- a. responsible for providing leadership, management and innovation in Forensic Chemistry and Forensic DNA Analysis.
- b. accountable for establishing and maintaining effective working relationships with all relevant government and non-government agencies to provide a quality, client focused service.
- c. to actively pursue quality, innovation, integration and standardisation in efficient service delivery.
- d. to develop and implement strategic direction.

⁵²⁰ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [8].

⁵²¹ Exhibit 171, Statement of Catherine Allen, 16 September 2022, CA-03.

- e. accountable for all aspects of operational management and development of people and facilities within Forensic DNA Analysis and Forensic Chemistry, which includes asset and financial management as well as people management issues.
 - f. accountable for the effects of all policy generated from within the position's jurisdiction.
 - g. to utilise high level negotiation and conflict management skills to advocate with stakeholders in securing resources or other outcomes for Forensic DNA Analysis and Forensic Chemistry.
486. The nature of the responsibilities of the Managing Scientist as outlined in the duty statement range from high level managerial to scientific innovation to day-to-day operational issues. This role described is complex and involves significant management capabilities.
487. It is apparent from the number and breadth of scientific issues identified as below best practice or inadequate in this report, and the extent of retrospective review that is required to prevent miscarriages of justice, that Ms Allen has not been able to fulfil the responsibilities of her role. This state of affairs has been caused by both the structure of her role within FSS and her personal performance of it.
488. Ms Allen gave evidence to the Commission about the breadth of her responsibilities to manage both the Forensic DNA Analysis Unit and Forensic Chemistry. She said that Forensic Chemistry is made up of three different groups: the illicit drug group, the clandestine laboratory group and the trace evidence group. Ms Allen said that she has responsibility for about 110 staff members.⁵²²
489. Ms Allen said that the role is inherently stressful and none of her three direct reports were "overly keen to undertake higher duties in my role". She said "the difficulty with trying to obtain resources for either of my two teams is extremely stressful. Trying to do more with

⁵²² Transcript, Day 23, 1 November, p2801.15-29.

less is really difficult.”⁵²³ Ms Allen pointed out that there had been numerous persons in the position of Executive Director FSS, her direct manager, over time and that they did not necessarily understand the forensic services.

490. When asked to explain who was responsible for consideration and implementation of new instruments, software, processes or systems, Ms Allen said that all members of the Management Team were responsible for ensuring that the laboratory kept abreast of emerging technology and its possible benefits for the laboratory.⁵²⁴ The responsibilities of the Management Team do not appear to be documented and it is unclear how this expectation was communicated to the Management Team. In any event, based upon the Managing Scientist’s duty statement, it appears that the responsibility for innovation within the laboratory was with the Managing Scientist.
491. Dr Kogios and Ms Baker noted the breadth of responsibility of the Managing Scientist and the absence of a single role with sole responsibility for management of the DNA services. In their view, this has resulted in issues being escalated to the Managing Scientist that could otherwise be managed within the laboratory.⁵²⁵ I accept that the scope of the Managing Scientist’s duties and responsibilities were too broad. Considering the issues that have been ventilated during the Commission, this was an impediment to effective management of the laboratory.

The approach taken by the Managing Scientist

492. As outlined in Section 2.2, Operating model and workflow, the operational model and workflow of the laboratory was designed and implemented to address large backlogs in samples to be processed. The idea was to maximise efficiency and minimize turn around times for sample analysis for the QPS. This approach infected all aspects of management of the laboratory.

⁵²³ Transcript, Day 23, 1 November 2022, p2802.17-35.

⁵²⁴ Exhibit 35, Statement of Catherine Allen, 16 September 2022, [107].

⁵²⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, p74, [178].

493. It was not a coincidence that Ms Allen commenced in the role of Managing Scientist shortly after the implementation of this operating model. Her focus in management of the laboratory has been on cost savings, throughput and turn-around times which has been detrimental to the integrity of the science employed by the laboratory.
494. It was submitted on Ms Allen's behalf that to criticise her for placing undue focus on cost savings, throughput and turn-around times "is, in many ways, to criticise them for insufficiently resisting the weight of the structural context and constraints placed upon them" and that the blame for the mis-emphasis should be focused on system in which they were required to manage.⁵²⁶ While I accept that some blame must also be attributed to Queensland Health for the failures of this laboratory, there were significant failures by Ms Allen in her approach to management which cannot be explained only by the system in which the laboratory was required to operate.
495. Ms Allen said she felt under a constant pressure to do more with less.⁵²⁷ This seems to have influenced Ms Allen's approach to all issues in the laboratory, both scientific and managerial. However, it is important to bear in mind that the laboratory relied in large part on Ms Allen to advocate on its behalf to obtain, or at the least request, funds.
496. For example, in Ms Allen's statement dated 16 September 2022, she stated that the laboratory had not invested in other types of testing that other Australian laboratories have, such as MiniFiler, LCN and 5+ person testing because of the financial costs involved.⁵²⁸ The laboratory has been in the process of validating Y-STR testing since 2015. Ms Allen said the failure to finalise this validation was due to funding constraints.⁵²⁹ This type of testing is considered "revolutionary" for sexual assaults. These are significant offences in the criminal justice system and often benefit from DNA evidence. Dr Kogios and Ms Baker found that this put the laboratory out of step with other laboratories and

⁵²⁶ Submissions to the Commissioner on behalf of Cathie Allen, 28 November 2022, [58]-[62].

⁵²⁷ Transcript, Day 23, 1 November 2022, p2802.17-35; Submissions to the Commissioner on behalf of Cathie Allen, 28 November 2022, p43, [141].

⁵²⁸ Exhibit 35, Statement of Catherine Allen, 16 September 2022, [72]-[75].

⁵²⁹ Transcript, Day 22, Monday 31 October, p2767.22-2768.43.

outside of what would be considered best practice. The failure of the laboratory to validate Y-STR testing is discussed in Section 2.5, Sexual assault casework.

497. It is also clear that Ms Allen felt under pressure to satisfy the QPS's desire to have results returned to them quickly. Reporting scientists were given targets to reach in terms of how many samples to interpret and review in a week.⁵³⁰ Scientists had little time to devote to work outside of the processing and interpreting of samples in the laboratory, such as validations, research or improving processes.⁵³¹ In the current conditions, projects and validations can take years and, even then, some validations performed and approved by management were flawed or inadequate in significant aspects.
498. While Ms Allen's interest in the validity of projects and scientific issues was compromised by her managerial focus and other responsibilities, she felt it necessary to devote significant time and energy into the personal affairs of her staff. For example, flexible working arrangements⁵³² and attempting to keep track of who was trying to fall pregnant for 'budgetary reasons'.⁵³³
499. I also note Ms Allen's personal involvement in every request from a reporting scientist to have further work performed on a sample.⁵³⁴ Correspondence with the QPS seems to be filtered through Cathie Allen, despite Ms Allen having a strained relationship with her counterpart at the QPS.⁵³⁵
500. Ms Allen's supervisor Lara Keller described her management style as "command and control", where only one person makes decisions on behalf of everyone and that everything would go through Ms Allen.⁵³⁶ The difficulties this management style caused for the laboratory is explored in Chapter 7, Laboratory culture.

⁵³⁰ Transcript, Day 8, 11 October 2022, p1119.37-39; Transcript, Day 10, 13 October 2022, p1361.4-1362.26

⁵³¹ Exhibit 190.30, Statement of Kirsten Scott, 7 October 2022, [149]-[150].

⁵³² Transcript, Day 17, 24 October 2022, p2084.46-3086.12. 2

⁵³³ Transcript, Day 22, 31 October 2022, p2748.37-38.

⁵³⁴ Transcript, Day 22, 31 October 2022, p 2753.47-2754.11.

⁵³⁵ Exhibit 3, Statement of David Harold Neville, 26 August 2022, [111]; Exhibit 239.25, Statement of Dale Frieberg, 5 September 2022, [27].

⁵³⁶ Transcript, Day 17, 24 October 2022, p2084.19-37.

501. Ms Allen accepted that staff that feared repercussions would be less likely to raise an issue but suggested that there are others on the Management Team who would listen to issues that were raised.⁵³⁷ This ignores the reality that those members of the Management Team were required to then raise the issue with Ms Allen in order to investigate any issue or make any changes within the laboratory.
502. I find that Cathie Allen mismanaged her time as Managing Scientist because she failed to devote sufficient time to scientific issues but was instead intimately involved in aspects of the laboratory that did not require her involvement, such as liaising with police about specific cases and considering rework requests.
503. However the responsibility for this state of affairs cannot be laid solely at the feet of Ms Allen. Queensland Health allowed the Managing Scientist position to exist with responsibility for both management and science in two laboratories practising different areas of science.

The Team Leaders

504. The Team Leaders manage and develop the teams working under them within the laboratory and assist the Managing Scientist in setting strategic direction for the laboratory.⁵³⁸ The duties of these roles are numerous. The Forensic Reporting and Intelligence Team Leader duties include developing training programs, conducting team meetings, providing scientific advice to scientists, QPS officers and legal parties, keeping abreast of current literature as it relates to current and emerging technologies, recording KPI tallies and providing expert testimony on cases when required. The Evidence Recovery and Quality Team Leader duties include providing strategic direction and support for senior scientists within the teams including conflict management and problem solving,

⁵³⁷ Transcript, Day 22, 31 October 2022, p2701.41-46.

⁵³⁸ Exhibit 145, Statement of Justin Howes, 16 August 2022, JH-02, Forensic Reporting and Intelligence Team – Duty Statements; Exhibit 50, Statement of Paula Brisotto, 21 September 2022, PB-01, ‘Evidence Recovery & Quality Team Duty Statements’.

undertaking case work duties when required, liaising with clients, and monitoring training and resource levels to ensure workflow is efficient and turn around times are maintained.

505. The Team Leaders carried management and scientific responsibilities. Mr Howes gave evidence that his ability to spend time on scientific issues lessened over time as his people management obligations increased. He estimated that he currently spent approximately 80 to 90% of his time on people management and only 10 to 20% of his time on scientific matters.⁵³⁹

506. Mr Howes and Ms Brisotto were evidently unable to concentrate sufficiently on the integrity of the science being performed by the laboratory. Two examples suffice. Mr Howes did not take action to consider and rectify the truthfulness of witness statements reporting DIFP results after their falsity was directly asserted by Alicia Quartermain in 2019. Ms Brisotto said she had never considered whether the analytical scientists under her leadership should be reviewing crime scene photographs on the Forensic Register before validating DIFP and No DNA results.

The Management Team

507. While the laboratory is managed by the Managing Scientist, the Management Team is heavily involved in decision making about the operations of the laboratory. This is primarily a result of the Standard Operating Procedure relating to Change Management, which requires approval from certain members of the Management Team, or the entire Management Team (depending on the significance of the change), to implement any change to the laboratory's operations.⁵⁴⁰

508. The laboratory's Management Team consists of the Managing Scientist, the two Team Leaders and the Senior Scientist from the sub-teams, namely: Evidence Recovery,

⁵³⁹ Transcript, Day 20, 27 October 2022, p2514. 3-7.

⁵⁴⁰ Exhibit 190.22, 22871V17 Procedure for Change Management in Forensic DNA Analysis, 19 April 2022.

Analytical, Quality & Projects, Intelligence and two Reporting teams.⁵⁴¹ This means that the Management Team is usually a team of nine.

509. The change management procedure is said to ensure that all process changes occur in a controlled and timely manner.⁵⁴² Any change that will have an effect on sample processing or reporting will ordinarily progress by way of a project. The procedure requires that a project proposal be prepared and assessed by the members of the Management Team. If funds are required to be expended in the project, a budget or business case must be prepared.
510. A quorum is required to sign off on the proposal (which is ordinarily approval to commence a project to investigate the proposed change). The quorum is the Managing Scientist, Team Leaders, Quality and Projects Senior Scientist, Senior Scientist that has line management of the staff/project and Senior Scientist/s of areas significantly affected by the project. This results in the vast majority of the Management Team members being required to sign off on most project proposals.
511. Once the project has been undertaken, a final report and (if proposed to be implemented) an implementation plan must be prepared and submitted to the Management Team for feedback and approval.⁵⁴³ The entire Management Team must sign off on the project report, which signals they have read the report and endorse it.⁵⁴⁴
512. Ms Allen said that the idea of having everyone in the Management Team review the reports is to draw on the different strengths of each of the Management Team members.⁵⁴⁵ This is a good idea in theory, but in practice it has led to drawn out decision making and the diffusion of responsibility.⁵⁴⁶ Dr Kogios and Ms Baker observed that

⁵⁴¹ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [35].

⁵⁴² Exhibit 171, Statement of Catherine Allen, 16 September 2022, [106].

⁵⁴³ Exhibit 173, Statement of Catherine Allen, 11 October 2022, CA-55.

⁵⁴⁴ Transcript, Day 5, 30 September 2022, p673.2-3; Transcript, Day 15, 20 October 2022, p.1912.7-14.

⁵⁴⁵ Transcript, Day 22, 31 October 2022, p2692.40-46.

⁵⁴⁶ For example, the validation of Y-STR has been ongoing since 2015, see: Transcript, Day 22, 31 October 2022, p2767.22-2768.17; Project #181 took almost four years to complete, which involved significant delays and was excessive, see: Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [18], [29]; the validation that set the

decision making by consensus is challenging and pointed to the length of time it can take to finalise a project.⁵⁴⁷

513. Experts engaged by the commission have identified a number of occasions where the Management Team signed off on validation project reports which contained basic scientific errors.⁵⁴⁸ For example, both Mr Howes and Ms Allen agreed that the Management Team had not identified that the laboratory had not applied appropriate scientific practice when validating the limit of detection in the laboratory in both the Quantifiler Trio or Quant Studio 5 validations,⁵⁴⁹ and that two aspects of an experiment had been changed at once in the DNA IQ for Maxwell validation which set the elution volume.⁵⁵⁰
514. While the whole management team must bear responsibility for not identifying these errors, I consider Ms Allen, Mr Howes and Ms Brisotto must bear greater responsibility than others. They are the senior leaders of the laboratory, with the most senior positions and most responsibility.
515. Dispersing the ultimate responsibility of making decisions may lead to less care being taken by each person when making that decision, in the hope or expectation that someone else has given proper consideration to the details and the consequences. It is also likely that the laboratory's focus on turn around times and casework contributed to a lack of care being taken when management review project reports and validations.

limit of detection was flawed, see: Transcript, Day 19, 26 October 2022, p2453.3-11; Transcript, Day 22, 31 October 2022, p2691.43-2692.46; the validation that set the elution volume was not carried out appropriately, see: Transcript, Day 5, 30 September 2022, p591.1-8, p591.45-592.4.

⁵⁴⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, p87, [221(d)].

⁵⁴⁸ Exhibit 66, Report of Dr Duncan Taylor, 'Review of the validation material from the Queensland Health Forensic and Scientific Services (QH)', 7 October 2022, p7.196-199, p8.214-216, p8238-241, p9.253-255; Exhibit 31, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), Bruce Budowle, 15 September 2022; Exhibit 27, Report on concentration between 0.001 ng/μL and 0.0088 ng/μL, Professor Linzi Wilson-Wilde, 07 August 2022 and Transcript, Day 5, 30 September 2022, p591.1-8, p591.45-592.4.

⁵⁴⁹ Transcript, Day 19, 26 October 2022, p122.3-6; Transcript Day 22, 31 October 2022, p2692.19-21.

⁵⁵⁰ Transcript, Day 5, 30 September 2022, p591.1-592.4.

The Executive Director

516. The specialised nature of the work of the laboratory meant that little oversight was given to it for many years. No-one in the laboratory above Ms Allen had any understanding of DNA analysis.
517. During Ms Allen’s time as Managing Scientist, there have been six different Executive Directors of QHFSS.⁵⁵¹ The Executive Director of FSS has responsibilities for the oversight of Forensic DNA Analysis, as well as all of the other laboratories and areas within FSS.
518. The role of Executive Director had its own challenges. It involved the management of at least 10 highly specialised scientific services including forensic biology, chemistry and toxicology, coronial and mortuary services, and public and environmental health sciences being organic chemistry, inorganic chemistry, microbiology, virology, and radiation and nuclear sciences. Those services include 380 staff, and an annual budget of approximately \$73 million.⁵⁵²
519. The position description of the Executive Director demonstrates a focus on management and leadership of the operations and “business” of FSS. The key responsibilities include leading and managing the “FSS business”, championing continual improvement, contribute to strategic management, develop and manage budgets, facilities and staff.⁵⁵³ One key responsibility is the provision of expert advice to the Executive Leadership Team (and others) on “forensic and scientific services matters”.⁵⁵⁴ An undergraduate science degree and post graduate business administration or public sector management qualifications are all said to be “highly desirable” for the role but not necessary⁵⁵⁵

⁵⁵¹ Transcript, Day 23, 1 November 2022, p2806.7.

⁵⁵² Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [27]-[28].

⁵⁵³ Exhibit 24, Statement of Lara Keller, 20 September 2022, Exhibit LK-1.

⁵⁵⁴ Exhibit 24, Statement of Lara Keller, 20 September 2022, Exhibit LK-1.

⁵⁵⁵ Exhibit 24, Statement of Lara Keller, 20 September 2022, Exhibit LK-1.

520. The role does not require forensic DNA expertise in the way that the Managing Scientist does. However, to perform the functions and key responsibilities, some knowledge of forensic DNA analysis (and other FSS scientific functions) must be obtained.
521. The current Executive Director and her two predecessors gave evidence before the Commission. Mr Paul Csoban was the Executive Director of FSS from January 2016 until July 2018. In this role he said that he was responsible for 400 staff in 14 different units, including the laboratory, and they covered a wide range of disciplines.⁵⁵⁶ Mr Csoban had no experience in forensic DNA analysis.⁵⁵⁷ It was submitted that Mr Csoban's actions in his role as Executive Director should be viewed in light of Mr Csoban's limited scientific understanding.⁵⁵⁸
522. Mr John Doherty was the Executive Director of FSS from January 2019 until October 2021. He has a background in forensic chemistry. Mr Doherty said that there were budget constraints and cultural concerns prevalent across the whole of FSS and a lack of corporate support to address those issues.⁵⁵⁹ Not long after Mr Doherty commenced in his role, a number of people within the laboratory became regular visitors in his office. They told Mr Doherty that they feared for their safety, the culture within the laboratory was not good and relationships were fractured.⁵⁶⁰ They also raised some technical issues that they were afraid to pursue through the official channels. Mr Doherty said that despite being a forensic chemist, he did not have the technical expertise required to understand the concerns being raised.⁵⁶¹ It was clear to him that there were deep rooted cultural issues that needed attention and he engaged an external consultant to assist.⁵⁶²

⁵⁵⁶ Transcript, Day 15, 20 October 2022, p18865-29.

⁵⁵⁷ Exhibit 38, Statement of Paul Csoban, 15 September 2022, [9].

⁵⁵⁸ Submissions on behalf of Paul Csoban, 25 November 2022, [1.6].

⁵⁵⁹ Transcript, Day 14, 19 October 2022, p1774.29-1775.17 and p1780.33-47.

⁵⁶⁰ Transcript Day 14, 19 October 2022, p1779.41-1780.10.

⁵⁶¹ Transcript, Day 14, 19 October 2022, p1780.13-31.

⁵⁶² Transcript, Day 14, 19 October 2022, p1780.33-1781.9.

523. The current Executive Director of FSS is Lara Keller. Ms Keller arrived at FSS during a difficult time for the laboratory, in late 2021, when there was negative press about its work.
524. In the first months of holding the role, scientists from the laboratory had come to her stating there were significant problems in the laboratory, the laboratory was the subject of public and media scrutiny and persistent questioning from a major client, the QPS, and by March 2022 was causing sufficient concern for the Director-General to commission an external review of operations. Ms Keller could not, without knowledge of the science, fulfil her duties and effectively assess whether the laboratory was under-performing or whether this scrutiny was justified.
525. As for issues raised by scientists, Ms Keller received an email from Dr Moeller on 28 October 2021 advising that there were problems with processes and procedures which were ongoing.⁵⁶³ Ms Keller did not do anything to investigate these concerns, despite not knowing if there were something serious that should be investigated.⁵⁶⁴ Ms Keller received a number of complaints from several scientists about scientific matters and later made referrals to the Queensland Health Ethical Standards Unit about one issue raised by Dr Moeller and other scientists, the DIFP threshold. That this was an ineffective mechanism to resolve scientific issues is made obvious by its failure to resolve any of them prior to the Commission of Inquiry. This issue is dealt with further in Chapter 7, Laboratory culture.
526. Ms Keller also said that she considered the external review which was considered and progressed in the first half of 2022 would deal with issues scientists had raised with her.
527. Another example of the difficulty of performing the role without knowledge of the laboratory's operations relates to quality management. When asked whether over the course of the 12 months she had been in the role, she had turned her mind to whether

⁵⁶³ Exhibit 24, Statement of Lara Keller, 20 September 2022, LK11.28.

⁵⁶⁴ Transcript, Day 17, 24 October 2022, p2087.39-2088.24.

the quality management in relation to the laboratory was adequate, Ms Keller said she had not had the opportunity to assess it in any depth but was confident in the system because there was a quality manager and quality officer.⁵⁶⁵ She explained that she believed that the quality system at the laboratory was adequate because they were complying with NATA inspections and she was not make aware of any glaring issues with regards to quality controls or the quality assurance.⁵⁶⁶ Ms Keller said on a number of occasions that the Commission was an opportunity to look at the processes and the quality system in the laboratory.⁵⁶⁷

528. Despite relying on the NATA accreditation to provide comfort that the quality system was adequate, Ms Keller was not familiar with what the accreditation by NATA has involved for the laboratory.⁵⁶⁸ Ms Keller understood that the current accreditation is one of a “general laboratory kind of standard” and was not aware that there is an Australian Standard for Forensic Analysis available for the laboratory to be accredited against.⁵⁶⁹
529. In her evidence about the accreditation and the adequacy of the laboratory, Ms Keller explained that she had to “trust my people”, being the people who were in management positions.⁵⁷⁰ Ms Keller accepted she became suspicious of at least one aspect of Ms Allen’s management, namely the lack of urgency with which she was addressing the QPS request for updated DIFP data.⁵⁷¹
530. Ms Keller did make efforts to improve some aspects of the laboratory. Notably she intervened early on in her tenure as Executive Directory to take control of the flexible working arrangements, because in her view laboratory was not as flexible as she would like.⁵⁷²

⁵⁶⁵ Transcript, Day 17, 24 October 2022, p2124.6-2124.12.

⁵⁶⁶ Transcript, Day 17, 24 October 2022, p2075.21-30.

⁵⁶⁷ Transcript, Day 17, 24 October 2022, p2071.4-19.

⁵⁶⁸ Transcript, Day 17, 24 October 2022, p2078.44.

⁵⁶⁹ Transcript, Day 17, 24 October 2022, p2077.20-44.

⁵⁷⁰ Transcript, Day 17, 24 October 2022, p2079.3-9.

⁵⁷¹ Transcript, Day 17, 24 October 2022, p2124.6-12.

⁵⁷² Transcript, Day 17, 24 October 2022, p2084.46-2085.41.

531. However, Ms Keller's lack of knowledge of the science of forensic DNA analysis and of the operations of the laboratory resulted in her inability to oversee Ms Allen's management of the laboratory or identify the significant scientific issues that have been identified during this Commission (or make changes to resolve those issues), even when scientists and the QPS were raising them. The responsibility for that situation lies primarily with Queensland Health. The department allowed the forensic DNA laboratory to be overseen by one person at Executive Director level with responsibility over a broad area of forensic and scientific functions. I accept the practical reality that no one person could have sufficient knowledge of all those areas to provide expert advice about them. If the Executive Director had forensic DNA experience, no doubt they would not have had expertise in some other field. The structure of FSS to give one Executive Director such a remit was destined to result in at least some insufficiency of oversight.

Change required for effective management and to ensure scientific integrity

532. The responsibilities imposed upon Ms Allen, and the circumstances within which she was required to carry out those responsibilities, were not conducive to good management. Queensland Health's decision to require the same person to manage scientific processes as well as the day-to-day administration and business of the laboratory has resulted in decision making that did not prioritise the scientific integrity of the work of the laboratory.

533. Dr Kogios and Ms Baker found the organisational structure falls within the range of accepted practice but given the challenges facing this particularly laboratory, they recommended a management role be established with sole responsibility for administration.⁵⁷³ They also recommended a role be created with responsibility for the 'scientific health of the laboratory'. Dr Kogios and Ms Baker describe this role as a 'Technical Lead'. This role exists in other laboratories.⁵⁷⁴ The approach is designed to ensure sufficient autonomy to focus on best scientific practice, as distinct from day-to-

⁵⁷³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, p76, [182].

⁵⁷⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, p75, [179].

day management responsibilities. The Technical Lead would have authority to drive and set practice around the science.

534. This structure splits the responsibility for managing the scientific integrity of the system away from administrative responsibilities.
535. In my view, creating a position with the responsibility for managing the scientific health of the laboratory is necessary. There is currently nobody who has the responsibility for the scientific integrity of the laboratory or for ensuring the laboratory is operating in accordance with best practice.
536. The current structure places too much responsibility and control in the hands of one person. The proposed structure will install an extra role at management level. This is in addition to the Quality Manager role recommended in Section 2.7, Quality management. The recommended structure has the result of three roles at the same level (Operations Manager, Quality Manager and Technical Lead), each with its own focus, managing the laboratory.
537. I also consider a review of the Team Leader roles, after establishing the three senior roles, would ensure those roles are sufficiently confined to allow appropriate oversight at that level of the scientific integrity of the laboratory.
538. Part of effective management is ensuring staff are managed through appropriate performance and development frameworks. Dr Kogios and Ms Baker noted the lack of Key Performance Indicators and performance and management measures. They encouraged the laboratory to ensure structured, regular performance and development reviews and to ensure that the performance of staff is measured equally based on *what* the person does and *how* they do it.⁵⁷⁵

⁵⁷⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [186]-[189].

539. In addition to the recommendation to develop Key Performance Indicators to measure the quality of results and the output of the laboratory in Section 2.7, Quality management and oversight, the laboratory should implement Team and Individual Performance and Development Key Performance Indicators within the laboratory which focus on scientific best practice, quality and the values of the laboratory. This will require management to consider the values of the laboratory, which should be done in the form a values statement which can be used to inform the management of the laboratory.
540. The following recommendations have been framed with the long term recommended structure of the laboratory in mind but can, and should, be implemented in an interim structure. This long term recommended structure is outlined in Chapter 9, Governance and Future.
541. The Technical Lead role should have the authority to set and drive practice in forensic DNA.
542. The Technical Lead, Operations Manager and Quality Manager should be equivalent levels with different roles and responsibilities, all reporting to the Director of Forensic Science (or equivalent).
543. The Technical Lead, Operations Manager and Quality Manager should become the senior Management Team for the laboratory.
544. The Team Leader roles should be reviewed to ensure they are able to provide effective oversight at that level of the scientific integrity of the laboratory.
545. The Queensland government should ensure that within the first three months of a person filling the role of a manager or team leader at the laboratory they are provided with management training and mentoring, with an aim to assist those managers to consider and maintain a professional working environment within their teams that allows for a culture of quality results, scientific best practice and integrity of operations.

546. The laboratory should develop a useable values statement to inform the work of the staff of the laboratory.
547. The laboratory should implement Team and Individual Performance and Development Key Performance Indicators within the laboratory which focus on scientific best practice, quality and the values of the laboratory.

- Rec 70. The Queensland government should make changes to the laboratory's organisational structure to remove the role of Managing Scientist and instead establish the following roles:
- a. a management role with sole responsibility for forensic DNA service delivery (the Operations Manager);
 - b. a Quality Manager role with responsibility for the quality of the laboratory (referred above at recommendation 47); and
 - c. a separate Technical Lead role ensuring best science-led decision making across end-to-end forensic biology workflow.
- Rec 71. The Technical Lead role should have the authority to set and drive practice in forensic DNA.
- Rec 72. The Technical Lead, Operations Manager and Quality Manager should be equivalent levels with different roles and responsibilities, all reporting to the Director of Forensic Science (or equivalent).
- Rec 73. The Technical Lead, Operations Manager and Quality Manager should become the senior Management Team for the laboratory.
- Rec 74. The Team Leader roles should be reviewed to ensure they are able to provide effective oversight at that level of the scientific integrity of the laboratory.
- Rec 75. The Queensland government should ensure that within the first three months of a person filling the role of a manager or team leader at the laboratory they are provided with management training and mentoring, with an aim to assist those managers to consider and maintain a professional working environment within

their teams that allows for a culture of quality results, scientific best practice and integrity of operations.

Rec 76. The laboratory should develop a useable values statement to inform the work of the staff of the laboratory.

Rec 77. The laboratory should implement Team and Individual Performance and Development Key Performance Indicators within the laboratory which focus on scientific best practice, quality and the values of the laboratory.

3. COLLECTION OF BIOLOGICAL MATERIAL FOR FORENSIC DNA TESTING

3.1 Who collects biological material for forensic DNA testing?

548. The Queensland Police Service (**QPS**) and Queensland Health (**QH**) are responsible for the collection of biological material for forensic DNA testing in Queensland. The QPS currently collects biological material from crime scenes, reference samples from complainants, and reference samples from people charged with indictable offences. QH collects biological material from complainants, people disclosing sexual assault, and people accused of committing indictable offences. The term “sexual assault” is used in this chapter to refer to assaults where rape or sexual abuse has taken place or is alleged to have taken place.⁵⁷⁶
549. A reference sample is a DNA sample taken from a known person. The reference sample should, when tested, contain DNA and yield a profile of that known person which can then be used to compare to profiles from unknown DNA samples taken from a crime scene, an item or from a victim of crime.

3.2 Collection by the Queensland Police Service

550. Within the QPS is the Forensic Services Group (**FSG**).⁵⁷⁷ The FSG manages the collection of biological material by the QPS. The systems, methods and processes for the collection of biological material for forensic DNA testing cover the qualifications and training of the police that collect the samples, the quality management systems used by the QPS, the equipment used to collect the samples and the methods for the transport and storage of samples.

⁵⁷⁶ A similar approach was used in Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault, June 2014.

⁵⁷⁷ Exhibit 3, Statement of David Neville, 26 August 2022, exhibit 7. The FSG sits within Operations Command.

551. The FSG divides offences into two categories, Major Crime and Volume Crime.⁵⁷⁸ Major Crime includes offences involving personal violence.⁵⁷⁹ Examples of Major Crime are homicide, sexual assault and armed robbery.⁵⁸⁰ Volume Crime includes property offences, such as burglary, unlawful use of a motor vehicle and stealing.⁵⁸¹
552. It is necessary at this stage to identify and explain the functions of the Queensland Police Records and Information Management Exchange, commonly known as QPRIME. QPRIME is the information management system used by the QPS, and is used, among other things, to record reported crime, manage property, maintain criminal history records, send tasks to police officers, and to publish DNA results to police officers.⁵⁸² Typically, when an offence occurs, a QPRIME entry is created for that offence. This entry is called an “occurrence”. The officer or employee who receives a complaint of, or detects, an offence is responsible for entering the offence into QPRIME as an occurrence.⁵⁸³
553. The QPS’s protocols for the collection of biological material that may yield DNA or other information of potential value are captured in the policy *CSE101 Collection of Biological Evidence, Crime Scene Examination (CSE101)*.⁵⁸⁴ CSE101 provides limits for the submission of samples to the Laboratory according to the type of crime (Major and Volume).⁵⁸⁵ A QPS officer is limited to submitting two samples for each Volume Crime QPRIME occurrence. Of the two samples that may be submitted, only one can be a sample of trace DNA. Trace DNA is the term given to cellular material that is transferred from a person to an item, through either direct or indirect contact with the item.⁵⁸⁶ A QPS officer

⁵⁷⁸ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [26]-[28].

⁵⁷⁹ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [26]-[28]; Exhibit 3, Statement of David Neville, 26 August 2022, [24].

⁵⁸⁰ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [26]-[28]; Exhibit 3, Statement of David Neville, 26 August 2022, [24].

⁵⁸¹ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [26]-[28]; Exhibit 3, Statement of David Neville, 26 August 2022, [24].

⁵⁸² Exhibit 212.9, Statement of David Neville, 26 August 2022, [32].

⁵⁸³ QPS Operational Procedures Manual Issue 72 Public Edition – 1.11 QPRIME Occurrences, 27 September 2019, p33.

⁵⁸⁴ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021.

⁵⁸⁵ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, p16-17.

⁵⁸⁶ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, p7.

is limited to submitting 25 samples at any one time for a Major Crime QPRIME occurrence, but there is no absolute limit for Major Crime in that an officer can later submit further samples once the first 25 have been tested.⁵⁸⁷ In any event, all sample limits can be exceeded with the approval of the Inspector of the DNA Management Unit.⁵⁸⁸

554. The QPS prioritises the testing of samples by a three-tier system, which was introduced in about 2008.⁵⁸⁹ Priority One samples are crucial samples that relate to the most serious crimes.⁵⁹⁰ Priority One samples require a five day turn around by FSS.⁵⁹¹ That is, once submitted to FSS for testing, the results ought to be given to the QPS within five days. Priority Two samples are samples from Major Crime, and they are prioritised over Volume Crime samples.⁵⁹² Priority Three (Volume Crime) samples are property crime samples.⁵⁹³
555. Oversight of the methods, systems and processes used by the QPS for the collection of biological material for forensic DNA testing is undertaken, in the main, by three sections of the FSG. The first section is the DNA Management Section. This section is responsible for ensuring compliance with legislative requirements for DNA reference samples, establishing policies relating to the testing of samples, the management of DNA results within the QPS and liaising with the Laboratory about forensic DNA testing and results. The DNA Management Section is currently managed by Inspector David Neville, who manages the Biometrics Unit and reports to the Superintendent of the FSG.⁵⁹⁴
556. The second section is the Quality Management Section. This section maintains the quality management system for the QPS forensic services state-wide. This includes the development and management of forensic technical procedures, the training and

⁵⁸⁷ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, p17; Exhibit 3, Statement of David Neville, 26 August 2022, [28]-[30].

⁵⁸⁸ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, p17; Exhibit 3, Statement of David Neville, 26 August 2022, [30].

⁵⁸⁹ Exhibit 3, Statement of David Neville, 26 August 2022, [27].

⁵⁹⁰ Exhibit 3, Statement of David Neville, 26 August 2022, [26].

⁵⁹¹ Exhibit 3, Statement of David Neville, 26 August 2022, [26].

⁵⁹² Exhibit 3, Statement of David Neville, 26 August 2022, [26].

⁵⁹³ Exhibit 3, Statement of David Neville, 26 August 2022, [26].

⁵⁹⁴ Exhibit 3, Statement of David Neville, 26 August 2022, [1], [19], [305], exhibit 7.

development of forensic officers,⁵⁹⁵ maintenance of competency testing, ensuring compliance with relevant standards, coordinating an auditing program, and ensuring non-compliance and opportunities for improvement are addressed.⁵⁹⁶ The Quality Management Section is currently managed by Inspector David Keatinge who reports to the Superintendent of the FSG.⁵⁹⁷

557. The third section is the Scientific Section. This section is responsible for providing a range of specialist forensic services in response to Major Crime, predominantly when additional physical or chemical detection techniques or opinion-based forensic evidence will be required.⁵⁹⁸
558. Scenes of Crime units also sit within the FSG. The FSG is made up of several region-based districts, each of which contain multiple Scenes of Crime units.

Forensic Managers, Forensic Coordinators and Scenes of Crime Officers

559. Within the QPS there are five forensic geographical police regions.⁵⁹⁹ Each region has a Forensic Manager. A Forensic Manager is an Inspector within the FSG.⁶⁰⁰ To become a Forensic Manager the police officer must have a forensic authorisation in crime scene examination or be certified as an expert practitioner in a recognised forensic discipline, and must also have completed a relevant management or leadership program.⁶⁰¹ A Forensic Manager is responsible for the supervision of Scenes of Crime Officers, and management of laboratory authorisations and accreditations for the facilities in their respective geographical area.⁶⁰² They provide advice on forensic issues.⁶⁰³ A Forensic

⁵⁹⁵ A term used to capture both Scenes of Crime Officers and Scientific Officers.

⁵⁹⁶ Exhibit 212.3, Statement of David Keatinge, 18 August 2022, [8(j)].

⁵⁹⁷ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [28]; Exhibit 212.3, Statement of David Keatinge, 18 August 2022, [8].

⁵⁹⁸ Exhibit 212.1, Statement of Darren Pobar, 1 August 2022, [16].

⁵⁹⁹ Exhibit 3, Statement of David Neville, 26 August 2022, exhibit 7.

⁶⁰⁰ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [20].

⁶⁰¹ Exhibit 245.15, Position Description – Inspector, Forensics (Forensic Manager), 20 June 2022, p1; Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [17].

⁶⁰² Exhibit 245.15, Position Description – Inspector, Forensics (Forensic Manager), 20 June 2022, p2.

⁶⁰³ Exhibit 245.15, Position Description – Inspector, Forensics (Forensic Manager), 20 June 2022, p2.

Manager who provided me with a statement said he overviews examinations conducted on serious crime scenes in his geographical area, and works closely with investigators to provide advice on forensic examination results and provide assistance to guide further examinations.⁶⁰⁴

560. There are nine Forensic Coordinators state-wide.⁶⁰⁵ A Forensic Coordinator is a Senior Sergeant within the FSG. Each Forensic Coordinator reports to a Forensic Manager.⁶⁰⁶ To become a Forensic Coordinator an officer must have completed the Scenes of Crime Officer training course or have a level of knowledge and skill which, in the opinion of the Superintendent of the FSG, is equivalent.⁶⁰⁷ The Forensic Coordinator is responsible for planning and coordinating a multidisciplinary forensic response to Major Crime in their respective geographical area.⁶⁰⁸ This includes consulting with investigators and forensic specialists to coordinate a forensic response to Major Crime. The role can sometimes include the Forensic Coordinator reviewing the forensic brief of evidence of complex matters within their geographical area.⁶⁰⁹
561. Two types of police officers are responsible for collecting biological material from crime scenes.⁶¹⁰ The first is a Scenes of Crime Officer. A Scenes of Crime Officer is trained in crime scene examination, including fingerprinting, photography, and the collection of biological samples for forensic DNA testing.⁶¹¹ Scenes of Crime Officers attend Volume Crime scenes and Major Crime scenes.⁶¹² At a Major Crime scene there may also be a Scientific Officer in attendance, who the Scenes of Crime Officer assists.⁶¹³ There are 36

⁶⁰⁴ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [19].

⁶⁰⁵ Exhibit 3, Statement of David Neville, 26 August 2022, exhibit 7. Noting that there is currently one vacant position: Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [22].

⁶⁰⁶ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [20].

⁶⁰⁷ Exhibit 245.14, Position Description – QPS Forensic Coordinator (Senior Sergeant), 27 October 2022, p2.

⁶⁰⁸ Exhibit 245.14, Position Description – QPS Forensic Coordinator (Senior Sergeant), 27 October 2022, p2.

⁶⁰⁹ Exhibit 212.2, Statement of Cassie Thompson, 4 August 2022, [7]-[8].

⁶¹⁰ Other police officers can take reference samples from complainants and people charged with indictable offences pursuant to, respectively, ss 476 – 478 and 481 of the *Police Powers and Responsibilities Act 2000* (Qld).

⁶¹¹ Exhibit 3, Statement of David Neville, 26 August 2022, [38].

⁶¹² Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [31].

⁶¹³ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [32].

Scenes of Crime Units in Queensland.⁶¹⁴ Each unit has a responsible Officer in Charge who reports to a Forensic Manager.

562. To become a Scenes of Crime Officer a police officer must complete a 12-month training program facilitated by the Quality Management Section of the FSG.⁶¹⁵ The training program includes theoretical and practical training and assessment, in both the workplace and training environment.⁶¹⁶ Completion of the training program makes the police officer eligible for a Scenes of Crime Development Program certificate, a Diploma of Forensic Investigation, and an authorisation by the Laboratory Director (the Superintendent of the FSG) to undertake crime scene examinations.⁶¹⁷ The QPS Education and Training Services audit the assessment practices for the units of study and the awarding of the Diploma of Forensic Investigation.⁶¹⁸
563. The second type of police officer who collects biological material from a crime scene is a Scientific Officer. A Scientific Officer is trained to a higher level of forensic skill and knowledge than a Scenes of Crime Officer. Scientific Officers attend major crime scenes.⁶¹⁹
564. To become a Scientific Officer a police officer must hold a Bachelor of Science (or similar tertiary degree), must have completed two years of police service,⁶²⁰ and must complete a training program facilitated by the Scientific Section of the FSG.⁶²¹ The training program can take up to four years to complete.⁶²² Completion of the training program makes the police officer eligible for a Graduate Certificate in Crime Scene Investigation.⁶²³ The

⁶¹⁴ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [21].

⁶¹⁵ Exhibit 208.3, QPS Position Description for Scenes of Crime Officer, 15 September 2021; Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [34].

⁶¹⁶ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [34].

⁶¹⁷ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [34]-[35].

⁶¹⁸ Exhibit 212.17, Statement of Adrian Robb, 12 October 2022, [23]-[32]; Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [36].

⁶¹⁹ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [33]-[34].

⁶²⁰ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [15].

⁶²¹ Exhibit 208.4, QPS Position Description for Forensic Scientist, 19 October 2021.

⁶²² Exhibit 3, Statement of David Neville, 26 August 2022, [38].

⁶²³ Exhibit 3, Statement of David Neville, 26 August 2022, [38].

training program includes the QPS's Scenes of Crime Training Course delivered by the Quality Management Section.⁶²⁴ Scientific Officers also undertake training programs relating to non-biological evidence and biological evidence through both QPS personnel and external providers.⁶²⁵ The relevant courses include theoretical content and involve practical application and assessment.⁶²⁶

565. Scientific Officers work within Scientific Units. The Scientific Units are based in major city centres: Brisbane, Gold Coast, Rockhampton, Townsville, and Cairns.⁶²⁷ Scientific Officers in Brisbane and the Gold Coast report to the Brisbane-based Scientific Section of the FSG. The remaining regional Scientific Officers report to the local Forensic Manager.⁶²⁸
566. When a crime is discovered the first responding officer and/or investigating officer may request a Scenes of Crime Officer to attend, or for Volume Crime, a task may be made via QPRIME. The Scenes of Crime Officer will – among other things – collect samples for forensic DNA testing. For Major Crimes, the responding officer and/or investigating officer may also request the attendance of a Scientific Officer.⁶²⁹ If the case is a homicide, an unusual death, or a serious violent offence the local Forensic Coordinator and/or the Forensic Manager may be contacted to assist with the planning and coordination of the forensic response.
567. At a crime scene, samples are collected, barcoded, and entered into the Forensic Register by the Scenes of Crime Officer or Scientific Officer.⁶³⁰ Each sample, as well as the location from which it was collected, is photographed.⁶³¹ The photos of the samples and their locations are uploaded to the Forensic Register.⁶³² Scenes of Crime Officers and Scientific

⁶²⁴ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [16(a)].

⁶²⁵ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [16].

⁶²⁶ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [20].

⁶²⁷ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [27].

⁶²⁸ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 7.

⁶²⁹ Exhibit 212.18, Statement of Letitia Everist, 13 October 2022, [34].

⁶³⁰ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [45].

⁶³¹ Exhibit 3, Statement of David Neville, 26 August 2022, [68(a)].

⁶³² Exhibit 3, Statement of David Neville, 26 August 2022, [68(b)].

Officers have access to the Forensic Register but generally investigators do not have access.⁶³³

568. Sub-sampling refers to the taking of small samples from stains or areas of interest on a larger item,⁶³⁴ which is placed into a test tube ready for forensic DNA testing by the laboratory. Moveable items are sometimes seized by police and sub-sampled in one of the QPS's DNA laboratories. Other items may be sub-sampled at the crime scene.
569. The process of police sub-sampling began in 2008. Very few whole items go to the QHFSS laboratory.⁶³⁵ Whole items submitted to the laboratory include small items such as chewing gum, sanitary items, condoms and cigarette butts.⁶³⁶
570. Samples are transported to a QPS forensic property facility, logged into QPRIME and stored.⁶³⁷ Police then decide which samples should be sent to the Laboratory for forensic DNA testing. As discussed above, QPS triage protocol⁶³⁸ provides limits for sample submission by reference to the crime (Major Crime versus Volume Crime) and sample type (trace DNA versus non-trace DNA such as visible blood). The chosen samples are transported to the laboratory to be tested.
571. Each year for the last five financial years, the QPS has given to the laboratory between about 23,500 and 27,000 samples for DNA testing, excluding DNA reference samples.⁶³⁹

⁶³³ Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [42].

⁶³⁴ Exhibit 212.2, Statement of Cassie Thompson, 4 August 2022, [32].

⁶³⁵ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, Section 8.3.

⁶³⁶ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021, Section 8.3.

⁶³⁷ See Exhibit 212.2, Statement of Cassie Thompson, 4 August 2022, [26].

⁶³⁸ Exhibit 208.7, CSE101 Collection of Biological Evidence, Crime Scene Examination, 3 November 2021.

⁶³⁹ See Exhibit 234, QHFSS Notice 132 Item 14: - All samples for 5 financial years – breakdown P1, P2, P3, 18 November 2022 (clarifying that these numbers exclude “Person Samples and Reference Samples, (Case) FTA Cells/FTA Blood”; Exhibit 225b, Report of Linzi Wilson-Wilde, 24 November 2022, p11-12.

Quality Management – Audits, Testing and Casework Reviews

572. Every 12 months internal audits are conducted of all FSG facilities.⁶⁴⁰ The audits include a review of compliance with management records, document control, accommodation, case review and reporting, training records, exhibits, supplies and consumables, equipment, vehicles, past corrective action, and case files.⁶⁴¹
573. The QPS conducts four types of proficiency and competency testing relating to the collection, transportation, storage and sampling of biological material for forensic DNA testing. The first is the *After the Fact* online crime scene examination assessment undertaken by one representative from each Scenes of Crime facility and one representative from each Scientific Unit every 12 months. The *After the Fact* assessment comprises an online mock crime scene and requires the participant to navigate through the online scene as if it was a real crime scene. Notes are recorded, images are captured, and exhibits are notionally collected. The participant must successfully complete a multiple-choice online assessment.
574. The second is a *Scene Assessment*. This is completed every two years for each Scenes of Crime Officer and Scientific Officer. The scene assessments are conducted at a real crime scene by another officer who also holds the forensic authorisations that the officer being examined must hold to conduct the scene examination. This is an assessment of the subject officer's individual competence as demonstrated during completion of the forensic examination.
575. The third is *Court Witness Monitoring*. This is an appraisal of an FSG member's performance when giving evidence in court and may be done any time a Scenes of Crime Officer or Scientific Officer attends court and gives evidence. This assessment may be completed by the prosecutor, investigating officer or a senior colleague from FSG.

⁶⁴⁰ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [75]; Exhibit 212.3, Statement of David Keatinge, 18 August 2022, [21].

⁶⁴¹ Exhibit 212.4, Statement of James Cook, 19 August 2022, [18].

576. The fourth relates to Scientific Officers who are authorised in *Hair Examination*. Hair Examination involves determining whether hair exhibits are of human origin and whether they are suitable for DNA analysis. This requires participation in an annual test specific to this discipline. This test is manufactured by a commercial testing service provider based in the United States of America.⁶⁴²
577. QPS personnel undertake two types of casework reviews. The first is a *technical review*, which is done for every Major Crime case, and for any Volume Crime case where a statement is requested as part of the brief of evidence. A technical review is an examination of the process by which conclusions or opinions are reported in a case record by a Scenes of Crime Officer or a Scientific Officer. The reviewing officer checks notes and technical information including sampling, examination and testing information against relevant operational procedures and acceptable forensic practice.⁶⁴³ The reviewing officer checks that correct procedures have been followed and that conclusions reached are supported by observations/results documented in the case file.⁶⁴⁴ A technical review may only be performed by an officer who is qualified in the relevant discipline.⁶⁴⁵
578. The second kind of review is an *administrative review*. This is done for every case.⁶⁴⁶ An administrative review is done to ensure case records comply with the relevant case file procedure.⁶⁴⁷ Any member of the QPS who is authorised to perform forensic procedures is authorised to conduct an administrative review of case records. Administration officers may also perform reviews after instruction and demonstration of competence.⁶⁴⁸ The purpose of the review is to ensure that there has been compliance with the relevant case file procedures.⁶⁴⁹

⁶⁴² Exhibit 212.4, Statement of James Cook, 19 August 2022, [21].

⁶⁴³ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.5.1].

⁶⁴⁴ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.5.1].

⁶⁴⁵ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.5.2].

⁶⁴⁶ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.8.1].

⁶⁴⁷ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.8.1].

⁶⁴⁸ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.8.1]; Exhibit 212.4, Statement of James Cook, 19 August 2022, [22].

⁶⁴⁹ Exhibit 208.22, Forensic Services Group Quality Manual, Version 63, 1 June 2022, [13.8.1].

579. Scenes of Crime Officers undertake refresher training of their role every two years.⁶⁵⁰ Historically, this training occurred in Brisbane or another designated location, and Scenes of Crime Officers from around Queensland travelled to attend the training. At some point prior to the COVID-19 pandemic, the format of the refresher training transitioned to being delivered in a *Train the Trainer* format. The “Trainer” – a representative from each region – attends Brisbane or another designated location, receives the training, and then returns to their region to deliver the training to others.⁶⁵¹
580. I received evidence from Inspector Keatinge that a face-to-face “Train the Trainer” workshop was held in 2020 and attended by nine Scenes of Crime Officers, representing each region. Those officers then delivered face-to-face training in their region across 2020 and 2021.⁶⁵² As a result of COVID-19 and staffing, I was told the next refresher training was under development for 2023.⁶⁵³
581. Not conducting refresher training for Scenes of Crime Officers in 2022, and thus falling behind the two-yearly schedule, is regrettable. Not holding regular refresher training puts Scenes of Crime Officers at risk of not keeping abreast of their relevant subject matter.

Expert Reports

582. Ms Anna Davey is the Director of Forensic Foundations Pty Ltd.⁶⁵⁴ Ms Davey is a scientist with experience in quality management and auditing.⁶⁵⁵ I commissioned Ms Davey to consider whether the methods, systems and processes used by the QPS to collect biological samples for forensic DNA testing in Queensland were in accordance with best international practice and whether they compromised or diminished the ability to obtain

⁶⁵⁰ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [109].

⁶⁵¹ Exhibit 212.8, Statement of Asha Haxton, 18 August 2022, [109]-[113].

⁶⁵² Exhibit 283, Statement of David Keatinge, 25 November 2022, [1]-[3].

⁶⁵³ Exhibit 212.8, Statement of Asha Louann Haxton, 18 August 2022, [116]. Inspector Keatinge stated that “face to face training” was delivered to nine Scenes of Crime Officers between January and March 2022, who are now authorised to use Hematrace, but it was not suggested this constituted “Train the Trainer” training for the Trainer: Exhibit 283, 25 November 2022, [3].

⁶⁵⁴ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p34.

⁶⁵⁵ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p29-34.

reliable forensic DNA results and/or matches from the biological samples collected by the QPS.

583. Ms Davey concluded that the methods, systems and processes as documented by the QPS are in accordance with best international practice.⁶⁵⁶ She further concluded that the documented methods, systems, and processes do not compromise or diminish the ability to obtain reliable forensic DNA results or matches from the samples collected by the QPS.⁶⁵⁷

584. In relation to the methods, systems and processes as actually practised by the QPS, Ms Davey identified some anomalies.⁶⁵⁸ The most significant anomalies were:⁶⁵⁹

- a. an ongoing issue with the use, cleaning and environmental monitoring of drying cabinets in forensic facilities;⁶⁶⁰
- b. in most cases there is not a formalised process for the review of results and consideration of further sampling and/or DNA testing;⁶⁶¹ and
- c. the lack of independence of the internal auditors from the function being audited.⁶⁶²

585. Ms Davey concluded that such anomalies are to be expected when a review of any organisation's policies, procedures and practices is performed, particularly an organisation of the size and complexity of the QPS.⁶⁶³

⁶⁵⁶ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, [69].

⁶⁵⁷ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, [69].

⁶⁵⁸ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, [70], [71]-[72].

⁶⁵⁹ See the full report for other identified issues: Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022.

⁶⁶⁰ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p22.

⁶⁶¹ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p8-11.

⁶⁶² Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p20, 22-23.

⁶⁶³ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, [73].

586. As to the cleaning and environmental monitoring of drying cabinets, Ms Davey recommended that an analysis be undertaken to determine the root cause of this issue and the development of mechanisms to mitigate the risk of contamination.⁶⁶⁴
587. In response to the anomalies about the drying cabinets, I received evidence from Inspector Keatinge, who said that the FSG had already initiated quality improvement processes to address the issue with the drying cabinets.⁶⁶⁵ He identified that administrative errors had been made in the recording of the cleaning and monitoring process for drying cabinets, with such cleaning and monitoring having, in most cases, occurred at the scheduled time or shortly thereafter. The errors included staff inadvertently not adding the cleaning or monitoring record to the relevant equipment item on the Forensic Register, or, alternatively, “the incorrect completion of Forensic Register entries relating to cleaning/monitoring”. The administrative issues have been rectified.⁶⁶⁶
588. In terms of the sub-sampling done by the QPS and the receipt of DNA testing results by the QPS, Ms Davey concluded that sub-sampling by the QPS was appropriate so long as the relevant officers who did the sub-sampling were adequately trained and there was a feedback mechanism where results could be considered in the context of the case and further sub-sampling and testing undertaken if required.⁶⁶⁷ Ms Davey was of the view that the relevant QPS officers were adequately trained, but that there was a failure, for most types of offences, to have a process whereby the results from the laboratory are formally reviewed by the QPS.⁶⁶⁸ This failure increases the risk of a loss of evidence from not conducting further sub-sampling or testing if necessary.⁶⁶⁹

⁶⁶⁴ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, [59(e)].

⁶⁶⁵ Exhibit 212.20, Statement of David Keatinge, 24 October 2022, [5]-[6].

⁶⁶⁶ Exhibit 212.20, Statement of David Keatinge, 24 October 2022, [8].

⁶⁶⁷ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p7-8.

⁶⁶⁸ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p7-10.

⁶⁶⁹ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p10.

589. In relation to “hot jobs” (high profile unsolved matters) and “cold cases” (historical unsolved cases that are being reviewed to find new evidence) the QPS appoints a person/persons to review the results in the context of the case and consider further sub-sampling and testing.⁶⁷⁰ This process does not apply to other active cases. Given what I have discovered about officers’ knowledge and understanding of the DNA result lines and the available options for further testing or working of a sample, it is evident that there is not a person appointed to consider results in the context of each case for all offences. That the QPS does not have a review or feedback mechanism for DNA results from sub-sampling – that is, a mechanism to consider DNA results in the context of the case that covers all types of offences – is a failure. This failure has the potential to result in a loss of valuable evidence for an investigation or a prosecution.
590. No party, including the QPS, required Ms Davey for cross-examination.
591. I find that the methods, systems and processes as practised by the QPS in relation to the collection of biological samples for forensic DNA testing introduce a risk of an incomplete examination of all aspects of a case because, as practised by the QPS, they fail to ensure that all DNA results are considered in the context of the respective case or that further subsampling or further testing of a sample occurs for all cases where necessary.
592. Ms Davey recommended that the procedure used to review DNA results should be re-evaluated and suggested that a suitably qualified officer or officers be appointed to review the DNA results received in each case in a similar way to hot jobs and cold cases.⁶⁷¹ This will mitigate the risk of missing useful evidence that might be found by further sub-sampling and testing. I agree with this recommendation. I do not consider that, in each instance, this person would need to work within the DNA Management Section.

Rec 78. The QPS should implement a process whereby, in each case in which DNA samples are submitted, and regardless of offence-type, a suitably qualified and

⁶⁷⁰ Exhibit 212.5, Statement of Olivia McIntyre, 30 August 2022, [19]-[23].

⁶⁷¹ Interviewees reported to Mr Ainsworth the value in case conferencing between investigators, forensic officers and laboratory staff: Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [94].

experienced person is allocated to review all DNA results in the context of the case and consider whether further DNA testing or sub-sampling ought to be carried out.

593. In regard to the FSG quality management system, Ms Davey concluded that part of the policy concerning internal audits was contrary to best practice because the internal audits were conducted by “the responsible Forensic Manager, Forensic Coordinator or Quality Assurance Officer”.⁶⁷² In Ms Davey’s opinion, the auditor should be independent of the function being audited if practicable.⁶⁷³ Ms Davey suggested this could be remedied by establishing a rota of Forensic Managers or Forensic Coordinators to undertake the annual internal audits.⁶⁷⁴
594. In submissions, QPS contested this conclusion, arguing their internal auditors are independent. They pointed to evidence from a FSG Quality Management Officer that such audits were “completed by an experienced and similarly authorised practitioner from a **different** FSG facility / section” (emphasis added).⁶⁷⁵ Such practice ought be reflected as a requirement in the policy document QMS100 “Internal Audits”. QPS further submitted that there is no evidence that Forensic Managers and Forensic Coordinators are not independent since they do not manage or have responsibility for any of the operational functions of the relevant forensic services facilities; operational management of each facility is the responsibility of the Officer in Charge (**OIC**) of that Facility.⁶⁷⁶ I am unpersuaded by this further submission. It is difficult to see how a Forensic Manager would be regarded as entirely independent of the facility, since an OIC of a Scenes of Crime or Scientific facility reports to that Forensic Manager – even if the Forensic Manager

⁶⁷² Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p20, 22–23; the direct quote comes from Exhibit 208.23, QMS100 Internal Audits, 24 August 2021, [3.2.1].

⁶⁷³ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p20.

⁶⁷⁴ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p22-23.

⁶⁷⁵ QPS Submissions to the Commissioner Regarding Possible Adverse Findings in Respect of The Queensland Police Service, Dale Frieberg, David Neville, and Ewen Taylor, 2 December 2022, response to proposed adverse finding 17, referencing Exhibit 212.4, Statement of James Cook, 19 August 2022, [19].

⁶⁷⁶ QPS Submissions to the Commissioner Regarding Possible Adverse Findings in Respect of The Queensland Police Service, Dale Frieberg, David Neville, and Ewen Taylor, 2 December 2022, response to proposed adverse finding 17.

does not actively run the facility.⁶⁷⁷ There may be a similar issue with Forensic Coordinators and the forensic facilities in their sub-region given one of their duties is to provide “leadership” and “supervision” to forensic officers in the field.⁶⁷⁸

595. Accordingly, I find that QPS internal audit policy could be improved by clearly specifying that auditors should be independent of the function being audited when practicable.

Rec 79. The QPS should amend its internal audit and/or quality management policy to clarify that the officer performing an internal audit be independent of the unit being audited whenever practicable.

596. As discussed above, I commissioned Dr Kogios and Ms Baker to review the FSS laboratory.

597. On 1 November 2022 Ms Baker sent an email to the Commission outlining a potential issue with the swab and wetting agent used by the QPS for collecting biological material for forensic DNA testing.⁶⁷⁹ The issue was whether the use of rayon swabs with 70% ethanol as a wetting agent (currently used by the QPS) was appropriate and whether investigations ought to be performed to confirm suitability. Dr Kogios and Ms Baker had not seen the use of rayon swabs with 70% ethanol before but were familiar with the use of cotton swabs with water.⁶⁸⁰

598. The history and investigations that led to the QPS utilising the rayon swab with 70% ethanol is as follows. In 2008, the QPS took over sub-sampling from FSS.⁶⁸¹ Inspector Neville told me that QPS commenced using nylon 4N6 flocked swabs and water as a wetting agent.⁶⁸² Inspector Neville said the choice to use water was made upon an email from Ms Cathie Allen on 18 June 2008, extracted below, and that the 4N6 swab was selected after joint research by the QPS and the laboratory regarding the efficacy of that

⁶⁷⁷ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 7.

⁶⁷⁸ Exhibit 245.14, Position Description – QPS Forensic Coordinator (Senior Sergeant), 27 October 2022.

⁶⁷⁹ Exhibit 216, Email from Heidi Baker to Commission of Inquiry, ‘Sampling techniques and reporting DNA by QPS’, 1 November 2022; Transcript, Day 24, 2 November 2022, p2967.21-2971.20.

⁶⁸⁰ Exhibit 216, Email from Heidi Baker to Commission of Inquiry, ‘Sampling techniques and reporting DNA by QPS’, 1 November 2022.

⁶⁸¹ Exhibit 245.1, Statement of David Neville, 2 November 2022, [11].

⁶⁸² Exhibit 245.1, Statement of David Neville, 2 November 2022, [11].

swab, with such research being finalised by way of a report by the laboratory published in January 2009.⁶⁸³

599. It is useful to step through some communications in 2008 to early 2009. On 18 April 2008 QPS Research Officer Lyza-Jane McMenz emailed Mr Allan McNevin of the laboratory asking him about “any preliminary results for our validation trials”, asking a question about labels, and advising him of her recommendation to use ethanol or Isopropanol as a wetting agent.⁶⁸⁴ The relevant part of the email is as follows:

Just checking to see if you have managed to get any preliminary results for our validation trials, swabs or tape lifts?

Another item on my agenda is labels. ... Due to the nature of crime scene work and the fact that samples come from all over the state we have ordered the vented tubes, which would no longer be vented if we labelled the top of the vial at the scene. Is the round label on the top of the tube a necessity or just desirable? The rate of mould is another aspect I will have to monitor with the implementation of this system. I will be recommending that all swabs be moistened with 70% ethanol or 90-95% Isopropanol prior to swabbing to assist with quicker drying times.⁶⁸⁵

600. On 18 June 2018, Cathie Allen sent an email to Lindon Smallwood (of the QPS) with the subject line “Swabs & collection”, which read as follows:⁶⁸⁶

⁶⁸³ Exhibit 245.1, Statement of David Neville, 2 November 2022, [12]; Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-01a.

⁶⁸⁴ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-01b.

⁶⁸⁵ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-01b.

⁶⁸⁶ Exhibit 245.1, Statement of David Neville, 2 November 2022, [11], exhibit 220 (the email copied in Justin Howes and Vanessa Ientile).

Hi Lindon,

I spoke with a couple of other scientists and they were in agreement. We felt that either distilled water or 70% ethanol would be a suitable solution to collect blood.

Cheers

Cathie.

601. On 16 July 2018 there was a meeting between representatives from the laboratory and QPS, including Emma Caunt, Lindon Smallwood, Lyza-Jane McMenz and others. At the meeting, Ms Caunt suggested some swabs be tested to see if water takes longer to dry than ethanol once the swab has been put into the new tubes with holes in the top, as that “may push the QPS towards using either water or ethanol rather than both”, and Ms McMenz was to consider this.⁶⁸⁷ An email chain in September 2018 suggested QPS forensic officers were raising questions about whether to use 70% ethanol or water as the wetting agent for collecting blood, with some Scenes of Crime Officers using ethanol and others trying water.⁶⁸⁸
602. Despite Ms McMenz’s representation to Mr McNevin in April 2018, it seems the QPS, at some point, went on to use water as the default wetting agent with the Copan 4N6 flocked swab. The January 2009 report prepared by the laboratory (and mentioned above in paragraph 598), concluded with this caveat:

Recommendations

The testing carried in this trial has been on a small scale and represents some initial evaluation of the 4N6. The testing falls short of a validation or verification. All results should be viewed with caution given the small sample size for each experiment and the limited number of experiments performed, and as such no recommendation is made to either use or not use the 4N6 swab.⁶⁸⁹

603. Despite this caveat, it appears that the QPS continued using the Copan 4N6 flocked swab. However, this was short lived because of a problem with the 4N6 swab encountered

⁶⁸⁷ Exhibit 282, Statement of Paula Brisotto, 30 November 2022, PB182.

⁶⁸⁸ Exhibit 282, Statement of Paula Brisotto, 30 November 2022, PB180.

⁶⁸⁹ Exhibit 245.1, Statement of David Neville, 2 November 2022, [12], exhibit 221.

sometime later in early 2009.⁶⁹⁰ The QPS observed that the Copan 4N6 flocked swab was not yielding a profile when it should have been.⁶⁹¹ The QPS searched for an alternative.⁶⁹² Inspector Neville told me that they identified a rayon swab and sought advice from the laboratory.⁶⁹³

604. On Monday 2 March 2009, Mr McNevin, having spoken with Inspector Neville, emailed Ms Allen:⁶⁹⁴

Hiya Cath,

Fri arvo I got a call from David Neville, he's coming out on Tuesday to show us the new swabs and tubes he is looking at – also he was asking me whether we need to test the new swabs etc. and I considered that a call you would have to make ... although I would have thought a rayon swab is a rayon swab and there couldn't be much difference??

cheers

Al

605. Later that day, Ms Allen replied to Mr McNevin:⁶⁹⁵

Hi Al,

If the rayon swab is like what we have previously tested, then I don't see a point in testing them. However, if they are new & completely different from anything we've ever seen before, then we should test them.

Cheers,

Cath.

606. On 3 March 2009, Inspector Neville went to the laboratory to show laboratory staff the new swabs that the QPS were contemplating using.⁶⁹⁶ Mr McNevin told me that his

⁶⁹⁰ Exhibit 245.1, Statement of David Neville, 2 November 2022, [13]; see also Exhibit 3, Statement of David Neville, 26 August 2022, [294].

⁶⁹¹ Exhibit 245.1, Statement of David Neville, 2 November 2022, [13]

⁶⁹² Exhibit 245.1, Statement of David Neville, 2 November 2022, [13].

⁶⁹³ Exhibit 245.1, Statement of David Neville, 2 November 2022, [13]; Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-03. No witness produced an email or other written version of this request for advice.

⁶⁹⁴ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-02.

⁶⁹⁵ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-02.

⁶⁹⁶ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [15].

conversation with Inspector Neville that day was “about whether the swab and tube were suitable for the processes in the laboratory.”⁶⁹⁷ After the visit, Mr McNevin emailed Inspector Neville as follows:⁶⁹⁸

Hi David,

Thanks for bringing out the samples of the swabs and tube.

I just wanted to summarise where we got to with your visit today.

The swab does appear very similar to a product we have used and currently use within the lab, with the difference appearing to be in that the swab head in the examples you provided is not as tightly wound, and I will get back to you whether; a) that's a problem and b) we would like to do some testing before use.

The 1.5ml tube appears to be the same product (an Axygen tube) that we have used before, although we prefer a 2ml tube (of which I provided an SS! product for comparison), it appears OK, but I will get back to you on that. Additionally you are going to get the specific product specifications to me so I can check them up in a catalogue.

I hope to get back to you by the end of the week with where we stand on the two products you provided.

cheers

Allan

607. Ms Allen, who must have been copied into the email, replied to Mr McNevin ‘Thanks Al, appreciate it’.⁶⁹⁹

608. On 4 March 2009, the following email exchange between Mr McNevin and Ms Allen occurred:⁷⁰⁰

Hiya,

After talking with about 4 or 5 of my team members, they all agreed that the tubes look OK, and I'm thinking the swabs are OK without testing ... do you concur? At the very least it'll be better than what we get now ...

⁶⁹⁷ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [16].

⁶⁹⁸ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [18], ARM-03.

⁶⁹⁹ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-03.

⁷⁰⁰ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-03.

cheers

Al

609. Ms Allen replies:⁷⁰¹

Hi Al,

I think we need to know what the constitutes the new swab vs what we've previously tested - then we can say if we need to test or not. ie if it is 100% rayon for both - then we're covered.

Cheers,

Cath.

610. On 26 March 2009, after consulting with Ms Allen and members of the Analytical Team about the swabs and tubes, Mr McNevin emailed Inspector Neville and relevantly advised:⁷⁰²

We have considered the rayon swabs that David brought out for us suitable for use, we do not consider it necessary to perform any testing, as the rayon swab appears to be identical to a product we have used for various processes within the laboratory with the single exception that the swab head on the medical wire sample appears to be not as tightly wound as the brand we use, however this is not a problem...

...

Although we do not consider it necessary to perform any testing, we are happy to do so if QPS require. ... Any other / alternate products besides the ones mentioned above would need to be considered on an individual basis.

611. Mr McNevin told me that it is “important to differentiate between DNA *collection* and DNA *extraction*”, explaining that the QPS generally conduct DNA collection, whereas extracting DNA from a swab-head is completed by scientists at the laboratory.⁷⁰³ Of his email of 26 March 2009, Mr McNevin told me that:⁷⁰⁴

⁷⁰¹ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, ARM-03.

⁷⁰² Exhibit 245.1, Statement of David Neville, 2 November 2022, [13], exhibit 222. Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [20].

⁷⁰³ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [5]-[6].

⁷⁰⁴ Exhibit 245.9, Statement of Allan McNevin, 24 November 2022, [21].

My email was consistent with my understanding that I was being asked to provide advice on any downstream impacts of the swab type on DNA extraction. My recollection was that I was not being asked to provide advice as to the suitability of certain swabs or wetting agents for the purposes of collecting DNA which is consistent with my position within the laboratory at the time.

612. It appears that after the email of 26 March 2009, the QPS then began using the rayon swab for sampling.⁷⁰⁵
613. In 2010, the Laboratory advised the QPS of concerns about mould growing on the swabs.⁷⁰⁶ The laboratory recommended that QPS investigate the use of 70% ethanol as a wetting agent because it would dry faster.⁷⁰⁷ Inspector Neville had previously told me that “QHFSS requested that we change from water to ethanol as a wetting agent which we did”.⁷⁰⁸ Actually, the laboratory suggested that QPS investigate whether ethanol should be used. The QPS undertook an internal study which found that ethanol dried about six times faster than water (**the internal study**).⁷⁰⁹ The QPS then adopted the use of 70% ethanol as its drying agent, which Inspector Neville says was based on Ms Allen’s email advice from 2008.⁷¹⁰ However, the “Results” section of the internal study noted that “70% ethanol moistened swabs do not appear to collect as much sample as the water moistened swab”. In the “Background” section of the internal study, it was recorded that:

In July 2010 an assessment of the effectiveness of the addition of a desiccant to aid in the drying of blood swabs collected with water was conducted. This evaluation however was limited in scope and only explored 2 collection and packaging options. In a separate project studies (sic) have been undertaken to assess the ability to generate a DNA profile from dried blood stains collected using 70% ethanol and water as the solvent. **Interim results indicated that water is more effective at generating a full profile than 70% ethanol. When collecting samples in both experiments it was noted that water was more effective at lifting the sample from the surfaces particular (sic) semiporous and porous surfaces. When collecting small blood stains this could affect the amount of**

⁷⁰⁵ Exhibit 245.1, Statement of David Neville, 2 November 2022, [13], exhibit 222.

⁷⁰⁶ Exhibit 245.1, Statement of David Neville, 2 November 2022, [14].

⁷⁰⁷ Exhibit 245.1, Statement of David Neville, 2 November 2022, [14]; Exhibit 3, Statement of David Neville, 26 August 2022, exhibit 177.

⁷⁰⁸ Exhibit 3, Statement of David Neville, 26 August 2022, [295].

⁷⁰⁹ Exhibit 245.1, Statement of David Neville, 2 November 2022, [14]; Exhibit 3, Statement of David Neville, 26 September 2022, [298], exhibit 177.

⁷¹⁰ Exhibit 245.1, Statement of David Neville, 2 November 2022, [15].

DNA collected and therefore the ability to generate a full DNA profile.⁷¹¹
(emphasis added)

614. The internal study concluded:

Recommendations:

1. Conduct further experimentation comparing the effect of 70% ethanol and water on DNA yield and profiling results particularly in the case of semi-porous surfaces and small stains.
2. When collecting dried blood stains 70% ethanol should be used to moisten swabs in preference to water. If water is used try to minimise the amount of saturation of the swab head and package the 2ml tube into a clip seal plastic bag with the addition of 2grams of desiccant.
3. Any blood stain, wet or dry, collected into 2ml tubes with an evaporative duct should be packaged into plastic packing immediately prior to postage. No biological sample should be stored in plastic packaging for any extended period of time.
4. For items that are to be stored for extended periods of time in plastic they should be thoroughly dried prior to storage and silica desiccants added to the item. If item is not dried prior storage the addition of silica will aid in the drying process.⁷¹²

615. Inspector Neville was asked to provide the “separate project studies” referred to in the “Background” section of the internal report. He said:

This work, if undertaken, occurred more than ten years ago and the officer involved left the employment of the QPS several years ago. The paper refers to interim results only. A search of her records failed to find any information in relation to these studies or interim results.⁷¹³

616. Dr Kogios and Ms Baker reviewed literature to see what could be found in relation to rayon swabs used with 70% ethanol. They discovered that:⁷¹⁴

- a The choice of sampling device is complex.

⁷¹¹ Exhibit 245.1, Statement of David Neville, 2 November 2022, exhibit 223, p1-2.

⁷¹² Exhibit 245.1, Statement of David Neville, 2 November 2022, exhibit 223, p5.

⁷¹³ Exhibit 245.5, Statement of David Neville, 14 November 2022, [15].

⁷¹⁴ Exhibit 216, Email from Heidi Baker to Commission of Inquiry ‘Sampling techniques and reporting DNA by QPS’, 1 November 2022.

- b No one swab is perfect in all circumstances. Therefore, any decision must be made based on evidence supporting the swab that performs optimally in the largest number of cases.
 - c A systems approach is appropriate and would account for the entire process from collecting to testing.
 - d There is limited data regarding swab types and wetting agents. At times the data is contradictory. In general, ethanol appears to be detrimental to some bodily fluids. In addition, rayon swabs appear to collect less DNA during extraction than cotton swabs.
617. Dr Kogios and Ms Baker recommended that an investigation be undertaken to confirm which swab and wetting agent performs optimally in Queensland.
618. Inspector Neville told me that the QPS intends to review its practices based on the findings contained in the literature.⁷¹⁵
619. I commissioned Professor Wilson-Wilde OAM, the Director of Forensic Science South Australia, to consider whether the QPS had validated the use of rayon and 70% ethanol as a wetting agent. Professor Wilson-Wilde OAM advised as follows:
- 18. Based on the above information, I can find no evidence to support an appropriate validation study was conducted by QPS for the swabbing methodology using the rayon swabs and 70% ethanol prior to implementation.
 - 19. Further, based on the information in the report “Evaluation of Swab Drying Time” and the reference to the interim results (paragraphs 11-12), it is suggested that the use of 70% ethanol may compromise the results of the DNA analysis for samples collected with rayon/70% ethanol combination.
 - 20. It is my opinion that the implementation of the methodology currently used at QPS, for swabbing biological material for DNA analysis comprising a rayon swab combine with 70% ethanol as the wetting agent, **does not constitute best practice.**

⁷¹⁵ Exhibit 245.1, Statement of David Neville, 2 November 2022, [16].

21. It is also my opinion that there are better methods for swabbing biological material than the rayon/70% ethanol combination (see reference in Appendix 2). There are other options for addressing the mould issue experience by QPS and QHFF, such as using isopropanol as the wetting agent, or using a desiccant in the swab packaging. Whichever method is chosen, it should be based on a robust empirical validation study.

22. The implications of an inappropriately validated or unvalidated method is that the method may not produce optimal results, potentially leading to:

- reduced sample collection efficiency,
- compromised sample storage,
- compromised DNA analysis and subsequent profile generation.

(emphasis added)

620. Professor Wilson-Wilde suggested that the next step should be to perform a validation comparing various swab types and various wetting agents.⁷¹⁶ She suggested the validation be undertaken as soon as possible and use current processes used in Queensland to assess 12 matters, which were set out in her report at paragraph 23.⁷¹⁷

621. Further, Professor Wilson-Wilde said the relevant validation and verification studies should be included as references in the relevant standard operating procedures.⁷¹⁸ This is because it will assist forensic practitioners “to identify the relevant information regarding limitations, limits of detection, false positive rates etc.”⁷¹⁹ Keeping the references up to date will ensure practitioners have contemporary information for the methods they use.⁷²⁰

622. Professor Wilson-Wilde also noted that all biological sample methods used must be checked to ensure they are validated or verified, and that the associated reports be available to those using the methods.⁷²¹ Professor Wilson-Wilde informed me that any

⁷¹⁶ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [23].

⁷¹⁷ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [23].

⁷¹⁸ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [24].

⁷¹⁹ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [24].

⁷²⁰ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [24].

⁷²¹ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [25].

method or critical equipment used by the QPS that has the potential to substantially impact the results obtained should be validated or verified prior to implementation.⁷²² Professor Wilson-Wilde provided a list of QPS methods that ought to have been validated or verified. She noted several of these have been robustly validated into practice in other laboratories already, meaning QPS would only need to verify those methods. The list is as follows (with already robustly validated methods noted in parentheses)⁷²³

Analytical methods:

- a. Combur test strips (for blood) (already validated elsewhere)
- b. ABACard Hema-trace (for blood)
- c. Tetramethylbenzidine (TMB) test (for blood) (already validated elsewhere)
- d. Leuco Crystal Violet (LCV) staining (for blood enhancement) (already validated elsewhere)
- e. Luminol test (for blood) (already validated elsewhere)
- f. Harris's Haematoxylin stain (for identification of nuclear material in cells in hair follicles) (already validated elsewhere)
- g. ABA Card p30 test (for seminal fluid) (already validated elsewhere)
- h. Acid phosphatase (AP) test (for seminal fluid) (already validated elsewhere)

Collection methods:

- i. Swabs and wetting agents
- j. Tapelift method

⁷²² Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [26].

⁷²³ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [27]-[28]; Transcript, Day 26, 25 November 2022, p.3156.34-3158.35.

- k. Vacuuming method
- l. Swab for fingernail scrapings

Human-based methods:

- m. Hair examination (where the human is the 'instrument')

Critical Equipment

- n. Forensic Light Sources, such as the Rofin Polilight®, Flares, Foster + Freeman Crime-lite® and Coherent TraceER™ Laser

623. Finally, Professor Wilson-Wilde recommended that section 7 of the QPS Quality Manual be updated to provide additional guidance for verification, to expressly state that all methods shall be validated or verified prior to implementation, and to expressly specify that all critical equipment shall be validated prior to implementation.⁷²⁴
624. It is clear that a validation of rayon swabs with 70% ethanol as a wetting agent was never performed.⁷²⁵

- Rec 80. The QPS should perform a validation comparing various swab types and various wetting agents. The validation should be performed as soon as possible and include an assessment of the following, using current processes used in Queensland (as an end-to-end process used by QPS and the laboratory):
- a. Various swab types
 - b. Various wetting agents
 - c. Different types of biological material commonly encountered in case work
 - d. Different types of substrates commonly encountered in case work
 - e. Collection efficiency
 - f. Extraction efficiency

⁷²⁴ Exhibit 225, Report of Professor Linzi Wilson-Wilde, 18 November 2022, [30].

⁷²⁵ See Exhibit 245.5, Statement of David Neville, 14 November 2022, [15]; Exhibit 245.1, Statement of David Neville, 2 November 2022, exhibit 223; Transcript, Day 26, 25 November 2022, p3129.9-32.

- g. DNA analysis and profile generation efficiency
- h. Mock crime scene samples
- i. Various environmental, transport, and storage conditions commonly encountered in case work
- j. Effect of packaging commonly used in case work
- k. Microbial activity
- l. The effect of enhancement chemicals for the detection of biological material used at crime scenes in Queensland.

Rec 81. The QPS should undertake a review of the following, to ensure the relevant methods and equipment have been validated or verified.

- a. Combur test strips (for blood)
- b. ABACard Hema-trace (for blood)
- c. Tetramethylbenzidine (TMB) test (for blood)
- d. Leuco Crystal Violet (LCV) staining (for blood enhancement)
- e. Luminol test (for blood)
- f. Harris's Haematoxylin stain (for identification of nuclear material in cells in hair follicles)
- g. ABA Card p30 test (for seminal fluid)
- h. Acid phosphatase (AP) test (for seminal fluid)
- i. Swabs and wetting agents
- j. Tape lift method
- k. Vacuuming method
- l. Swabs for fingernail scrapings
- m. Hair examination (where the human is the 'instrument')
- n. Forensic Light Sources, such as the Rofin Polilight®, Rofin Polilight® Flares, Foster + Freeman Crime-lite® and Coherent TracER™ Laser.

Rec 82. The QPS should update the QPS Quality Manual to provide additional guidance for verification and expressly state that all methods shall be validated or verified

prior to implementation and expressly specify that all critical equipment shall be validated prior to implementation.

Investigation and Report by Mr Mark Ainsworth

625. Mr Mark Ainsworth is a former officer of the QPS who retired in May 2018 after 38 years in the QPS.⁷²⁶ At the time of his retirement, he had reached the rank of Detective Superintendent.⁷²⁷ I commissioned Mr Ainsworth to interview members of the QPS to find out whether there have been any significant or systemic problems experienced by police officers in the collection, transportation, and submission of biological material for DNA testing or in the receipt and understanding of DNA testing results from the laboratory.⁷²⁸
626. Mr Ainsworth interviewed 36 police officers from various locations throughout Queensland.⁷²⁹ The interviewees held ranks between Senior Constable and Inspector and roles as Investigator, Prosecutor, Scenes of Crime Officer, Scientific Officer, Forensic Manager and Forensic Coordinator.⁷³⁰
627. The main issues⁷³¹ reported to Mr Ainsworth were:
- a. Poor communication about DNA results, poor understanding of DNA results and poor knowledge of the options available for further testing a sample.⁷³²
 - b. Delays in transportation of samples to FSS, particularly in rural and regional locations.⁷³³

⁷²⁶ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [1].

⁷²⁷ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [2].

⁷²⁸ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [4].

⁷²⁹ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [8], [10], [12].

⁷³⁰ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [12], [13].

⁷³¹ See also Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022; Exhibit 212.26, Statement of Mark Ainsworth, 20 October 2022, for other issues raised.

⁷³² Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(a)]-[18(d)].

⁷³³ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(e)].

- c. Officers failing to take a reference DNA sample from people who are charged with an indictable offence.⁷³⁴
 - d. A lack of refresher training for Scenes of Crime Officers and Scientific Officers since the COVID-19 pandemic.⁷³⁵
628. Mr Ainsworth said another common matter raised with him was that the “[t]ransportation of DNA and other exhibits from regional and remote parts of the state is an ongoing issue and impacts on timeliness of having DNA samples delivered to the QHFSS facility”.⁷³⁶ In regional areas, while DNA reference samples are mostly sent by registered post, evidentiary samples are hand delivered – by vehicle or plane. Regional and remote detectives reported that in most investigations, exhibits are stored in police station exhibit rooms and will be transported to Brisbane when an exhibit run occurs, which can vary from once per month to once per fortnight.⁷³⁷
629. I also heard evidence directly from police officers about delays in the transportation of a Sexual Assault Investigation Kit in particular. This is discussed below at Section 3.3.9 “Transportation of SAIKs”. It includes evidence that from at least one rural location, administered SAIKs usually take at least one month to reach the laboratory.
630. Transportation delays can contribute to a much longer delay between the time of sample collection and time of receiving results, which may frustrate investigation leads.⁷³⁸ Further, if samples are not stored correctly after collection, transportation delays may increase the risk of sample degradation.⁷³⁹

⁷³⁴ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(g)].

⁷³⁵ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [43], [50]-[51], [85], [90], [95], [97].

⁷³⁶ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(e)].

⁷³⁷ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [30], [31]. See also Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [18(e)].

⁷³⁸ See Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [30].

⁷³⁹ See Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [167].

631. Moreover, a month is too long of a time for potentially crucial evidence to remain in transit before DNA testing even begins. This is particularly so given Magistrates Court Practice Direction 13 of 2010 provides that, in committal matters, the prosecution are to be directed to produce and disclose the full brief of evidence within five weeks of the committal callover.⁷⁴⁰
632. Multiple remote and regional officers said they would like to see a project undertaken to expedite transporting samples from remote and regional areas to Brisbane, such as an overnight courier service or similar model. They noted this may also benefit complainants by helping expedite the investigation of their matters.⁷⁴¹
633. Several investigators also spoke to Mr Ainsworth about the laboratory's operating hours, and, in particular, that the laboratory did not operate on weekends or public holidays. One Detective suggested there be a roster for staff at the laboratory to work on weekends, as sometimes delays in investigations were caused by not having access to weekend testing.⁷⁴²
634. I find that there are delays in QPS's transportation of biological samples for forensic DNA testing from regional and remote parts of Queensland that must be remedied. The QPS accepted there have been delays in transporting samples from regional and remote areas, and supported my recommendation to undertake a state-wide review of their transport arrangements for sample submissions.⁷⁴³

Rec 83. The QPS should undertake a state-wide review of their transport arrangements for sample submissions, including the transportation of Sexual Assault Investigation Kits, to ensure that all sample submissions reach the DNA Laboratory as quickly as possible and within a reasonable time period.

⁷⁴⁰ Magistrates Court Practice Direction 13 of 2010 – Disclosure, [10].

⁷⁴¹ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [99].

⁷⁴² Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [32].

⁷⁴³ QPS Submissions to the Commissioner Regarding Possible Adverse Findings in Respect of The Queensland Police Service, Dale Frieberg, David Neville, and Ewen Taylor, 2 December 2022, response to proposed adverse finding 25; QPS Response to Draft Recommendations, 2 December 2022, response to recommendation 103.

Rec 84. The laboratory should, in collaboration with the QPS, review its current hours of operation on weekends with a view to reducing any delays in testing.

635. A reference sample taken from a person charged with an indictable offence can be uploaded to the National Criminal Investigation DNA Database (**NCIDD**). The NCIDD is a useful database for solving crime because a reference sample may be matched to a historical and unknown crime scene sample recorded in the database. A reference sample may later be linked to a future crime scene sample.
636. Senior investigators interviewed by Mr Ainsworth raised concerns that there was frequently a failure to take a reference sample from people charged with indictable offences even though the QPS Operational Procedures Manual requires that a reference sample be taken whenever a person is charged with an indictable offence and there is not already a profile on NCIDD for that person.⁷⁴⁴ I requested data from the QPS showing how frequently reference samples are taken from people charged with indictable offences. Between January 2022 and August 2022, only 7,143 reference samples were taken from the 18,892 people charged with at least one indictable offence who did not already have a DNA profile on NCIDD.⁷⁴⁵ This is a compliance rate of only 37.8%.
637. Inspector Neville confirmed the low compliance rate.⁷⁴⁶ He referred to a directive given to all police in March 2020 not to take reference samples from people charged with indictable offences who presented with COVID-19 symptoms.⁷⁴⁷ He said he had observed a marked decrease in the number of reference samples taken from March 2020 onwards, but noted the directive has since been rescinded.⁷⁴⁸ In late 2021, Inspector Neville implemented some strategies to improve compliance.⁷⁴⁹ He has observed an upwards

⁷⁴⁴ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(g)].

⁷⁴⁵ Exhibit 245.12, Reference Sample Collection Statistics, undated.

⁷⁴⁶ Exhibit 245.5, David Neville, 14 November 2022, [1]; see also Exhibit 28A, Statement of Dale Frieberg, 5 September 2022, [85].

⁷⁴⁷ Exhibit 245.5, David Neville, 14 November 2022, [3].

⁷⁴⁸ Exhibit 245.5, David Neville, 14 November 2022, [3].

⁷⁴⁹ Exhibit 245.5, David Neville, 14 November 2022, [5].

trend in compliance in 2022.⁷⁵⁰ In January 2022 the compliance rate was 31.13%, but in September 2022 the compliance rate was 43.25%.⁷⁵¹

Rec 85. The QPS should provide, to all police officers who arrest or charge people with indictable offences as part of their function, training and education regarding the importance of taking a DNA reference sample from people charged with an indictable offence.

3.3 Collection by Queensland Health

Overview

638. QH are responsible for collecting biological samples for forensic DNA testing in matters involving sexual assault. In cases of alleged sexual assault, biological material may be collected from the complainant and/or the accused by way of a forensic medical examination. In circumstances where a complainant makes a police complaint, QPS officers will arrange an examination of the complainant. A physician or nurse engaged by QH will then conduct the examination. The physician or nurse will usually use a Sexual Assault Investigation Kit (SAIK) to collect the samples. People who are not yet sure if they want to make a complaint to police can have a Just-in-Case (JIC) Kit completed. The JIC Kit can later be provided to the QPS if the person decides to make a police complaint. For the purposes of this chapter and the recommendations I make, I will use the phrase “forensic medical examination” to refer to a forensic medical examination that is conducted on a person disclosing or accused of sexual assault.

639. In Queensland, the laboratory compiles SAIKs and JIC Kits, and supplies SAIKs to the QPS.⁷⁵² A QPS officer will supply a SAIK to the health practitioner who conducts the forensic medical examination. The health practitioner will return the administered SAIK to the QPS, and the QPS will transport the administered SAIK to the laboratory in Brisbane

⁷⁵⁰ Exhibit 245.5, David Neville, 14 November 2022, [6].

⁷⁵¹ Exhibit 245.5, David Neville, 14 November 2022, [6].

⁷⁵² Exhibit 173, Statement of Catherine Allen, 11 October 2022, [153]–[154], [155], [158].

for testing. The laboratory supplies the JIC Kits to QH Pathology Queensland laboratories. When required for an examination, the physician or nurse will obtain the JIC kit from a Pathology Queensland laboratory.⁷⁵³

Who conducts and manages forensic medical examinations

640. Queensland has 16 separate Hospital and Health Services. Each Hospital and Health Service (HHS) covers a distinct geographical area, except for the Children’s Health Queensland HHS. Each HHS is an independent statutory body but must comply with Health Service Directives issued by the Chief Executive of the Department of Health that apply to that HHS.⁷⁵⁴

641. In July 2019, the Chief Executive of the Department of Health issued a Health Service Directive, Caring for people disclosing sexual assault (the 2019 HSD),⁷⁵⁵ and Guidelines⁷⁵⁶ requiring each HHS to, among other things:

- a. provide 24-hour access to clinical care and forensic examinations for persons 14 years and over disclosing a sexual assault;
- b. provide a forensic examination, with consent, to any person disclosing a sexual assault regardless of whether they have reported the matter to police;
- c. provide patients with information about the choices of forensic examinations and reporting the assault to police, “the benefits of early reporting”, and for those who have not reported the assault to police, information about how samples will be stored, accessed and potentially destroyed;

⁷⁵³ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [160].

⁷⁵⁴ *Hospital and Health Boards Act 2011* (Qld), ss 47, 50.

⁷⁵⁵ Exhibit 210.12, Health Service Directive: Caring for people disclosing sexual assault QH-HSD-051:2019, 22 July 2019.

⁷⁵⁶ Exhibit 210.13, Guideline for the Management of care for people 14 years and over disclosing Sexual Assault QH-GDL-472:2019.

- d. provide a suitable model of care for managing sexual assault patients aged under 14.

642. The “Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault” of June 2014 (the 2014 Interagency Guidelines) sets out policy matters agreed upon by the QPS, QH, the Department of Justice and Attorney-General (DJAG) and Department of Communities, Child Safety and Disability Services.⁷⁵⁷ The 2014 Interagency Guidelines provide that health staff “must follow local procedures in the management of sexual assault”.⁷⁵⁸
643. The 2019 HSD places the responsibility of providing a forensic medical examination to a victim of sexual assault on each HHS, requiring each HHS to provide an examination to any person in their geographical area of operation at any time. These examinations typically occur at a hospital.⁷⁵⁹

The Clinical Forensic Medicine Unit

644. The Department of Health contains the Clinical Forensic Medicine Unit (CFMU). Until about October 2022, the CFMU was part of FSS and the Director of the CFMU reported to the Executive Director of FSS.⁷⁶⁰
645. Dr Adam Griffin, Director of the CFMU, provided a statement to the Commission. Dr Griffin said the CFMU contains 14.25 full time equivalent (FTE) positions.⁷⁶¹ This includes 4.25 FTE nursing positions,⁷⁶² one of which is the Assistant Director of Nursing, a position currently held by Ms Jacqui Thomson. Each position is currently based in Brisbane.⁷⁶³

⁷⁵⁷ Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault, June 2014, p5.

⁷⁵⁸ Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault, June 2014, p16. Further, employees of government entities should, when dealing with a victim of a sexual offence, not act inconsistently with the relevant rights in the Charter of Victims’ Rights: *Victims of Crime Assistance Act 2009* (Qld), ss 6A, 6B, 18, Sch 1AA.

⁷⁵⁹ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [23].

⁷⁶⁰ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [3]; Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p2.

⁷⁶¹ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [4].

⁷⁶² Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [4].

⁷⁶³ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [17].

The CFMU provides a variety of forensic services, several of which are not related to DNA evidence collection. The functions of the CFMU relevant to DNA collection include:⁷⁶⁴

646. provision of a 24/7 telephone support line to clinicians around Queensland who perform forensic examinations of accused persons or people disclosing sexual assault;
- a. conducting forensic medical examinations of people disclosing sexual assault at the CFMU's Brisbane office;
 - b. conducting forensic medical examinations of people accused of sexual assault;
 - c. providing education and training for physicians and nurses who may conduct forensic medical examinations (which is detailed further below);
 - d. peer review of training doctors, and of statements written by other clinicians, including nurse examiners.
647. In regard to the services listed at sub-paragraph (b) above, Dr Katherine Robinson, a clinician with the CFMU, told me that since about 2019 the CFMU have only occasionally performed forensic medical examinations on person disclosing sexual assault.⁷⁶⁵ In South East Queensland the primary responsibility for providing such forensic medical examinations appears to be with the relevant HHSs.

The Child Protection and Forensic Medical Service

648. The Department of Health also contains the Child Protection and Forensic Medical Service (**CPFMS**). The current Director of the CPFMS is Dr Jan Connors. Dr Connors provided a statement to me.⁷⁶⁶ The CPFMS provides inpatient and outpatient services to children and young people (generally those aged under 14) who have suffered harm or are at risk

⁷⁶⁴ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [15]; see also Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p2, 7.

⁷⁶⁵ Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p3–4.

⁷⁶⁶ Exhibit 212.21, Statement of Jan Connors, undated, [1], [3] (her substantive position is Director of the CPFMS).

of suffering harm.⁷⁶⁷ The work of the CPFMS is largely based at the Queensland Children’s Hospital, in Brisbane. The CPFMS does not have jurisdiction over the provision of services in each HHS; rather, the Director of Paediatrics at each HHS is responsible for the services provided in their HHS.⁷⁶⁸ The CPFMS does, however, provide, among other things, 24-hour on call telephone support for clinicians across Queensland, and offers peer review of examinations and interpretation of findings on request.⁷⁶⁹

Gold Coast Hospital and Health Service

649. I received evidence from Dr Catherine Lincoln, who is a Forensic Physician and Director of Forensic Medicine within the Gold Coast HHS (**GCHHS**).⁷⁷⁰ Dr Lincoln is an experienced forensic clinician and is also a member of the Royal College of Pathologists of Australasia (**RCPA**) Faculty of Clinical Forensic Medicine and sits on the RCPA Board of Education and Assessment.⁷⁷¹ Dr Lincoln assisted me in two principal ways:

- a First, she highlighted several problems with the current SAIK and with current forensic medical examination practices. These were, in the main, referred to experts commissioned by me.
- b Secondly, she detailed further policies she has implemented in the GCHHS beyond the state-wide minimum standards, including the sources and external guidelines that have been used as a source of those policies, and the effect of those further policies in the GCHHS.

⁷⁶⁷ Exhibit 212.21, Statement of Jan Connors, undated, [10]–[20]; see also Queensland Government, Child Protection and Forensic Medical Service, URL: www.childrens.health.qld.gov.au/service-child-protection-forensic-medical/.

⁷⁶⁸ Exhibit 212.21, Statement of Jan Connors, undated, [76]–[79].

⁷⁶⁹ Exhibit 212.21, Statement of Jan Connors, undated, [10]–[20], [54].

⁷⁷⁰ Exhibit 212.23, Statement of Catherine Lincoln, 26 September 2022, [12], [21]–[23]. The GCHHS Forensic Medicine service also oversees the provision of forensic examination services at Logan Hospital, which is within Metro South HHS: [23].

⁷⁷¹ Exhibit 212.23, Statement of Catherine Lincoln, 26 September 2022, [16].

Personnel and training

650. Under the 2019 HSD and relevant guidelines the type of medical practitioner that may conduct a sexual examination depends on whether the patient is at least 14 years of age or is under 14 years of age.
651. If the patient is aged 14 or over, the 2019 HSD provides that the patient will have access to one of the following trained clinicians to provide the examination:⁷⁷²
- a a Forensic Physician;
 - b a Medical Officer who has received training in sexual assault examination;
 - c a Government Medical Officer;
 - d a Forensic Nurse examiner (postgraduate qualification in Forensic Medicine); and
 - e a Sexual Assault Nurse Examiner; or
 - f a Senior Medical Officer accessing phone support from the CFMU, although the *Guideline for the Management of care for people 14 years and over disclosing Sexual Assault* provides that wherever possible a person listed in sub-paragraphs (a) to (e) conduct the examination, and a Senior Medical Officer can complete the examination if no trained clinician is available.
652. Dr Griffin said that in each HHS “[m]edical officers may”, “without training”, collect biological samples for forensic DNA testing from people, and may access an on-call Forensic Physician from the CFMU’s 24/7 telephone support line.⁷⁷³ Thus, in practice, it may be that a physician without specific training conducts a forensic medical examination. However, they have access to a support line to provide guidance on conducting the examination.

⁷⁷² Exhibit 210.12, Health Service Directive: Caring for people disclosing sexual assault QH-HSD-051:2019, p1148.

⁷⁷³ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [28].

653. If the person disclosing sexual assault is aged under 14, a Department of Health guideline provides that the forensic medical examination ‘should be performed by a medical officer with appropriate paediatric skills including child protection and/or sexual assault medical examination training or skills’.⁷⁷⁴ Dr Connors said that while it was the responsibility of paediatricians to conduct such examinations of those under 14, the age cut off was only a guideline and it was open to discussion on a case-by-case basis, particularly in more geographically remote areas.⁷⁷⁵ In contrast, Dr Griffin said that sexual examinations on those under the age of 14 had to be conducted by a paediatrician.⁷⁷⁶
654. For practitioners based within the Children’s Health Queensland HHS, a guideline provides that every case involving a child who presents to the QCH Emergency Department with suspected sexual abuse or following a sexual assault should be discussed the CPFMS on-call paediatrician or fellow. CPFMS will conduct forensic medical examinations if the assault has occurred within the prior 72 hours.⁷⁷⁷

Involvement of other personnel

655. The Interagency Guidelines provide that a person is entitled to have a support person present during the examination and, while police officers are not required to be present, if a victim requests the presence of police the officer is to be the same gender as the victim.⁷⁷⁸ A police officer must nonetheless be present nearby to collect all evidence acquired during the examination.

⁷⁷⁴ Exhibit 210.24, Guideline Conducting Child Sexual Assault Examinations #QH-GDL-943:2015, 1 June 2018, [4.1.2]. Similarly, the 2014 Interagency Guidelines provide that “[p]aediatric forensic medical assessments” are undertaken by paediatricians, namely, the “Child Protection Advisor on call (or similar) or the general paediatrician on call”: Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experienced Sexual Assault, June 2014, p17.

⁷⁷⁵ Exhibit 212.21, Statement of Jan Connors, undated, [32]–[33], [47].

⁷⁷⁶ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [40]. Similarly, other guidelines further provide that clinicians with a scope of practice in adult examinations but not in paediatric sexual assault ‘must NOT’ perform forensic examinations on patients under the age of 14 years: Exhibit 210.13, Guideline for the Management of care for people 14 years and over disclosing Sexual Assault QH-GDL-472:2019, 10 September 2019, p5.

⁷⁷⁷ Exhibit 210.25, Guideline Acute medical care of paediatric patients who have experienced alleged sexual abuse/assault CHQ-GDL-02603, 27 April 2022, p2.

⁷⁷⁸ Exhibit 210.14, Response to sexual assault Queensland Government Interagency Guidelines for Responding to People who have Experience Sexual Assault, June 2014, p18.

656. Mr Ainsworth advised that a QPS Scenes of Crime Officer will sometimes attend to the forensic medical examination of a complainant and photograph injuries at the direction of the health practitioner.⁷⁷⁹

Accused persons

657. The *Police Powers and Responsibilities Act 2000* (Qld) provides that if an accused gives informed consent or a Magistrates Court issues a forensic procedure order, a doctor or forensic nurse examiner may conduct a forensic procedure on a person accused of committing an indictable offence.⁷⁸⁰ A doctor or forensic nurse examiner can perform both intimate and non-intimate procedures that may provide evidence of the commission of an offence.⁷⁸¹ Doctors and forensic nurse examiners are therefore empowered to collect DNA samples from any part of the body of an accused that might be used to prove the accused committed a sexual assault.

Training – physicians

658. It is relevant to consider state-wide training standards.⁷⁸² The Guidelines provide that the examination may be conducted by a medical officer who has “received training in sexual assault examination” or a senior medical officer,⁷⁸³ although the 2019 HSD is not phrased in a way that prohibits physicians who do not meet these standards from conducting the examination.⁷⁸⁴

659. Since about July 2019, when the 2019 HSD took effect, the CFMU has offered to all physicians a free 90-minute workshop which “focuses on the primary clinical and forensic consultation when a patient discloses sexual assault”. This workshop would presumably

⁷⁷⁹ Exhibit 212.25, Report of Mark Ainsworth, 17 October 2022, [53].

⁷⁸⁰ *Police Powers and Responsibilities Act 2000* (Qld), ss 445, 456, 466, Pt 7.

⁷⁸¹ *Police Powers and Responsibilities Act 2000* (Qld), ss 509, 509A, Sch 6 Dictionary.

⁷⁸² There are separate and further standards for physicians in the CFMU, and those under the supervision of the GCHHS Forensic Medicine service.

⁷⁸³ Exhibit 210.13, Guideline for the Management of care for people 14 years and over disclosing Sexual Assault QH-GDL-472:2019, 10 September 2019, p4–5.

⁷⁸⁴ In Exhibit 210.12, Health Service Directive: Caring for people disclosing sexual assault QH-HSD-051:2019, 22 July 2019, the only reference to “trained clinicians” is under the principle of “Person-centred care”, and is not framed in mandatory language.

meet the training requirement for a medical officer to conduct forensic medical examinations.⁷⁸⁵

660. As Dr Robinson noted, the training process should be designed to “reach every healthcare facility” across Queensland and to demystify the examination process, so as to encourage practitioners in each facility to conduct the examination rather than transfer the patient to another facility.⁷⁸⁶

Training – nurses

661. As noted above, two types of nurse practitioners may conduct forensic medical examinations. The first, forensic nurse examiners (**FNEs**), are nurses who also hold a postgraduate qualification in forensic medicine, whether a Graduate Certificate or master’s degree.⁷⁸⁷
662. The second type of nurse practitioners are Sexual Assault Nurse Examiners (**SANEs**). This category was introduced in 2020. To qualify as a SANE, a nurse must have a minimum of two years’ experience as a registered nurse or registered midwife and must complete the SANE 40CPD course, which involves the completion of about 32 hours of online modules and attendance at a one-day workshop run by the CFMU.⁷⁸⁸ If a SANE conducts a forensic medical examination, they produce a statement which must be reviewed by a FNE or Forensic Physician.⁷⁸⁹
663. Other differences between FNEs and SANEs include:

⁷⁸⁵ See Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [19]; Exhibit 210.27, Workshops, undated.

⁷⁸⁶ Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p11.

⁷⁸⁷ Typically, this is a Graduate Certificate in Medical & Forensic Management of Adult Sexual Assault from the New South Wales Education Centre Against Violence, or Master of Nursing (Forensic Nursing): see Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [14], [18]–[22]; see also Exhibit 210.59, Course Information Flyer 2023 – 10724NAT Graduate Certificate in Medical & Forensic Management of Adult Sexual Assault.

⁷⁸⁸ Exhibit 210.28, Sexual assault nurse examiner course, undated.

⁷⁸⁹ See Exhibit 210.29, Review of Statement of Fact upon the completion of a sexual assault examination, September 2021.

- g SANEs will provide a statement of fact but not offer an opinion, but a FNE can provide an expert opinion.⁷⁹⁰
- h FNEs are permitted to conduct forensic medical examinations on people accused of indictable offences but SANEs are not.⁷⁹¹
664. There is a state-wide FNE-SANE Community of Practice, facilitated by the Assistant Director of Nursing.⁷⁹² Apart from the above-listed initial qualifications, it is up to each HHS to manage any initial and ongoing credentialing of FNEs and SANEs, which includes whether to impose any requirements that FNEs and SANEs undertake ongoing education and proficiency testing.⁷⁹³
665. Ms Thompson stated that concerns have been raised regarding a lack of readiness and confidence in conducting forensic medical examinations by nurses and midwives who have completed the SANE workshop. She noted that some SANEs were buddying up with colleagues that have received training in forensic examinations for their first couple of examinations before conducting examinations unsupervised.⁷⁹⁴

Training – paediatricians

666. Dr Connors said paediatricians are not required to complete additional training in order to conduct forensic medical examinations on children aged under 14. However, there are external training opportunities and paediatricians can request to spend time as observers at CPFMS.⁷⁹⁵ It is up to paediatricians in each HHS to take up available training.⁷⁹⁶
667. Currently, there is no training which enables paediatric nurses to conduct forensic medical examinations.

⁷⁹⁰ Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [16].

⁷⁹¹ Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [15].

⁷⁹² Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [6].

⁷⁹³ Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [49]–[50], JJT-11.

⁷⁹⁴ Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [55].

⁷⁹⁵ Exhibit 212.21, Statement of Jan Connors, undated, [50]–[56].

⁷⁹⁶ Exhibit 212.21, Statement of Jan Connors, undated, [35].

The SAIK

668. The 2014 Interagency Guidelines provide that, where possible, the SAIK is to be used in conducting a forensic medical examination of people disclosing sexual assault who are aged 14 years and above.⁷⁹⁷ Physicians and FNEs usually use a SAIK when conducting intimate examinations on a person accused of sexual assault.⁷⁹⁸ The SAIK is also typically used in the examination of children under 14 disclosing sexual assault, although video or photographic recording is often also taken during examinations of children.⁷⁹⁹
669. The current SAIK has been used in Queensland since about 2013, following a change process at the laboratory, carried out in conjunction with the CFMU.⁸⁰⁰ Broadly, the change affected what was provided in the kit itself by reducing the number of consumables provided and by replacing the 24-page protocol booklet included in the kit with a shorter form for information relevant to testing at the laboratory.⁸⁰¹ A few years prior to this change process, health practitioners stopped smearing the contents of swabs onto microscope slides during the examination, and instead submitted the swabs directly to the laboratory.⁸⁰²
670. The SAIK is produced and provided to medical practitioners as an open, tamper-proof bag. Once the SAIK is administered, the bag is sealed. Tamper-proof means, once sealed, the

⁷⁹⁷ Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experience Sexual Assault, June 2014, p16-17; Exhibit 210.13, Guideline for the Management of care for people 14 years and over disclosing Sexual Assault QH-GDL-472:2019, 10 September 2019, p4.

⁷⁹⁸ See, eg, exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [39]; Exhibit 212.12, Statement of Martin Forrest, 23 September 2022, [19].

⁷⁹⁹ Exhibit 212.21, Statement of Jan Connors, undated, [43]–[45].

⁸⁰⁰ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [150]. As to feedback from and consultation with the CFMU, see, eg, Exhibit 210.108, Email from Bob Hoskins to Adam Griffin & Adrian Pippia Re Contents in SAIK, 24 November 2011; Exhibit 210.112, Email from Adam Griffin to Adrian Pippia Re SAIK booklet transition planning, 26 June 2012.

⁸⁰¹ Exhibit 245.36, FSS Change Management Proposal #114, 13 July 2012; Exhibit 245.35, FSS Important Information, Undated; Exhibit 210.107, Procedure for the Preparation of Sexual Assault Investigation Kits, 18 April 2011 (what was included in the different kits prior to the 2013 change); Exhibit 210.120, Procedure for the Preparation of Sexual Assault Investigation Kits, 8 November 2013, (what was included in a SAIK after the 2013 change).

⁸⁰² Exhibit 210.105, Email from Cathie Allen RE teleconference with pathologists, 7 June 2010; Exhibit 245.44, Emails between CFMU and JTC Re Need for Slides to be made from Swabs for Semen at Time of Sexual Assault Examination, Various dates; Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [51]–[52].

bag cannot be inconspicuously opened and resealed. The SAIK currently contains the following:⁸⁰³

- i Six plain labelled swabs, each in its own casing. The swabs have cotton tips and wooden stems.
- j One clip seal bag containing a drop sheet (A1 sheet of paper folded to A4 size) and form instructing how to collect samples with the drop sheet. The drop sheet is designed to be placed under the patient when undressing and when being examined to capture any material dislodged from the person's clothes and body, such as hairs, fibres, plant material and foreign matter.⁸⁰⁴
- k A large clip seal bag containing the following two forms to be completed by the examiner:
 - i A "Medical Examination Information Form". This is a three-page form completed by the examiner and placed inside the completed SAIK.
 - ii A "Sexual Assault Toxicology form". A separate kit is used, however, to take toxicology samples.⁸⁰⁵ Toxicology is not discussed in detail in this report given it is not typically used to collect samples for forensic DNA testing in Queensland.

671. While the SAIK only contains six swabs, Ms Paula Brisotto, who is Team Leader of Evidence Recovery and Quality at the laboratory, stated she did not envisage any issue would arise if an examiner used and submitted more than six swabs when conducting a forensic medical examination.⁸⁰⁶

⁸⁰³ Exhibit 210.7, Configuration of SAIKS (Sexual Assault Investigation Kits), 26 May 2022, [4.1]–[4.2], Appendix A (the SAIK also contains an address label for the FSS DNA Laboratory and a 'Sexual Assault Investigation kit' label).

⁸⁰⁴ Exhibit 210.7, Configuration of SAIKS (Sexual Assault Investigation Kits), 26 May 2022, Appendix C – Drop sheet cover sheet.

⁸⁰⁵ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [49].

⁸⁰⁶ Exhibit 245.3, Statement of Paula Brisotto, 9 November 2022, [43].

672. JIC kits are labelled differently but are also delivered in a tamper-proof open bag containing the three items listed at sub-paragraphs 121 (a) – (c), above. They also contain further forms, namely a JIC Request Form, Chain of Custody Form and a Consent for Forensic Examination Form.⁸⁰⁷ There are two main differences for a person who chooses to have a JIC kit completed, rather than making a police complaint and having a SAIK administered. Firstly, toxicology samples will not be taken from the patient as there is currently no process for storage of those samples, and second, QH will not collect and store the clothing worn during the assault, as that function is usually performed by the QPS.⁸⁰⁸

Other equipment

673. The QPS has equipment for taking samples from fingernails or toenails (often called nail scrapings). These samples can be taken by Scenes of Crime Officers.⁸⁰⁹

DNA reference samples

674. It is necessary to take a DNA reference sample from a complainant. This DNA reference sample is necessary so that the laboratory can identify any DNA of the complainant which is found on the samples taken as part of the forensic medical examination.

675. The 2014 Interagency Guidelines provide that “DNA reference samples (usually a blood sample or mouth swab) should be taken routinely as part of the” forensic examination.⁸¹⁰ However, QPS policy, and the general practice from 2015 until at least mid-2022, was that police officers collected DNA reference samples.⁸¹¹ Witnesses said that this typically

⁸⁰⁷ Exhibit 210.7, Configuration of SAIKS (Sexual Assault Investigation Kits), 26 May 2022.

⁸⁰⁸ Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [57]–[59]; see also Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [14]–[15]; Exhibit 212.12, Statement of Martin Forrest, 23 September 2022, [7(j)] (noting the health practitioner may remove the clothing but will hand it to a QPS officer).

⁸⁰⁹ See, eg, exhibit 212.11, Statement of Brendan Blyth, 23 September 2022, [6].

⁸¹⁰ Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experience Sexual Assault, June 2014, p18.

⁸¹¹ Exhibit 212.9, Statement of David Neville, 19 September 2022, exhibit 209 (QPS OPM Issue 89.1, 7 October 2022, p164, para (ix) under “Investigating officer responsibilities”).

occurred on a later occasion to the administration of SAIK.⁸¹² Investigators told Mr Ainsworth that the reference sample may be taken at varying times before or after the forensic medical examination occurs.⁸¹³ The SAIK does not currently contain equipment for taking a reference sample.

676. In late 2021, the QPS raised with QH their previously expressed desire for the practice to change so that QH physicians and nurses would take a reference sample during the forensic medical examination.⁸¹⁴ I have considered various email communications and multiple meeting minutes from this period.⁸¹⁵ It is apparent that agreement between all members of the CFMU and the QPS to change practices was not reached as at December 2021.⁸¹⁶
677. During at least one meeting Dr Griffin expressed opposition to changing the practice.⁸¹⁷ Dr Griffin's concerns included the extra work and cost involved in health practitioners taking reference samples and, potentially, the risk of cross-contamination from the saliva or semen of the alleged offender in the mouth of the person disclosing the sexual assault.⁸¹⁸
678. Ms Catherine Allen, in a statement to me, said she would be guided by medical advice regarding the most appropriate opportunity for the reference sample to be taken from a victim-survivor and that her preference was that "the reference sample remains external to the SAIK packaging to ensure that the SAIK is not compromised if the packaging is opened to retrieve the reference sample at [a Forensic and Scientific Services] Forensic

⁸¹² See, eg, Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [53]; Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [73]; Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [19].

⁸¹³ Exhibit 212.25, Report of Mark Ainsworth, 17 October 2022, [64].

⁸¹⁴ This preference had been communicated by QPS to QH on occasions prior to the second-half of 2021, including 2016: see Exhibit 212.10, Statement of David Briese, 22 September 2022, [32]; Exhibit 173, Statement of Catherine Allen, 11 October 2022, [165], CA-85, CA-86; see also Statement of David Neville, 22 September 2022, [19]–[25].

⁸¹⁵ See Exhibit 212.10, Statement of David Briese, 22 September 2022, [32]–[40] (27 October 2021 email, 9 November 2021 meeting, 7 December 2021 meeting, 15 Dec 2021 meeting); Exhibit 28A, Statement of Dale Frieberg, 5 September 2022, [68]–[83] (7 December 2021 meeting, 15 December 2021 meeting).

⁸¹⁶ See Exhibit 212.10, Statement of David Briese, 22 September 2022, [39]–[40].

⁸¹⁷ Exhibit 212.10, Statement of David Briese, 22 September 2022, [36], [39], exhibit 10.

⁸¹⁸ Exhibit 212.10, Statement of David Briese, 22 September 2022, [36(b)], exhibit 10.

Property Point”.⁸¹⁹ I note that in a 2020 email to the head of CFMU and then Executive Director of FSS, Ms Allen said “Consistency of the quality of the reference sample is required” and said that a police officer could take the sample at the time they provide a health practitioner with the SAIK to conduct the examination.⁸²⁰

679. This issue was considered by the experts commissioned by me. They were of the view that best practice was to take a reference sample at the time of forensic examination. However, I am informed that QH has now taken steps to implement a process where reference samples will be taken from people disclosing sexual assault at the time of the forensic medical examination.⁸²¹

Transportation of SAIKs

680. The 2014 Guidelines provide that “[e]vidence collected needs to be stored and transported in approved and standardised ways as outlined in police procedures to ensure the utility in a court proceeding.”⁸²² The QPS Operational Procedures Manual (**OPM**) provides that the investigator is responsible for the transportation of the administered SAIK to the laboratory,⁸²³ although another police officer can do the actual transportation.
681. The address label on the SAIK states “Please Store at 8 to -20 degrees C”. Ms Davey was provided with a document explaining the contents of a SAIK, including this label, and QPS OPM extracts concerning the transportation of SAIKs.⁸²⁴ The OPM states “[t]he SAIK must be delivered to QHFSS as a matter of priority.”⁸²⁵ While Ms Davey did not take issue with

⁸¹⁹ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [162]–[163].

⁸²⁰ Exhibit 245.49, Email from Cathie Allen to Adam Griffin & John Doherty RE SAIKs and Reference swabs, 2 March 2020.

⁸²¹ Exhibit 24, Statement of Lara Keller, 20 September 2022, [197], LK-105; Exhibit 130, Statement of Lara Keller, 21 October 2022, [161]–[162].

⁸²² Exhibit 210.14, Response to sexual assault – Queensland Government Interagency Guidelines for Responding to People who have Experience Sexual Assault, June 2014, p17.

⁸²³ Exhibit 212.9, Statement of David Neville, 19 September 2022, exhibit 209 (QPS OPM Issue 89.1, 12 September 2022, p164, para (vii) under “Investigating officer responsibilities”).

⁸²⁴ See Exhibit 208.1B, Further Instructions to Expert, 30 September 2022.

⁸²⁵ Exhibit 212.9, Statement of David Neville, 19 September 2022, exhibit 210 (QPS OPM Issue 89.1, 12 September 2022, p255).

the appropriateness of these requirements, she noted she could not comment on whether or not the OPM is followed nor could she comment on officers' understanding of the term "matter of priority".⁸²⁶

682. A senior investigator in a South East Queensland police region stated there are often delays in transporting a SAIK to the laboratory.⁸²⁷ There does not appear to be any QPS-wide policy imposing a time-limit in which a SAIK must be delivered to the laboratory after samples have been collected. An Officer in Charge of a Criminal Investigation Branch in rural Queensland thought that, from their region, SAIKs typically took about one month after administration to reach the laboratory for testing, with the majority taking more than two weeks.⁸²⁸ That officer provided details of one case where it took about six months for the administered SAIK to reach the laboratory.⁸²⁹ By contrast, another officer in a regional area closer to Brisbane thought that in only a small proportion of cases it took longer than two weeks for an administered SAIK from their area to be transported to the laboratory.⁸³⁰
683. The evidence I received indicates that, on at least some occasions outside of Southern Queensland, administered SAIKs are not treated with priority and are transported as part of routine runs of evidence to Brisbane. This results in unreasonable delays. As recommended above, the QPS should investigate typical transportation times for SAIKs from areas well outside South East Queensland and investigate cost-effective methods and processes to transport administered SAIKs more quickly to the laboratory.

⁸²⁶ Exhibit 208.1, Amended Report of Katherine Anna Davey, 15 October 2022, p25.

⁸²⁷ Exhibit 212.11, Statement of Brendan Blyth, 23 September 2022, [11].

⁸²⁸ Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [18].

⁸²⁹ Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [18].

⁸³⁰ Exhibit 212.12, Statement of Martin Forrest, 23 September 2022, [13].

Feedback

684. There is no mechanism or standing group to facilitate feedback between the laboratory, health practitioners and QPS officers. However, there have been temporary or ad hoc mechanisms for the provision of feedback between the laboratory and the CFMU.
685. Ms Brisotto said that for a period up until about 2018 the laboratory recorded some non-conformances with administered SAIKs provided to the laboratory, and communicated these to Dr Griffin, the CFMU Director. This process resumed in 2022.⁸³¹ These processes typically focused on issues with the packaging of items within an administered SAIK, or a purported issue of a health practitioner using and submitting too many swabs for forensic DNA testing.⁸³² For example, as a result of feedback in August 2022 on non-conformances within SAIKs, the Assistant Director of Nursing sent an email to the FNE-SANE Community of Practice highlighting the feedback received and reminding practitioners to place paperwork back in the supplied clip seal bag.⁸³³
686. Ad hoc feedback had been given on earlier occasions.⁸³⁴ This included negative feedback from the laboratory about receiving SAIKs with a high number of swabs,⁸³⁵ although Ms Brisotto gave evidence that she did not envisage any issue arising if an examiner uses and submits more than six swabs.⁸³⁶

Women's Safety and Justice Taskforce

687. On 1 July 2022, the Women's Safety and Justice Taskforce (**the Taskforce**) published the report 'Hear her voice Report Two Volume 1 – Women and girls' experiences across the criminal justice system'. The Taskforce engaged extensively with women and girls across

⁸³¹ Exhibit 245.3, Statement of Paula Brisotto, 9 November 2022, [40]–[41].

⁸³² Exhibit 245.3, Statement of Paula Brisotto, 9 November 2022, [40]–[41], PB168, PB169; Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [56], JJT-12.

⁸³³ Exhibit 212.24, Statement of Jacqui Thomson, 13 October 2022, [56], JJT-13.

⁸³⁴ See, eg, Exhibit 210.109, Email from Adrian Pippia to Adam Griffin and Bob Hoskins GMO feedback, 27 February 2012.

⁸³⁵ Exhibit 210.128, Email from Abigail Houlding to Cathy Lincoln SAIK swabs, 29 March 2016; Exhibit 210.147, Email from Adam Griffin Re SAIK Issues from Laboratory, 18 October 2019.

⁸³⁶ Exhibit 245.3, Statement of Paula Brisotto, 9 November 2022, [43].

Queensland.⁸³⁷ The Taskforce considered, among other matters, police responses to women and girls who experience sexual violence (Chapter 2.5) and the quality, accessibility and use of forensic evidence gathered in legal proceedings (Chapter 2.6). Recommendations 32 to 41 of the Hear her voice Report Two relate to the conduct of forensic medical examinations on people disclosing sexual assault.

688. Noting the Taskforce very recently consulted widely with victim-survivors and heard their experiences and difficulties in accessing forensic medical examinations, I have not investigated the experience of victim-survivors in accessing sexual examinations. I have considered issues closely related to the physical collection of samples for forensic DNA testing. However, I acknowledge that the ability to undergo a prompt forensic examination is important not only to minimise the trauma to a sexual assault victim-survivor, but also because delays affect the chance of obtaining high quality samples for DNA testing. Accordingly, I have considered the experiences of victim-survivors and others contained in the Hear her voice Report Two and in submissions to me. I also note that three investigators interviewed by Mr Ainsworth spoke of instances of difficulties in locating a health practitioner to conduct a forensic examination on a complainant. Complainants were taken to multiple health facilities on these occasions. Other officers also spoke of occasions where complainants were not willing to wait for a forensic medical examination.⁸³⁸

689. The Commission received written submissions from the Gold Coast Centre Against Sexual Violence Inc (**GCCASV**) and the Queensland Sexual Assault Network (**QSAN**).⁸³⁹ They both supported the implementation of recommendations 32 to 41 of the Hear her voice Report Two. QSAN supported improvements to the quality of Queensland's JIC kits. GCCASV said "Victim/survivors agree to a 'just in case' forensic medical examination sometimes

⁸³⁷ Women's Safety and Justice Taskforce, Hear her voice Report Two Volume One – Women and girls' experiences across the criminal justice system, 30 June 2022, p2.

⁸³⁸ Exhibit 212.25, Report of Mark Ainsworth, 17 October 2022, [58]-[59], [61].

⁸³⁹ Queensland Sexual Assault Network, RE: Submission, 8 September 2022; Gold Coast Centre against sexual violence inc, [Submission], 8 September 2022.

without the knowledge that currently the ‘just in case’ examination is not the same as a full forensic medical examination.”⁸⁴⁰

Experts

690. I commissioned three experts to consider the current conduct of forensic medical examinations and the contents and transportation of the SAIK. I engaged:

l Associate Professor Kathy Kramer, who is an experienced clinician who performs forensic medical examinations. She is also currently an Associate Professor at the University of New South Wales (**NSW**) School of Medicine and a Senior Clinical Advisor to the NSW Ministry of Health.⁸⁴¹ She provided two reports to me in her personal capacity.

m Dr Rebecca Kogios and Ms Heidi Baker, whose qualifications are described above. Part of their report considered the SAIK used in Queensland.⁸⁴²

691. Dr Kramer emphasised two important matters relevant to all aspects of forensic medical examinations. Firstly, that the practice of the examinations must be patient-centred, trauma-informed and culturally safe.⁸⁴³ Dr Kogios and Ms Baker echoed this view.⁸⁴⁴ The commitments in the 2014 Guidelines “to take a consistent approach to managing the clinical and psychosocial needs of people who have experienced sexual assault” and to offer “the person-centred provision of forensic examination including the Just in Case option” were consistent with a patient-centred approach.⁸⁴⁵ Dr Kramer considered some Queensland practices did not meet this standard. These are discussed at various points below.

⁸⁴⁰ Queensland Sexual Assault Network, RE: Submission, 8 September 2022, p2.

⁸⁴¹ Transcript, Day 13, 18 October 2022, p1677–1678.

⁸⁴² Namely, Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [67]–[73].

⁸⁴³ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p6.51–7.95.

⁸⁴⁴ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p67-73.

⁸⁴⁵ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p11.282–289.

692. Second, Dr Kramer emphasised the interconnectedness of several matters. Policies for training health practitioners, the contents of a SAIK, sampling guidelines, and the laboratory's testing methods are interconnected in that they should all be informed by each other.⁸⁴⁶ For example, training standards should be informed by the equipment contained in a SAIK and the instructions provided in sampling guidelines; in turn, the contents of the SAIK should be informed by the testing capabilities of the laboratory to which the samples will be sent.

693. Third, in oral evidence, Dr Kramer emphasised that policy and protocols should be evidence-based.⁸⁴⁷

694. I now consider specific matters the experts considered.

The SAIK

695. Dr Kramer observed that “[t]here are no national or accepted international guidelines regarding the collection of forensic samples by doctors or nurses following a sexual assault.”⁸⁴⁸ There is therefore no single agreed upon list of consumables to include in a SAIK. Dr Kramer was unable to state how many swabs should be in the Queensland SAIK, noting that this depended on several features peculiar to Queensland that would require investigation. She said that medical practitioners must be involved in the design of the Queensland SAIK.⁸⁴⁹

696. However, the experts were able to make comments about some specific items included or omitted from the SAIK.

697. The swabs in the SAIK have wooden stems. Dr Kramer recommended not using wooden swabs as there was a risk of injury if they snapped while inside a human orifice. The risk

⁸⁴⁶ See Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p8.127-128, 10.249-251; Transcript, Day 13, 18 October 2022, p1679.29-1680.27, 1693.15-19.

⁸⁴⁷ Transcript, Day 13, 18 October 2022, p1681.7-15.

⁸⁴⁸ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p98-99.

⁸⁴⁹ See Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p18.471-487.

is low but its occurrence could have serious consequences.⁸⁵⁰ Dr Kogios and Ms Baker noted this same risk.⁸⁵¹ Dr Kramer recommended consideration be given to using rayon-tipped rather than cotton-tipped swabs given recent research on the utility and cost-effectiveness of plastic swabs with rayon tips.⁸⁵²

698. Currently, examiners in Queensland do not create microscopic slides at the point of collection. That is, they take swabs and then return the swabs to their casing after which they are submitted to the laboratory. The laboratory will then take the swabs and smear their contents onto a glass microscopic slide for the purposes of screening for the presence of spermatozoa. Dr Kogios and Ms Baker observed that preparing slides at the point of collection would enable a more accurate assessment of the presence of semen and that the submission of a SAIK to a laboratory without the inclusion of slides made at the point of collection falls below best practice.⁸⁵³ They recommended there be an ability for health practitioners to create slides at the point of collection.⁸⁵⁴ Dr Kramer said that although such slides could be made by an examining health practitioner or later by the laboratory, slide creation by the health practitioner “is widely practised in Australia and research suggests it is superior”.⁸⁵⁵ She recommended including in the SAIK a similar number of microscopic slides as the number of swabs, ideally marked with a specific area to roll the swab onto.

699. As to further items to add to the SAIK and JIC kit:

⁸⁵⁰ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p18.488–494; Transcript, Day 13, 18 October 2022, p1684.41-1685.7.

⁸⁵¹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, 28 Oct 2022, [161].

⁸⁵² Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p18.492–495.

⁸⁵³ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [160(g)], [164(a)].

⁸⁵⁴ Transcript, Day 24, 2 November 2022, p2926.28-2929.28.

⁸⁵⁵ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p14, citing Nittis, Cochrane, Hughes & Franco, Preparing semen slides in cases of sexual assault: Do they who smear first smear best? (2021) 79 *Journal of Forensic and Legal Medicine* 102130; see also Transcript, Day 13, 18 October 2022, p1701.27-1703.10.

- n Dr Kramer recommended adding pre-labelled stickers for the samples (for example, vulval swabs, vulval slides). She noted several benefits of doing so in her report and noted these are recommended in the United Kingdom.⁸⁵⁶
 - o Dr Kramer recommended adding a 70 mL specimen jar and a biohazard bag to store it in, with such jar having multiple potential uses such as for oral rinses, storage of foreign material such as a hair or tampon, or collection of urine for toxicology. As to the last use listed, she noted that in cases where only urine is needed this would prevent needing to open a toxicology kit, noting that blood is collected generally only in the first 48 hours while urine can be usefully collected for up to five days after an assault. Further, it would allow urine to be collected during a just-in-case examination, given toxicology kits are supplied by police.⁸⁵⁷
 - p Dr Kramer also recommended adding certain consumables to take a reference DNA sample from a complainant. This is discussed further below.
700. Dr Kramer recommended Queensland use DNA-free SAIK components, which means that the equipment is produced and compiled using processes to remove foreign DNA and with quality assurance processes to ensure that this is successful. She said that, ideally, all components of the SAIK should follow Australia Standard ISO 18385:2017 but that at a minimum the swabs should be DNA-free.⁸⁵⁸ If a practitioner needs to access and use consumables not contained in the kit, those further consumables ought to meet the same standard.
701. Based on the combination of findings by Dr Kramer about the current SAIK, I find the current Queensland SAIK does not constitute best practice. These shortcomings ought be addressed by the following recommendations.

⁸⁵⁶ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p14.

⁸⁵⁷ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p15; Transcript, Day 13, 18 October 2022, p1704.33-1705.15.

⁸⁵⁸ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p15.367–16.388.

- Rec 86. The wooden swabs contained in the SAIK and JIC kit should be replaced with swabs made of unbreakable material such as plastic.
- Rec 87. The SAIK and JIC kit should be redesigned to include necessary consumables to enable the preparation of microscopic slides by practitioners at the time of collection. The number of slides should be similar to the number of swabs in the kit. This will need to be implemented in consultation with medical practitioners and the DNA laboratory, and be accompanied by appropriate training and feedback mechanisms.
- Rec 88. The SAIK and JIC kit should include:
- a. a system of pre-labelled stickers to affix to swabs to obviate the need for a practitioner to undertake unnecessary writing tasks;
 - b. specimen jar of about 70 mL in size and biohazard bag in to which to put the jar.

Testing methodology

702. Dr Kramer emphasised that a health practitioner should have access to sampling guidelines explaining which samples to take, how to take them, and when to take them.⁸⁵⁹ Health practitioners cannot see potential forensic evidence with the naked eye so guidelines are necessary to determine what kind of sampling to recommend to a patient. Such guidelines are particularly important for inexperienced practitioners and for those who conduct examinations infrequently. It may often be the case that, outside of Brisbane, some practitioners rarely conduct examinations.
703. Dr Kramer did not classify the three-page “Medical Examination Information form”, which comes in the SAIK, as a set of sampling guidelines. The document does not state when or how to take samples. As to which samples to take, there is simply a checklist on page three asking the examiner to “document the samples collected for DNA”, and lists sites such as “Low vaginal”, “Rectal”, and “Oral” etcetera. Dr Kogios and Ms Baker considered the form, which is completed by the physician or nurse and submitted to the laboratory,

⁸⁵⁹ Exhibit 210.1, Report of Associate Professor Kathy Kramer, Undated, p12.322-328.

“provides the opportunity for sufficient information to inform the scientists conducting the DNA process to set examination strategy and assist in interpreting DNA results”.⁸⁶⁰ The document is managed and updated by the laboratory. It is apparent it is aimed at providing sufficient information to inform forensic DNA testing. I am satisfied it is adequate for that purpose, assuming all relevant sections are completed. However, it does not constitute a guideline for sampling for those conducting forensic medical examinations.

704. Dr Kramer also considered the document “Queensland Health Sexual Offences Medical Protocol”, available to QH staff on the *Caring for people disclosing sexual assault* intranet site. From my own observations of this document, its purpose is unclear. The presentation slides, which are used as part of the 90-minute workshop provided to medical officers, state that “There is a confidential Sexual offences medical protocol for use by clinicians providing forensic examinations. Please print this document and complete applicable components”.⁸⁶¹ However, neither the training slides nor the document say that they must be used for every examination. The protocol seems to be based on the more detailed form that used to be provided in the SAIK itself prior to the change in about 2013.
705. Noting that guidelines should cover which samples to take, when and how, Dr Kramer considered that the Sexual Offences Medical Protocol covered only the “how”. She concluded it did not constitute sampling guidelines as it was not a “dedicated document providing the full range of advice required by the medical and forensic examiner.”⁸⁶² To the extent the Sexual Offences Medical Protocol is trying to provide guidance, Dr Kramer noted the following aspects of the document do not constitute best practice:

⁸⁶⁰ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [160].

⁸⁶¹ Exhibit 210.30, Adult Sexual Assault Forensic Examination, undated.

⁸⁶² Exhibit 210.1, Supplementary Report of Associate Professor Kathy Kramer, undated, p3.

- a it does not give suggested timeframes for collection (other than for endocervical swabs and oral swabs);⁸⁶³
- b it does not give advice about how post-assault activities could affect choice of samples;
- c for some areas where swabs can be taken, it does not give clinical scenarios that should prompt collection;
- d it does not appear to discuss sampling in situations of touching from an alleged offender;
- e it does not provide advice about the circumstances under which clothing should be collected; and
- f the document is otherwise not well signposted and is undated.⁸⁶⁴

706. Dr Kramer also considered that it was not best practice for such guidelines not to be provided within the SAIK. She said there must be clear processes to ensure all medical and forensic examiners are using current guidelines.⁸⁶⁵ I am of the view that the absence of adequate guidelines means that the process for conducting forensic medical examinations falls below best practice.

707. Dr Kramer considers the documents discussed above are also deficient because, while they suggest taking a rectal and perianal sample, they do not suggest taking an anal sample. An anal sample is from a location distinct from the rectal and perianal locations and has separate evidentiary value in cases of recent or attempted anal penetration. She

⁸⁶³ In 2017 Dr Griffin attempted to prepare guidelines around the timing of examinations for several different examination areas. However, suggested general timings were not added to the current guidelines document, nor do they appear to be promulgated on the *Caring for people disclosing sexual assault* intranet site as a standalone document. See, eg, Exhibit 245.47, Email from Ian Home to Adam Griffin and others RE: Maximum recommended times for forensic examination, 17 July 2017; Exhibit 210.134 Email from Adam Griffin RE DNA retention baseline protocol, 26 April 2017, attaching Sexual Assault TimeFrame based on DNA Retention, 17 April 2017.

⁸⁶⁴ Exhibit 210.1, Supplementary Report of Associate Professor Kathy Kramer, undated, p2–3.

⁸⁶⁵ Exhibit 210.1, Supplementary Report of Associate Professor Kathy Kramer, undated, p3.

recommended guidelines be amended to suggest such a sample be taken in those circumstances.⁸⁶⁶

708. I consider that the existence of 24/7 telephone support from a forensic physician in the CFMU, while useful in case health practitioners have questions not covered by sampling guidelines or in case they require further assistance, does not negate the need for adequate guidelines and is not a substitute for adequate sampling guidelines. As Dr Kramer notes, the effectiveness of this service depends on the health practitioner actually using it.⁸⁶⁷ I consider it more likely that a health practitioner will have regard to written guidelines than call a telephone service, particularly outside business hours.

709. I find that QH does not have adequate sampling guidelines.

Rec 89. Sampling guidelines that designate with clarity what samples should be taken, and when and how they should be taken, and including anal samples in appropriate cases, are to be developed and implemented.

Rec 90. The provision of a 24/7 telephone support line by the Clinical Forensic Medicine Unit should continue.

Just-in-Case Kits

710. Dr Kramer said that “[p]atients who are not yet sure about whether to talk to police should not miss out on toxicology sampling and the collection of clothes”. Dr Kramer recommended QH staff collect and store clothing as part the administration of a JIC kit, and, as noted above, that a specimen jar be included in the JIC kit to enable a urine sample to be taken in such circumstances. She did note that collecting clothing will require increased storage capacity, and that hospitals will need to have replacement clothing on hand for the complainant.⁸⁶⁸

⁸⁶⁶ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p13–14; Transcript, Day 13, 18 October 2022, p1700.39-1701.17.

⁸⁶⁷ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p12.344-13.347.

⁸⁶⁸ See Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p15.359-366.

711. It is well known that victims of sexual offences often hesitate, sometimes for a long time, before being able to take the step of making a formal complaint. Given that services to persons disclosing sexual assault should be trauma-informed and patient-centric, I consider best practice would require obtaining all reasonably obtainable and potentially useful samples. While this will require increased storage capacity, the period of 12 months for which JIC kits are stored should not be reduced.⁸⁶⁹

Rec 91. Just-in-case processes should be amended so that potential clothing and toxicology samples can be collected and stored with a JIC kit. The sampling guidelines should include guidance as to what clothing to collect and what toxicology samples to take.

Early Evidence Kits

712. Dr Kramer observed that some other states and territories offer early evidence collection processes including a dedicated early evidence kit (**EEK**). EEKs allow a patient to use the bathroom or consume food or water before the consultation occurs, or where there is a delay in accessing an examination due to wait times or travel to an appropriate facility, to collect evidence that might be lost due to those delays.⁸⁷⁰ Dr Kramer said the use of EEKs in Queensland should be strongly considered, particularly in areas or in facilities that do not have ready-access to trained examiners. Their use accords with a patient-centred approach.⁸⁷¹

713. Dr Robinson expressed some concern that a hasty introduction of EEKs in Queensland may produce practices that are not patient-centred. She suggested their availability might create incentives for a physician, at a hospital where the patient presents, to “default to an [EEK] followed by transferring the patient to another facility rather than

⁸⁶⁹ I note Dr Kramer said practice in New South Wales was that JIC kits are stored for three rather than 12 months, and that Queensland practice was better in that respect: Transcript, Day 13, 18 October 2022, p1706.37-1707.6. I also note feedback from QSAN representatives was that this period is barely adequate and, if anything, should be increased.

⁸⁷⁰ See Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p4, 7.88-95.

⁸⁷¹ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p12.318–321; see also Transcript, Day 13, 18 October 2022, p1687.44-1689.14.

undertaking the examination in the current facility “, particularly in rural areas.⁸⁷² While I consider it is possible this may occur in a particular instance, I am not persuaded that the introduction of EEKs would cause this to occur on regular or repeated basis if their introduction is accompanied by appropriate guidelines as to how they should be used and reiterating that they do not obviate the need for an examination to be conducted as soon as possible. Moreover, I note the 2019 Directive does not require each HHS to provide 24/7 access to examinations at each hospital or primary health centre in their HHS, such that patients are currently transported to other facilities to access an examination, particularly in remote areas. Dr Robinson also usefully noted that current EEKs are not uniform, and that any EEK used in Queensland would need to be designed for Queensland.⁸⁷³

Rec 92. Appropriate early evidence kits should be introduced, especially in regional and remote areas where patients may not have ready access to a forensic medical examination and have to be transported to a larger centre.

Minimising the Risk of DNA Contamination

714. Steps must be taken to minimise the risk of DNA contamination occurring during the forensic medical examination. This is a separate issue to whether the components of the SAIK are DNA-free. Rather, this concerns matters like cleaning of the examination room before the examination occurs, and the use of personal protective equipment by health practitioners to prevent DNA contamination.
715. Dr Kramer noted there is no research that identifies the best way to minimise the risk of DNA contamination during a medical and forensic examination, however the RCPA has published a relevant set of guidelines.⁸⁷⁴ Dr Kramer noted that in some other states, such as NSW, health practitioners have access to DNA decontamination kits containing DNA-free gloves, gowns for each of the health practitioners and patient, a cover for the bed,

⁸⁷² Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p8–9 and exhibit 1.

⁸⁷³ Exhibit 245.2, Statement of Katherine Robinson, 3 November 2022, p9.

⁸⁷⁴ Exhibit 210.1, Report of Associate Professor Kathy Kramer, Undated, p16.392–404.

and drapes. They are supplemented by cleaning processes that follow a NSW guideline on cleaning.⁸⁷⁵

716. There should be processes, outlined in a document like a DNA decontamination protocol, for hospital staff to follow to minimise DNA contamination. Dr Kramer said DNA cleaning is typically done with a proprietary produced product or a bleach solution. Further, having a dedicated room for conducting forensic medical examinations is ideal but Dr Kramer noted that it is a luxury; and that non-dedicated rooms should be cleaned before and after each use.⁸⁷⁶ Dr Kramer recommended DNA decontamination kits be considered in Queensland, particularly if the examinations occur in rooms also used for other purposes.
717. In Queensland, the document 'Queensland Health Sexual Offences Medical Protocol', available to QH staff on the *Caring for people disclosing sexual assault* intranet site, provides that an examiner should, prior to examination, clean the examination area with a 0.05% bleach solution, and then spray the area with a "70% ethanol solution to dry bleach residue".⁸⁷⁷ Dr Kramer considered that this standard is acceptable.⁸⁷⁸
718. I did not hear evidence about the level to which this standard is understood and complied with in each HHS and I make no findings with respect to compliance.⁸⁷⁹ I observe that the policies provided to me do not require a HHS or watch house to use rooms dedicated for DNA sampling or forensic medical examinations, although Dr Lincoln said that the GCHHS does use such dedicated rooms.⁸⁸⁰ Practitioners in other Queensland HHSs that do not have dedicated rooms may benefit from such a kit.
719. Finally, Dr Kramer noted that, in any event, staff must be made aware of the risks of DNA contamination and be trained in risk mitigation and that there must be clear policies that

⁸⁷⁵ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p16.404–410; Transcript, Day 13, 18 October 2022, p1709.2-1709.19.

⁸⁷⁶ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p17.436–443.

⁸⁷⁷ Exhibit 210.17, Queensland Health Sexual Offences Medical Protocol (confidential), undated, p2.

⁸⁷⁸ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p17.434-435.

⁸⁷⁹ Although for the Gold Coast HHS, we did hear from Dr Catherine Lincoln who advised local policy is that this standard is met and further cleaning is completed.

⁸⁸⁰ Exhibit 212.23, Statement of Catherine Lincoln, 26 September 2022, [156], [193].

guide practice that include the requirement to clearly document what occurred and why if usual protocols were not followed.⁸⁸¹

Rec 93. Current DNA decontamination and cleaning protocols for clinical settings, and training provided in respect of those protocols, should be reviewed to ensure they are adequate and clearly communicated to all persons undertaking forensic medical examinations. This should include consideration of the New South Wales approach to issuing DNA decontamination kits.

Reference samples

720. Dr Kramer considered that taking a complainant's DNA reference sample at the time of the forensic medical examination was more aligned to a patient-centred, trauma-informed model of care compared to the samples being taken on a later occasion.⁸⁸² Reference samples are done most easily by taking a buccal swab from the inside of the person's cheek. She considered it simpler for the health practitioner to seek the complainant's consent for this sample at the same time as seeking consent for other forensic examples. She considered this approach is used elsewhere in Australia and avoids potentially re-traumatising the patient by requiring yet another examination at a later date. She noted a 'theoretical concern' that if there is sperm in the mouth, a mixed DNA profile will be obtained and said:

If the sperm is from the perpetrator, this risk can be reduced by taking the oral rinse or mouth swab for offender DNA first, then taking the buccal swab. The rinse/swab should reduce the amount of DNA left in the mouth. It is, of course, possible that there may be DNA in the mouth from recent consensual penile-oral sex. However, mixed profile results seem to be rare and, [in] such situations, a fresh buccal swab can be collected.⁸⁸³

721. Dr Kogios and Ms Baker encouraged the inclusion of consumables in the SAIK to enable reference sample collection at the time of a forensic medical examination but considered

⁸⁸¹ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p17.463–18.467.

⁸⁸² Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p11.290–298; Transcript, Day 13, 18 October 2022, p1686.21-1687.29, p1705.33-39.

⁸⁸³ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p12.305–310. See also Transcript, Day 13, 18 October 2022, p1699.6-26.

that in some circumstances it may not be appropriate to collect a reference sample during the examination.⁸⁸⁴ Separately, they considered the risk of contamination or compromise from the reference sample being removed at the FSS property point could be overcome.⁸⁸⁵

722. I agree with the observations of these experts. They answer the concerns earlier expressed by Dr Griffin.⁸⁸⁶ I find that while it may not be appropriate in every single case to collect a DNA reference sample from a complainant at the time of their forensic medical examination, the practice of not routinely collecting reference samples at the time of examination is not best practice.

Rec 94. A reference sample from a person disclosing sexual assault should be collected by a health practitioner at the time of conducting a forensic medical examination. The appropriate consumables should be included in the SAIK for the taking of a reference sample from a person disclosing sexual assault.

Training and Credentialing

723. Dr Kramer said courses in Queensland do not seem to involve proficiency testing. That conclusion is consistent with the curriculum documents provided to the Commissioner for the 90-minute online workshop for medical officers and other physicians, and the SANE 40CPD course for nurses. Senior Medical Officers are not required to undertake any specific training before conducting a forensic medical examination. Dr Kramer considered patients would expect that practitioners would complete more training than a 90-minute online workshop.⁸⁸⁷

⁸⁸⁴ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [166].

⁸⁸⁵ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [166]. Transcript, Day 24, 2 November 2022, p2925.32–2926.26.

⁸⁸⁶ See [678], above.

⁸⁸⁷ Transcript, Day 13, 18 October 2022, p1712.11-24.

724. Part of the reason why Dr Kramer recommended that state-wide sampling guidelines be developed is so that training programs are informed by those guidelines and proficiency testing exercises are based on those guidelines.
725. Dr Kramer considered that competency-based assessment, during training and local onboarding on the one hand, and during recredentialling or continuing professional development (CPD) on the other hand, is important if health practitioners and the wider public are to have confidence that health practitioners can adequately undertake forensic medical examinations.⁸⁸⁸
726. Dr Kramer found that best practice is for:
- g Training to have an assessment component that is competency-based – meaning a candidate must demonstrate the relevant skills, knowledge and attitudes in realistic scenarios against objective criteria.
 - h Training to be tailored to local sampling guidelines and local SAIKs (and other relevant forensic kits).
 - i The state or local health facility to have formal credentialing and recredentialling processes that require health practitioners to demonstrate competency. Ideally, this would involve a medical director.⁸⁸⁹
727. I find that current training requirements and practices, as a whole, do not meet best practice, particularly noting that Senior Medical Officers may undertake forensic medical examinations without specific training and that the SANE 40CPD course lacks an assessment component that is competency-based. Beyond initial training, I consider that competency-based credentialing and recredentialling processes in each HHS should be implemented to improve service-quality. I do, however, recognise that training and CPD requirements that are unnecessarily burdensome are not an efficient use of public

⁸⁸⁸ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p19.531-534.

⁸⁸⁹ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p19.540-548.

resources and may negatively affect the number of practitioners available to conduct forensic medical examinations, particularly in regional areas.

728. Taking those matters into account, and in order to achieve standards that approach best practice and instil confidence in the wider public, I make the following recommendations.

Rec 95. All health practitioners who conduct forensic medical examinations should undertake appropriate training, such that the conduct of an examination by a physician (whether a medical officer or senior medical officer) without specific training in forensic medical examinations occurs only as a matter of last resort.

Rec 96. The training or initial credentialing, and the recredentialing and continuing professional development, of physicians and nurses who conduct forensic medical examinations should include appropriate competency-based training.

The Provision of Feedback and Use of Local Medical Directors

729. As found above, there appears to be no working group or mechanism for feedback between the laboratory and QH health practitioners as to particular or reoccurring issues in the administration and testing of SAIKs, and/or to discuss emerging research and scientific results and potential changes and improvements to the SAIKs, sampling guidelines and training.

730. Dr Kramer explained that in NSW there is a body comprised of:

- a representatives from their laboratory;
- b representatives from NSW Police; and
- c health care practitioners including representatives from policy development bodies and a training institute, as well as practitioners bringing feedback from both

large metro and smaller regional sexual assault services, and from both adult and paediatric practice.⁸⁹⁰

731. This body reviews the NSW sampling guidelines every six months, and the work of the body has led to valuable changes in practice.⁸⁹¹ Changes in guidelines can lead to changes in kit components. In evidence, Dr Kogios also said that having a standing group is very important and would include, in particular, representatives from the laboratory and medical practitioners, with consideration to be given to include representatives from other stakeholder agencies.⁸⁹²
732. Dr Kogios recommended the establishment of an interagency working group. She said they could act more quickly – over a matter of months – to update the contents of the kit and ensure it has the right number of swabs and then, in the long term, continue to review the contents of the kit and sampling methodology to ensure it remains best practice.⁸⁹³
733. There is also a need to provide feedback to individual practitioners on specific issues, such as whether there were any technical problems with the samples (e.g. slides incorrectly made), or label writing was illegible. She suggested this would best be facilitated through a local medical director or other similar manager for each HHS. The local medical director could identify the most appropriate way to provide feedback to the relevant medical practitioner and consider passing on lessons learned to other practitioners in that HHS area.⁸⁹⁴
734. I make the following recommendations.

⁸⁹⁰ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p8.150–160; Transcript, Day 13, 18 October 2022, p1682.39-1683.21.

⁸⁹¹ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p8.141–148.

⁸⁹² Transcript, Day 24, 2 November 2022, p2931–2934.

⁸⁹³ Transcript, Day 24, 2 November 2022, p2934–2935.

⁸⁹⁴ Exhibit 210.1, Report of Associate Professor Kathy Kramer, undated, p8.150-160.

Rec 97. A permanent advisory group should be established to consider, monitor and advise about the best practice for forensic medical examinations, testing of samples from forensic medical examinations and sampling guidelines, and to make appropriate recommendations for improvements. The group should include, at least, QPS representatives, forensic clinician representatives, representatives from the DNA laboratory and any other experts with relevant expertise.

The advisory group will undertake responsibility for:

- a. Advising on the design and manufacture, in accordance with best practice, and the distribution of, Sexual Assault Investigation Kits.
- b. Establishing a mechanism to provide regular feedback from the DNA laboratory to individual medical practitioners in order to maintain the best practice in DNA collection and for the DNA laboratory to receive feedback from such practitioners.
- c. Considering whether a medical director should be established in each HHS to take responsibility for local credentialing and recredentialing of sexual assault sampling practitioners and to maintain a feedback mechanism between the DNA Laboratory and local practitioners who conduct forensic medical examinations.
- d. Ensuring that SAIKs and just-in-case kits (JIC kits) are in line with best contemporary practice and are produced in compliance with ISO 18385:2016 and/or AS 18385:2017.
- e. Issuing sampling guidelines that designate with clarity what samples should be taken, and when and how they should be taken, including anal samples in appropriate cases. The guidelines should continue to be reviewed and updated by the Advisory Group on an ongoing or periodic basis.
- f. Issuing (and periodically reviewing) training and credentialing curricula for health practitioners who undertake sexual assault sampling. Such

training should directly address the need to give confidence to such practitioners in their engagement with the criminal justice system so as to raise and maintain the readiness and willingness of practitioners to perform this duty.

- g. Advising on any steps that should be taken by HHSs to encourage or require health practitioners to perform the duty of taking sexual assault samples.
- h. Considering the best and most efficient way to implement the matters referred to in recommendations 86 to 96 above.

3.4 Results of Forensic DNA Testing

735. After the laboratory has finished testing samples for DNA, the results are communicated to the QPS DNA Management Section via the Forensic Register. The DNA Management Section reviews the results and publishes them to QPRIME and to the Forensic Register. Forensic Managers, Forensic Coordinators, Scenes of Crime Officers and Scientific Officers can review the results via the Forensic Register and QPRIME. Investigators and other non-forensic police officers generally receive the results via QPRIME only.

736. Mr Ainsworth was told of a jumbled and ad hoc approach to the reporting of DNA results to police officers.⁸⁹⁵ The notification process varied between no contact, tasks, emails and/or telephone calls, with the safety net being that all results are uploaded to the Forensic Register and QPRIME.⁸⁹⁶ Even the upload to QPRIME is said to be problematic because results appear as a forensic supplementary report (one type of report within a tab of many reports), which an officer must deliberately look for in order to view the results.⁸⁹⁷

⁸⁹⁵ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [67]-[74].

⁸⁹⁶ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [67]-[74].

⁸⁹⁷ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [67]-[74].

737. Olivia McIntyre, a DNA Management Officer in the DNA Management Section, provided the following explanation. The laboratory provides DNA results to the QPS via a worklist on the Forensic Register. Within the QPS, a result is pushed across to QPRIME with expanded wording as a “Person DNA Scene Link” report or a “Forensic Supplementary” report.⁸⁹⁸ The results are assigned via a task report on QPRIME to the respective Senior Sergeant Crime Manager, who is responsible for reviewing all the tasks for her or his geographical area.⁸⁹⁹ For cold links or Priority One samples, the result also emailed to the forensic officer who collected the sample, their supervisor and the relevant Forensic Coordinator or Forensic Manager.⁹⁰⁰
738. There are currently 281 different result lines.⁹⁰¹ That is to say, there are 281 choices to describe a DNA result. However, it seems the laboratory currently only use 180 of the available result lines.⁹⁰² Of the 281 result lines, 256 relate to evidentiary results and the other 25 relate to cold link (intelligence) results.⁹⁰³ Dr Kogios and Ms Baker said that the number of result lines increased the risk of mistakes being made.⁹⁰⁴ They recommended reducing the number of result lines.⁹⁰⁵
739. Since 15 January 2019, the QPS has worked with the laboratory to reduce the number of reporting lines and to simplify their content.⁹⁰⁶ This collaboration produced a proposed new reporting scheme with only 76 result lines.⁹⁰⁷ This change, however, is yet to be introduced.⁹⁰⁸

⁸⁹⁸ Exhibit 212.5, Statement of Olivia McIntyre, 30 August 2022, [17]-[17(a)].

⁸⁹⁹ Exhibit 212.5, Statement of Olivia McIntyre, 30 August 2022, [17(b)]-[18].

⁹⁰⁰ Exhibit 212.5, Statement of Olivia McIntyre, 30 August 2022, [17(b)]-[18].

⁹⁰¹ Exhibit 245.6, Statement of Olivia McIntyre, 16 November 2022, [1].

⁹⁰² Exhibit 245.6, Statement of Olivia McIntyre, 16 November 2022, [2].

⁹⁰³ Exhibit 245.6, Statement of Olivia McIntyre, 16 November 2022, [1].

⁹⁰⁴ Exhibit 187, Rebecca Kogios and Heidi Baker, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [61(b)].

⁹⁰⁵ Exhibit 187, Rebecca Kogios and Heidi Baker, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [72(b)] and p35.

⁹⁰⁶ Exhibit 12, Statement of David Neville, 14 September 2022, [3]-[4]; Exhibit 212.5, Statement of Olivia McIntyre, 30 August 2022, [17(c)].

⁹⁰⁷ Exhibit 12, Statement of David Neville, 14 September 2022, [4]

⁹⁰⁸ Exhibit 12, Statement of David Neville, 14 September 2022, [5], exhibit 189.

740. Inspector Neville provided me with the expanded wording explanations that accompany the results of “No DNA Detected” and “DNA Insufficient for Further Processing” (**DIFP**) in QPRIME. He stated that given these explanations accompanied each of those two result-types, it was not necessary to provide training to police officers about those result-types.⁹⁰⁹ Inspector Neville also said that Scientific Officers were given training on how DNA results are reported generally during their initial training,⁹¹⁰ however a sizeable portion of the Scientific Officers spoken to by Mr Ainsworth did not fully understand the results of DIFP and “No DNA Detected”.⁹¹¹
741. Further, I heard and read evidence from QPS investigating officers and forensic officers who demonstrated a concerning lack of understanding of the current DNA result lines and the options available for further testing or working of a sample.⁹¹² This trend was confirmed by the information obtained by Mr Ainsworth.⁹¹³
742. The evidence demonstrated that investigators, forensic officers and QPS prosecutors do not have a good understanding of the DNA result lines or the options available to have samples further tested. In some cases, officers believed “No DNA Detected” and DIFP meant that there was proven to be no DNA in a sample and that there were no options available for further testing. This may have resulted in the officer not requesting further testing and potentially missing DNA evidence that was available. These beliefs held by some officers were wrong.

⁹⁰⁹ Exhibit 3, Statement of David Neville, 26 August 2022, [277]–[278].

⁹¹⁰ Exhibit 3, Statement of David Neville, 26 August 2022, [279].

⁹¹¹ See Exhibit 212.25, Report of Mark Ainsworth, 17 October 2022, [75]–[82].

⁹¹² Transcript, Day 4, 29 September 2022, p559.44-560.41; Transcript, Day 4, 29 September 2022, p565.32-566.11; Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18], [67]–[88]; Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [32]–[34]; Exhibit 245.7, Statement of James Adams, 26 September 2022, [15]–[20]; Exhibit 214.109, Statement of Troy Bond, 20 September 2022, [40]–[45]. Exhibit 212.11, Statement of Brendan Blyth, 23 September 2022, [31]–[32]; Exhibit 212.6, Statement of Duncan McCarthy, 13 September 2022, [91]–[93]; Exhibit 212.16, Statement of Deanna Geck, 10 October 2022, [37]–[38]; Exhibit 40, Statement of Devonnie Tomuli, 20 September 2022, [25]–[26]; Exhibit 41, Statement of Devonnie Tomuli, 26 September 2022, [5]. Exhibit 39, Statement of Andrew McNamara, 20 September 2022, [43]–[44].

⁹¹³ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18], [67]–[88].

743. I find that the QPS failed to train and educate its officers sufficiently about result lines and available options for further testing or working of samples. This failure increased the risk of a loss of evidence which can inform an investigation or assist a prosecution, and could therefore jeopardise the solving of crimes.
744. I also find that the system used by the QPS for communicating DNA results to its officers and staff is confusing, given the varied methods by which the results may be communicated, and the number of result lines available.
745. Officers' poor understanding demonstrates that further training is required for all officers and the QPS staff who may use DNA testing to investigate crime. Given the wide lack of understanding of results and options for further testing or reworking,⁹¹⁴ it is necessary that the QPS review the training and education related to DNA results, and that this important basic information be provided in a clear and understandable format. Indeed, some officers interviewed by Mr Ainsworth expressly asked for such training.⁹¹⁵
746. For several reasons, the erroneous beliefs of police officers with respect to DIFP results were contrary to the knowledge of QPS as an institution. Firstly, the Options Paper that introduced DIFP made it clear to the QPS that there may have been DNA in a sample that was reported as DIFP. Second, the Options Paper made clear that the QPS could request a DIFP result be further worked or tested. Third, the QPS worked with the laboratory to amend the QPRIME advice to officers to ensure investigators understood that samples that were reported as DIFP could be further processed.⁹¹⁶ Fourth, results reported as "No DNA Detected" were originally reported, from about June 2011 to January 2013, with an express statement that the QPS can request continuation of processing of the sample if

⁹¹⁴ Transcript, Day 4, 29 September 2022, p559.44-560.41, 565.23-566.11. Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18], [67]-[88].

⁹¹⁵ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [85].

⁹¹⁶ Exhibit 12, Statement of David Neville, 14 September 2022, [10].

required.⁹¹⁷ In about January 2013, the laboratory advised the QPS that it was not possible to get DNA from a “No DNA Detected” result.⁹¹⁸

747. As detailed in my interim report, the witness statements produced by scientists at the laboratory which described a DIFP result were untrue because they stated the result as “Insufficient DNA for analysis” or similar but failed to say the sample may in fact contain sufficient DNA to obtain a partial or full DNA profile upon further working or testing.⁹¹⁹ As the investigative agency, the QPS was responsible for obtaining these statements and providing them to prosecutors – both police prosecutors and the ODPP – who would then disclose them to a defendant. It has not been suggested to me in submissions from the QPS that QPS officers generally provided material or information advising prosecutors or defendants that samples which returned the result of DIFP could be further worked or tested.
748. DNA evidence, and especially identification of a DNA profile or DNA match, can constitute powerful evidence that guides an investigation, contradicts a lie, results in a guilty plea, reduces the issues in contest at trial or strengthens a complainant’s resolve to pursue their complaint.⁹²⁰ DNA evidence can also exonerate a defendant or raise doubt about their involvement in an alleged offence.
749. Accordingly, the ability to rework or further test a DIFP sample might have enabled such reworking to be pursued, producing a result that might have assisted a defendant or the prosecution case. The prosecution must disclose all things in its possession on which it proposes to rely or which would tend to help the case for the accused person.⁹²¹ Given that the QPS as an institution knew of the ability to further work or further test DIFP

⁹¹⁷ Exhibit 12, Statement of David Neville, 14 September 2022, [11].

⁹¹⁸ Exhibit 12, Statement of David Neville, 14 September 2022, [11], exhibit 199.

⁹¹⁹ Walter Sofronoff QC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [5]-[7].

⁹²⁰ See Exhibit 245.7, Statement of James Adams, 26 September 2022, [33]-[35]; Exhibit 212.13, Statement of Dylan Brook, 23 September 2022, [36].

⁹²¹ *Criminal Code* (Qld), s 590AB(1), including, pursuant to s 590AH(2)(g), “a copy of any report of any test or forensic procedure relevant to the proceeding in the possession of the prosecution.” “Possession of the prosecution” is defined in s 590AE.

samples in a way that might produce a DNA profile, and given that in some cases such reworking might have assisted a defendant, such information ought to have been disclosed to a defendant in each matter in which those results were produced. This was not typically done. The QPS should ensure this situation is not repeated.

Rec 98. The QPS should promptly provide, to all police officers and civilian employees who might deal with DNA in their role, training and education regarding DNA result lines and available options for retesting and further testing.

Rec 99. The QPS should update its policies and procedures to ensure that initial training and re-fresher training regarding DNA, DNA result lines and available options for further working and further testing is provided to all police officers. Detective training should also include training about the science, technology and evidentiary uses of DNA so that investigators have a full appreciation of the use and significance of DNA.

Rec 100. The QPS should review its processes for communicating DNA testing results to police officers with a view to improving the communication and understanding of those results.

4. TESTING THRESHOLDS AND THE “OPTIONS PAPER”

4.1 The “Options Paper”

735. Until 2012 the laboratory had been using the Profiler Plus system to amplify DNA but during that year a new system was introduced: Powerplex 21 (**PP21**). This amplification system was a significant improvement over the former system. It could yield a maximum of 21 loci for comparison. Profiler Plus produced only 9.
736. During the validation of the new kit, it was said that it had been observed that samples with low quants tended to exhibit “enhanced stochastic effects”.⁹²² This is a reference to the presence of random ‘static’ or ‘noise’ elements in a profile that might have a tendency to give rise to a misleading interpretation.
737. It must be borne in mind that a ‘quant’ is a measure of the concentration of DNA in a sample. It is expressed in terms of the amount of DNA, measured in nanograms, within a given volume of liquid, measured in microlitres. The greater the amount of DNA per microlitre of the liquid within which it is contained, the more likely it is that a useable profile will be produced. Conversely, the smaller the ratio of DNA to liquid, the less the likelihood that a useable profile can be produced.
738. Reducing the amount of liquid while retaining the mass of DNA results in the ratio of DNA to liquid being increased: the ‘quant’ becomes higher. Consequently, a sample with a low concentration of DNA can be distilled to reduce the amount of liquid while retaining the mass of DNA that is present.⁹²³ The quant is thus increased, thereby increasing the likelihood of getting a useable profile.
739. The validation report suggested that samples within the relevant range of quants that were prone to such effects might, with benefit, be concentrated before amplification.⁹²⁴

⁹²² Exhibit 192.1, PowerPlex®21 – Amplification of Extracted DNA Validation, December 2012, p7.

⁹²³ In fact some of the DNA is lost in the process but not so as to outweigh the benefit.

⁹²⁴ Exhibit 192.1, PowerPlex®21 – Amplification of Extracted DNA Validation, December 2012, p7.

Upon implementation of PP21 that recommendation was put into effect. Every sample with a quant between 0.00214 ng/ μ L and 0.0088 ng/ μ L was, as a matter of course (automatically) concentrated before being amplified.⁹²⁵ The process by which samples within that range were always concentrated before being further tested came to be known within the laboratory as the “auto-microcon process”.

740. Many samples with quants within that range still failed to yield useable profiles despite being concentrated. In 2015, Mr Justin Howes asked one of the Senior Reporting Scientists employed at the laboratory, Kylie Rika, to assess the results that had been obtained from these samples in order to determine the percentage that yielded useable profiles. The impetus for the project was to see if it was possible to reduce the workload of the laboratory and to decrease the time taken to report results to police after a sample had been received for testing, the so-called “turnaround time” or “TAT”.⁹²⁶ At this time, there was a clear focus within the laboratory on the reduction of turnaround times for the processing of crime scene samples.⁹²⁷
741. Ms Rika and three of her colleagues formulated a project plan to examine this issue. They collated some data and analysed it. On 4 December 2015 they presented their report, “Assessment of results obtained from ‘automatic-microcon’ samples”, to the Management Team for consideration.⁹²⁸
742. Ms Rika and her colleagues had examined a set of 1001 samples. They found that 184, or 18%, of these samples had yielded a useable profile.⁹²⁹ Additionally, 8% met the criteria to be uploaded to NCIDD.⁹³⁰

⁹²⁵ 0.00214 ng/ μ L was the level of detection operative at the time given the equipment then in use. It later reduced to 0.001 ng/ μ L when technology improved.

⁹²⁶ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [30].

⁹²⁷ Exhibit 15, Email from Justin Howes to reporters re ‘Assistance in TAT reduction’, 27 March 2015; Exhibit 14, Proposal #Project 163: Assessment of results obtained from ‘auto-microcon’ samples – Project plan, June 2015; Transcript, Day 1, 26 September 2022, p71.40-72.4.

⁹²⁸ Exhibit 192.12, Email from Josie Entwistle to Management Team, 4 December 2015.

⁹²⁹ Exhibit 17, Assessment of results obtained from ‘automatic-microcon’ samples, August 2015, p7.

⁹³⁰ Exhibit 17, Assessment of results obtained from ‘automatic-microcon’ samples, August 2015, p7.

743. A graph showed that the proportion of informative results rose as the quant value of samples rose; that is to say, the higher the quant value, the more likely it was that there would be a useable profile. For example, about 90 samples with the very low quant of 0.0025 ng/μL yielded about 6% informative results whereas quants between 0.0071 and 0.0088 ng/μL yielded between 30% and 50%.⁹³¹ No statistical analyses were performed and, on any view, the analysis of the data was superficial. Accordingly, the report stated:

No real trend was observed for the number of informative results obtained, other than there being informative results ... across the automatic-microcon quantification range.⁹³²

744. The report also said that some of these profiles were from the sole samples within a case and some had resulted in a 'cold link' to NCIDD, meaning they matched with the DNA profile of somebody who was not previously associated with the case.⁹³³

745. The report said that there was no relevant data about quants above the chosen range.⁹³⁴ In my opinion this meant that the conclusions were meaningless because it may be that these results were not significantly different from the results obtained from all samples tested in the laboratory.

746. The report concluded that there had been "value in the automatic-microcon process".⁹³⁵ The report also noted that new technology was soon going to be introduced and this may introduce "variations to the data observed here".⁹³⁶ The reporters recommended that nothing be done for the present and that a new project be undertaken six months later when the anticipated Forensic Register was introduced as well as the new Quantifiler Trio quantification kit.⁹³⁷ This recommendation was adopted.⁹³⁸

⁹³¹ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p11.

⁹³² Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p14.

⁹³³ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p7.

⁹³⁴ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p15.

⁹³⁵ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p16.

⁹³⁶ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p15.

⁹³⁷ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p20.

⁹³⁸ Exhibit 192.12, Email from Josie Entwistle to Management Team, 4 December 2015.

747. On 24 April 2017, the study was resurrected in the form of another project: Project 184. Mr Howes restarted the Initial Request originally proposed by Ms Rika and it was approved by Ms Paula Brisotto on 27 April 2017. The reason cited for restarting the project was “process improvement”.⁹³⁹

748. Mr Howes put forward a Project Plan. His proposal stated:

Potentially, a new workflow could be designed based on the success/fail rates observed in the data. This could create time and cost savings for the laboratory, and increase the ability to process other higher DNA-yielding samples more quickly.⁹⁴⁰

749. The Project Plan anticipated that any recommendations made in the final project report would be communicated to the QPS to agree on possible new workflow strategies.⁹⁴¹

750. On 30 November 2017, Mr Howes submitted a draft report for consideration by the Management Team.⁹⁴² It referred to three “experiments”. In Experiment 1 he had considered the results obtained in 2016 from samples within the quant range 0.001 ng/μL to 0.0088ng/μL. All of these had been concentrated in accordance with the procedure introduced in 2012.⁹⁴³ These were to be divided into those considered to be a “Fail” and those considered to be a “Success”. The term “Fail” was defined as:

DNA profile interpretation outcomes of ‘Complex unsuitable for interpretation’, ‘No DNA profile’, ‘Partial unsuitable for interpretation’, ‘No DNA Detected’.⁹⁴⁴

751. The term “Success” was defined as:

⁹³⁹ Exhibit 51, Initial request, Assessment of results obtained from ‘auto-microcon’ samples, 27 April 2017.

⁹⁴⁰ Exhibit 239.1, An Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 4 September 2017, p2.

⁹⁴¹ Exhibit 239.1, An Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 4 September 2017, p2.

⁹⁴² Exhibit 6, Email from Justin Howes to Management Team re ‘Project #184 for review’, 30 November 2017; Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017.

⁹⁴³ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, pp6-7.

⁹⁴⁴ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p6.

All other DNA profile outcomes.⁹⁴⁵

752. Experiment 2 was intended to “evaluate the ‘success’ or ‘fail’ outcomes” for all PP21 samples that were processed in 2016 and which underwent a post-extraction concentration step.⁹⁴⁶ That is to say, the data set comprised *all* samples which had been concentrated, including those in the range considered as part of Experiment 1.
753. Experiment 3 was intended to “[e]valuate the difference between the values obtained from the Quantification process in samples that have had a Microcon concentration step applied”.⁹⁴⁷
754. There were 1449 samples included in Experiment 1. These resulted in ‘Success’ in 10.60% of cases. 74.5% of these samples required reworking to achieve this success rate.⁹⁴⁸
755. Experiment 2, comprising all samples that underwent concentration as part of the testing process, comprised 2201 samples. They resulted in ‘Success’ in 21.50% of cases.⁹⁴⁹
756. Experiment 3 demonstrated that when the concentration step doubled the concentration of DNA, or better, there would be a higher proportion of informative profiles.⁹⁵⁰
757. Mr Howes posed himself the question, “If samples were not processed through the ‘auto-microcon’ process, what DNA Intelligence would the client miss out on?”⁹⁵¹ To answer this question, he decided to “drill down” to identify the proportion of samples that “had some NCIDD interaction and, in particular, where they were the only samples in the case

⁹⁴⁵ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p6.

⁹⁴⁶ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, pp7-8.

⁹⁴⁷ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, pp8-9.

⁹⁴⁸ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, pp9-10.

⁹⁴⁹ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p12.

⁹⁵⁰ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p16.

⁹⁵¹ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p11.

that were NCIDD-suitable for the particular profile”.⁹⁵² He did not explain what he meant by “some NCIDD interaction”. In any case, 1.86% of samples fitted his description. He then determined what proportion of samples had provided:⁹⁵³

... *new* Intelligence, that is DNA information available for future linking, or has provided a cold-link, [which] equated to 1.45% of all ‘auto-microcon’ samples.

758. Having arrived at that finding, Mr Howes concluded:⁹⁵⁴

This 1.45% of samples would be the pertinent value for the client to consider if the ‘auto-microcon’ process was not performed.

759. He also concluded:⁹⁵⁵

Ultimately, this data means that for approximately 90% of samples that underwent an ‘auto-microcon’ process, there is arguably negligible DNA profile Intelligence for the client.

760. He listed the advantages that would follow if ‘the ‘auto-microcon’ was not applied.’⁹⁵⁶

These were:

- a. the “potential” to make available “at least 1449 processing positions”;
- b. the lack of need for the “considerable efforts required to prepare and process Microcon”;
- c. “consumable and labour savings”; and
- d. “time and effort could be redirected”.

⁹⁵² Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p11.

⁹⁵³ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p11.

⁹⁵⁴ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p11.

⁹⁵⁵ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p12.

⁹⁵⁶ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p12.

761. Upon the basis of his experiments Mr Howes recommended⁹⁵⁷ that the laboratory “cease ‘auto-microcon’ processing”.⁹⁵⁸ What he meant by this was that henceforth no effort should be made to get a profile from Major Crime samples falling within the quant range 0.001 ng/μL to 0.0088 ng/μL.
762. He also recommended that Priority 3 samples with quants at or below a much higher level, namely 0.0133 ng/μL, not be processed and that these be entered on the Forensic Register as “DNA Insufficient for Further Processing”. Mr Howes recommended that, after six months, even Major Crime samples with quants *above* 0.0088 ng/μL but below 0.0133ng/μL be considered for exclusion from further testing.⁹⁵⁹
763. Finally, Mr Howes recommended that the change in the process be communicated to QPS and that QPS should be made aware that testing could nevertheless be done on samples if a request was made.⁹⁶⁰
764. For reasons that will become clear, it is important to note that this draft report proposed that the new processing system be adopted and that QPS be informed of that once that decision had been taken.
765. The draft was given to the Management Team for comment.⁹⁶¹
766. Even to a scientific layperson, the contents of the document, and especially its conclusions and recommendations, are remarkable. Its most conspicuous attribute is that it represents a business case analysis that might have been written for a factory making a commercial product whose owners’ success depended solely upon achieving the best combination of speed of supply at the lowest cost in time and money to the factory.

⁹⁵⁷ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p17.

⁹⁵⁸ With two exceptions, namely Priority 1 cases and Coronial and DVI samples.

⁹⁵⁹ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p17.

⁹⁶⁰ Exhibit 7, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, 30 November 2017, p17.

⁹⁶¹ Exhibit 6, Email from Justin Howes to Management Team re ‘Project #184 for review’, 30 November 2017.

767. There is not the slightest evidence that the author appreciated the status of the laboratory as a scientific institution whose only reason for existence is to serve the administration of criminal justice by the provision of criminal intelligence to police and probative evidence to the courts. This point is a fundamental one. As will be seen, this warped perspective permeated almost every aspect of the management of the laboratory and has been responsible for most of its failures.
768. On 3 January 2018, Ms Rika forwarded her feedback about version 1 of the Project Report to Mr Howes.⁹⁶² She raised her concern that many Major Crime samples can yield good likelihood ratios without necessarily resulting in an upload to NCIDD.⁹⁶³ In her oral evidence, Ms Rika said that only a small percentage of Major Crime cases are solved as a result of an upload to NCIDD.⁹⁶⁴ NCIDD is mostly relied upon in Volume Crime cases, such as break-and-enters, where the QPS does not have a suspect and has to rely upon a link being discovered on the database.⁹⁶⁵ In her view, 10.60% was the relevant figure as this represented all information that could be helpful for the QPS.⁹⁶⁶ This figure captured “warm link” information, where a DNA profile from a sample is compared to a reference sample of someone known to investigators.
769. Senior Reporting Scientist Amanda Reeves provided her feedback on 5 January 2018.⁹⁶⁷ In relation to the conclusion that there was minimal value in performing the auto-microcon step, she said:⁹⁶⁸

define value? For what/whom? If simply looking at success rates from a numbers perspective only, agree minimal value for us and the client. If looking at value from a sample/case perspective, then the 10% successes could potentially be very valuable to the client?

⁹⁶² Exhibit 239.2, Email from Kylie Rika to Justin Howes re ‘Report_Evaluation of the efficacy of Microcons_v1KDR feedback’, 3 January 2018.

⁹⁶³ Exhibit 239.2, Report_Evaluation of the efficacy of Microcons_v1KDR feedback, 3 January 2018, p12.

⁹⁶⁴ Transcript, Day 1, 26 September 2022, p 86.42-44.

⁹⁶⁵ Transcript, Day 1, 26 September 2022, p 85.37-86.15.

⁹⁶⁶ Transcript, Day 1, 26 September 2022, p 86.2-9.

⁹⁶⁷ Exhibit 192.22, Email from Kylie Rika to Justin Howes re ‘feedback 184’, 5 January 2018.

⁹⁶⁸ Exhibit 192.22, AJR_Report_Evaluation of the efficacy of Microcons_v1, 5 January 2018, p4.

770. In my opinion, Ms Reeves had identified and articulated the fundamental issue. In a particular case, a 1% chance of getting a profile was a chance that must be taken, where serious crimes are concerned. There could be no possible warrant for declining to pursue evidence in cases of serious crime just because cogent evidence was obtainable only 10% of the time. I was informed by a senior police investigator that in homicide cases he would be glad to have a 1% chance of getting a profile, if that was all that there was.
771. Ms Reeves also advocated for greater clarity regarding which samples were to be treated as “successful” and what was considered to be “meaningful DNA intelligence”.⁹⁶⁹ She suggested that for the argument to be presented in a balanced fashion, the report needed to include perceived risks and effects of abandoning auto-microcon and a mitigation strategy.⁹⁷⁰ Although both Ms Rika and Ms Reeves had questioned the validity of Mr Howes’ principal criterion, he did not attempt to engage with them in any meaningful way and he never addressed the important – and valid – issues that they had raised for his consideration.⁹⁷¹ In his diary, he wrote:⁹⁷²

AJR feedback on Mic project received (was due 20/12/17). Mostly readability and definitions. Discussed what samples were ‘success’.

772. This was a gross misstatement of the content of Ms Reeves’ criticisms.
773. On 8 January 2018 at 9.04am, Mr Howes emailed the Management Team foreshadowing delivery of version 2 of the Project 184 Report:⁹⁷³

I will have my door shut for most of today now that I have all feedback on v1 of the report.

I intend on sending v2 out today for urgent review by you all by 11am tomorrow. I don’t think I am stepping on Paula’s toes (for ERQ reviewers) by asking for this to be your No. 1 Priority as you all know how urgent this is now.

⁹⁶⁹ Exhibit 192.22, AJR_Report_Evaluation of the efficacy of Microcons_v1, 5 January 2018, pp5-6, 8.

⁹⁷⁰ Exhibit 192.22, AJR_Report_Evaluation of the efficacy of Microcons_v1, 5 January 2018, pp 12-13.

⁹⁷¹ Exhibit 239.3, Justin Howes’ response to Kylie Rika’s feedback, undated; Justin Howes’ response to Amanda Reeves’ feedback, undated.

⁹⁷² Exhibit 239.5, Diary notes of Justin Howes, 5 January 2018.

⁹⁷³ Exhibit 192.24, Email from Justin Howes to Management Team re ‘Project #184’, 8 January 2018.

There will be some additions and removals as usual with reports.

774. In her evidence Ms Rika said that the shortness of this timeframe was extraordinary and that generally the Management Team would be given at least two weeks to review a project report.⁹⁷⁴ Mr Howes was asked to explain his assertion of urgency. He could not do so. He said that he could not remember a reason. He said that it was “probably related to an interdepartmental meeting” that may have been scheduled.⁹⁷⁵ He acknowledged that there was no evidence to support this, and it was a conclusion he had recently come to in an effort to explain the urgency.⁹⁷⁶
775. Version 2 of the Report was emailed to the Management Team at 4.47pm, with feedback requested by 1pm on the following day.⁹⁷⁷ The conclusions and recommendations in that version were largely the same as in version 1 of the report.⁹⁷⁸ Ms Rika and Ms Reeves submitted their feedback on this version jointly on 9 January 2018⁹⁷⁹ after consulting with Reporting Scientist Rhys Parry⁹⁸⁰ who had statistics expertise.
776. Again, their feedback on version 2 was significant. They wrote:⁹⁸¹
- the ‘value’ of each result changes according to the specific sample/case history. Not confident about removing a test that we know does have some value ... Note that there seems to be urgency around this proposal being implemented, which might not allow time for full consideration of all potential risks/impacts ...P2 sample goes through auto-mic and gives a partial profile that doesn’t match POI could provide important exclusionary intelligence for the case – have we considered the exclusionary benefits appropriately under this proposal?
777. Drawing on Mr Parry’s knowledge of statistical analysis, they also pointed out that the way certain data was used had artificially skewed the results towards very low-level

⁹⁷⁴ Transcript, Day 1, 26 September 2022, p82.39-83.10.

⁹⁷⁵ Transcript, Day 19, 26 October 2022, p2338.7-9.

⁹⁷⁶ Transcript, Day 18, 25 October 2022, p2293.12-2294.21.

⁹⁷⁷ Exhibit 192.25, Email from Justin Howes to Management Team re ‘#184 report v2’, 8 January 2018.

⁹⁷⁸ Exhibit 192.3, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, version 2, 9 January 2018, p19.

⁹⁷⁹ Exhibit 159, Email from Amanda Reeves to Justin Howes, copied to Kylie Rika re ‘184 final feedback’, 9 January 2018.

⁹⁸⁰ Exhibit 67, Statement of Rhys Parry, 28 September 2022, pp2- 3; Transcript, Day 1, 26 September 2022, p100.5-16.

⁹⁸¹ Exhibit 159, Reporting_final_Report_Evaluation of the efficacy of Microcons_v2seniors, 9 January 2018, p4.

quants and, accordingly, the threshold was “probably too high”.⁹⁸² Ms Rika and Ms Reeves disagreed with the recommendations at the end of the report: they changed them so that auto-microcon would only cease for Volume Crime samples, with the potential to reassess for Priority 2 samples after six months if examined in accordance with principles relevant to the interpretation of Priority 2 samples.⁹⁸³

778. Once again, Mr Howes chose to ignore Ms Rika’s and Ms Reeves’ criticisms.⁹⁸⁴ In his evidence, he said that their negative feedback was unexpected because, in his view, the feedback provided on version 1 was “positive”. He said that the criticism from them made him unsure how to carry the project forward from this point.⁹⁸⁵ This is difficult to understand or to accept having regard to the seriousness of the issues that had been raised in reaction to both drafts of the document. But as will appear, it is explicable for other reasons.

779. Instead, Mr Howes abandoned Project 184.⁹⁸⁶ He never produced a final report and none of the recommendations outlined in version 2 of the report were put to the Management Team for approval in accordance with the laboratory’s Standard Operating Procedure:⁹⁸⁷

If the final report is accepted by the Forensic DNA Analysis Management Team it will be signed and the project/change management process closed (hardcopy to be sent to the Quality Team. If the Management Team requires additions/edits to the final report, it will be returned to the project leader/appointed staff with feedback. The final report will need to be edited and resubmitted for consideration by the Management Team.

780. Of course, he must have known that no such approval would be given by, at least, Ms Rika and Ms Reeves.

781. The evidence produced to the Commission did not reveal any scientific or any rational basis for why Ms Rika’s and Ms Reeves’ feedback to Project 184 was ignored by Mr Howes.

⁹⁸² Exhibit 159, Reporting_final_Report_Evaluation of the efficacy of Microcons_v2seniors, 9 January 2018, p21.

⁹⁸³ Exhibit 159, Reporting_final_Report_Evaluation of the efficacy of Microcons_v2seniors, 9 January 2018, p20.

⁹⁸⁴ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [21].

⁹⁸⁵ Transcript, Day 18, 25 October 2022, p2289.42-2290.29.

⁹⁸⁶ Transcript, Day 18, 25 October 2022, p2289.10-14.

⁹⁸⁷ Exhibit 239.8, 22871v11 Procedure for Change Management in Forensic DNA Analysis, 6 October 2016, p5.

782. During the public hearings, I asked Mr Howes why he did not resolve the scientific concerns which had been put to him. I highlighted that if his view had been that the concerns raised by Ms Rika and Ms Reeves had no validity then he could have simply stated the scientific reasons supporting that view. Mr Howes said, “we were under a lot of stress within the laboratory at the time” and that such stress would have had “to play on one’s mind”⁹⁸⁸. Mr Howes gave evidence that he felt as though the concerns raised by Ms Rika and Ms Reeves were not purely as a result of scientific concerns but rather, motivated in part by “personalities or hidden agendas”.⁹⁸⁹ It became apparent to me that Mr Howes had chosen to ignore the concerns raised by Ms Rika and Ms Reeves because they were valid.
783. Mr Howes said that on a date unknown, between 9 and 12 January 2018, he met with Ms Allen and Ms Brisotto to discuss a way forward.⁹⁹⁰ He did not explain why he needed “a way forward” other than by proceeding with the Project in accordance with the Standard Operating Procedure. According to both Ms Allen and Mr Howes, it was Ms Brisotto who first suggested the idea of writing an “Options Paper” to take to the QPS for their consideration instead of continuing with efforts to draft a final Project Report.⁹⁹¹
784. Their evidence was supported by a contemporaneous spreadsheet containing staff feedback on Project 184. The following comment is attributed to “PMB” on 9 January 2018: “Best to be an option paper as QPS should make the decision on this”.⁹⁹² Ms Brisotto said that she could not recall giving this feedback⁹⁹³ but accepted that it was possible she made this comment verbally.⁹⁹⁴ An entry from Mr Howes’s diary on 9 January 2018 states “feedback on #184 v 2 received. Some points verbal e.g. ...P3 was

⁹⁸⁸ Transcript, Day 18, 25 October 2022, p2317.22-25.

⁹⁸⁹ Transcript, Day 18, 25 October 2022, p2318.2-35.

⁹⁹⁰ Transcript, Day 18, 25 October 2022, p 2291.23-26.

⁹⁹¹ Transcript, Day 18, 25 October 2022, p 2290.4 -15; Transcript, Day 21, 28 October 2022, p 2608.45-2609.3.

⁹⁹² Exhibit 192.17, Spreadsheet of feedback on Project Proposal, undated.

⁹⁹³ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [19]-[21]; Exhibit 113, Supplementary Statement of Paula Brisotto, 17 October, [40]- [41].

⁹⁹⁴ Transcript, Day 5, 30 September 2022, p 664.25-35.

decided in PP21 validation”⁹⁹⁵ which he attributed to a conversation with Ms Brisotto.⁹⁹⁶ Additionally, an entry in Ms Allen’s diary on 12 January 2018 refers to a meeting with Ms Brisotto:⁹⁹⁷

Previous agreement in 2013 with the QPS – No DNA detected range for Major & Vol, Insufficient DNA for Vol. When reverted to P+, No DNA detected but not insufficient for Vol → Need to request QPS if they – still agree to the above AND want to extend to Major.

785. It is clear to me that, for reasons that will be examined, Mr Howes, Ms Allen and Ms Brisotto wanted to ensure that, henceforth, Major Crime samples with low quants should not be tested as a matter of routine. However, facing the opposition of Ms Rika and Ms Reeves, they knew that they could not change the laboratory procedures in accordance with Standard Operating Procedures. So, they decided to prepare a document outside those procedures, which would contain scientific arguments to put to the QPS in an endeavour to change laboratory processes by asserting that this was what the QPS wanted. By this device they would not need the consensus required by the Standard Operating Procedures, which had been drafted with the maintenance of scientific integrity in mind.
786. On 12 January 2018, Mr Howes wrote to Ms Brisotto from his personal email address asking her to email him version 2 of the Project 184 Report so that he could “convert to Options Paper”⁹⁹⁸ and she did so.⁹⁹⁹ Two drafts of the Options Paper were emailed to Ms Brisotto and Ms Allen by Mr Howes on 19 and 22 January 2018 respectively.¹⁰⁰⁰ In his statement dated 16 August 2022, Mr Howes claimed that he prepared the Options Paper in early 2018 with the assistance and guidance of both Ms Allen and Ms Brisotto.¹⁰⁰¹ Ms

⁹⁹⁵ Exhibit 160, Diary entry of Justin Howes, 9 January 2018.

⁹⁹⁶ Transcript, Day 20, 27 October 2022, p 2500.8 -12.

⁹⁹⁷ Exhibit 116, Diary entry of Catherine Allen, 12 January 2018.

⁹⁹⁸ Exhibit 192.30, Email from Justin Howes to Paula Brisotto, 12 January 2018.

⁹⁹⁹ Exhibit 239.23, Email from Paula Brisotto to Justin Howes’ yahoo email address re ‘As requested’, 12 January 2018.

¹⁰⁰⁰ Exhibit 117, Email from Justin Howes to Cathie Allen and Paula Brisotto re ‘options report’, 19 January 2018; Exhibit 118, Email from Justin Howes to Cathie Allen and Paula Brisotto re ‘updated options paper’, 22 January 2018.

¹⁰⁰¹ Exhibit 145, Statement of Justin Howes, 16 August 2022, [22].

Allen agreed that she reviewed the Options Paper, accepted the methodology used and provided some feedback to Mr Howes.¹⁰⁰²

787. Ms Brisotto claimed that her recollection about the Options Paper was extremely limited. She said that she was unable to confirm whether she reviewed the Options Paper before it was presented to the QPS.¹⁰⁰³ Ms Brisotto was on leave from 17 to 22 January 2018.¹⁰⁰⁴ In any event, it was Mr Howes, Ms Allen and Ms Brisotto who were responsible for the conception and drafting of the Options Paper.
788. The final version of the Options Paper was a condensed form of the data and content contained within version 2 of the Project 184 Report. The title read: “A review of the automatic concentration of DNA extracts using Microcon® Centrifugal Filter Devices: Options for QPS consideration”.¹⁰⁰⁵ On its front cover it was dated January 2018 and attributed to “Justin Howes and Cathie Allen”.
789. The draft Project Report contained a signature panel that anticipated endorsement by members of the Management Team, including Ms Rika and Ms Reeves. The Options Paper made no such provision.
790. The “Abstract” in the draft Project Report stated that the analysis “suggested” that there was “arguably minimal value in performing the ‘auto-microcon’ process” and said that “[g]iven this, further streamlining could be implemented that would provide significant efficiencies”.¹⁰⁰⁶ The same section in the Options Paper offered no suggestions but, instead, said that an evaluation of samples had been undertaken that “primarily focused on samples that underwent an ‘auto-microcon’ process in 2016”.¹⁰⁰⁷ This was untrue.

¹⁰⁰² Exhibit 171, Statement of Catherine Allen, 16 September 2022, [164].

¹⁰⁰³ Exhibit 113, Supplementary Statement of Paula Brisotto, 17 October 2022, [57].

¹⁰⁰⁴ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [27].

¹⁰⁰⁵ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018.

¹⁰⁰⁶ Exhibit 192.3, Evaluation of the Efficacy of a Post-Extraction Concentration Step Using the Microcon® Centrifugal Filter Devices in Yielding DNA Profile Intelligence, version 2, 9 January 2018, p4.

¹⁰⁰⁷ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p3.

The evaluation described in the paper concerned *only* those samples. Further, other samples had been analysed but reference to them had been excised in this new document which purported to “present” the “findings of this evaluation” for the “the Queensland Police Service to advise whether they would prefer Priority 2 samples to continue with the “auto-microcon’ process, or to cease this automatic step”.¹⁰⁰⁸ By this choice of language, the Options Paper put the onus upon police for any decision and for any consequences of that decision. Any objections from within the laboratory were thus rendered irrelevant.

791. There followed a section subtitled “Introduction”. The writers employed language of which the following, that purports to explain the “microcon” process, is an example:

Microcon® Centrifugal Filter Devices desalt and concentrate macromolecular solutions such as DNA-containing solutions. They employ Amicon’s low binding, anisotropic, hydrophilic regenerated cellulose membrane.

The use of Microcon® filters to concentrate extract has been a standard post-extraction process within Forensic DNA Analysis to reduce the volume of extract from approximately 100µL to ≤35µL for amplification with PowerPlex®21 system.

Since the implementation of PP21 amplification kit within Forensic DNA Analysis for casework samples in December 2012, extracts with low Quantification values were recommended to be concentrated. Templates of <0.132ng (Quantification <0.0088ng/µL) were found to exhibit marked stochastic effects after amplification. Consequently, a workflow that directed extracts automatically to a concentration step based on Quantification value was implemented (‘auto-microcon’ process) for Priority 2 samples.¹⁰⁰⁹

792. This scientific blether was not just impenetrable by the lay reader; it was unnecessary for the arguments put forward. It is no wonder that Inspector David Neville said that he had found the paper “a difficult read”.¹⁰¹⁰ As Ms Allen and Mr Howes must have known, the readers of the paper, who had to digest it in order to make a decision, were not going to be DNA scientists. They were police officers without the necessary scientific knowledge.

¹⁰⁰⁸ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p3.

¹⁰⁰⁹ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, pp3-4.

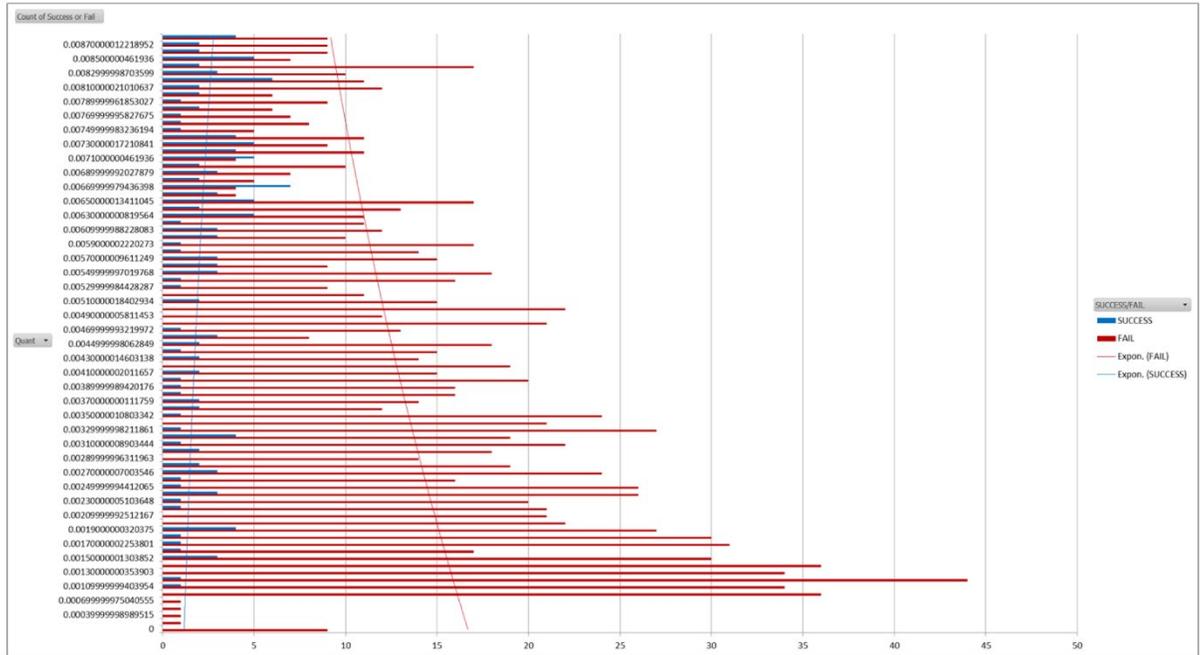
¹⁰¹⁰ Transcript, Day 2, 27 September 2022, p256.20-21.

793. The authors nowhere explained the real purpose of concentration: to raise the concentration of DNA so that the likelihood of getting useable profiles was increased.
794. It is axiomatic that the attempt to get such results from such samples will often be unsuccessful but that is not the point. The point is not that it is difficult but that it is possible. Indeed, in cases involving serious offences, it is the duty of the laboratory to try to get a profile from samples from which it is difficult to do so.
795. Nor did they explain that the scientific literature contains a wealth of information and advice – from papers published years ago and as well as recently – about how to go about getting useable profiles from low quantities of DNA by means of other kinds of methods.¹⁰¹¹
796. In its “Results and Discussion” section, the paper contained a pie chart showing that 89.4% of samples “failed”.¹⁰¹²
797. Another graph was entitled “Spread of data categorized as ‘Success’/’ Fail’ for ‘Auto-Microcon samples”.¹⁰¹³ The document was silent about the significance of this graph. However, a close examination of it reveals that, while samples with very low quants are prone to fail to produce useable profiles, samples nearing the top of the range are much more likely to do so. The graph was reproduced in a size that was so small as to make its detail almost unreadable but it does show that the top of the range the likelihood of “success” approaches 40% and, in some cases, 50%. It takes effort to extract this information from the paper.

¹⁰¹¹ Eg: Generating DNA profile from low copy number DNA: Strategies and Associated Risks, Matteen et al, 2020; Validation and Testing of Interpretation Protocols for Low Template DNA Samples using AMPFLSTR Identifier, Caragine et al, 2009.

¹⁰¹² Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p6.

¹⁰¹³ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p7.



798. Passing over the graph without comment, the authors posed the question for police:¹⁰¹⁴

If samples were not processed through the ‘auto-microcon’ process, what DNA Intelligence would the client miss out on?

799. The conclusion they drew, without any analysis, was this: the percentage of samples that gave rise to a link to a person identified on NCIDD, a person not connected to the offence until then, was 1.45% and this was “the pertinent value for the client to assess”.¹⁰¹⁵

800. This was nonsense. As Ms Rika and Ms Reeves had correctly pointed out to Mr Howes, it was the 10.6% of samples that yielded useable profiles of all kinds that constituted the information that could be helpful to investigators. These included the crime scene samples that were to be compared to known possible suspects. Indeed, as anyone with practical experience in the criminal law knows, in most sexual offence cases the issue is not the identity of an unknown offender, but rather whether a particular sexual act occurred or whether the complainant had consented to that act. DNA evidence that

¹⁰¹⁴ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p7.

¹⁰¹⁵ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p8.

suggests an identified suspect had touched or dealt with a complainant in a particular way may corroborate a complainant's account by means of objective evidence. Further, Ms Rika's 2015 study had shown that almost 20% of samples in the relevant range, double the figure offered by Mr Howes, could produce a useable profile,¹⁰¹⁶ yet this fact was not disclosed to the QPS.

801. Having asserted this specious but clear conclusion amid an otherwise almost inscrutable technical paper, the authors set out the "options to consider". They were:¹⁰¹⁷

1. Continue with 'auto-microcon' process for Priority 2 (Major Crime) casework; or
2. Cease the 'auto-microcon' process for Priority 2 (Major Crime) casework and report the exhibit result of 'DNA insufficient for further processing' based on Quantification result.
 - a. Priority 1 samples could proceed with the 'auto-microcon' process. If a DNA concentration rework is required, the Microcon process can be ordered manually by the scientist.

802. The document went on to state what were the "key" factors to consider. The authors emphasized, by repetition, that only 1.45% of auto-microcon samples resulted in an upload to the NCIDD and pointed out that this represented 21 samples out of the 1449 samples considered by them.¹⁰¹⁸ They then pointed to the advantages of adopting 'Option 2':¹⁰¹⁹

- a. the time and cost associated with processing samples in the low quantitation range, "including batch preparation, quality checking and control" and "additional reworking";

¹⁰¹⁶ Exhibit 17, Assessment of results obtained from 'automatic-microcon' samples, August 2015, p7.

¹⁰¹⁷ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p9.

¹⁰¹⁸ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p9.

¹⁰¹⁹ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, pp9-10.

- b. the “ability to potentially reallocate staff time ... to samples with higher DNA yield”;
 - c. the “opportunity to conserve DNA extract for further processing. ... (eg Y-STR analysis, Low Copy Number analysis)”;
 - d. the improved ability to provide quick results to QPS.
803. None of these supposed advantages were substantiated. The so-called “time and cost” was never quantified and consequently, never evaluated in the paper. What proportion of total samples tested annually by the laboratory would not be tested? How much time would be saved? How much money would be saved? How much staff time, if any, could be “reallocated”? How much might this “reallocation” speed up other results? These questions were never asked or answered.
804. The assertion that an “opportunity” presented itself for testing by other technologies was bogus. The laboratory had been unable to employ such technologies itself although, for example, it had spent *years* attempting to validate Y-STR testing without success; and it had neither the ability to perform Low Copy Number analysis and nor any plans to be able to do so. Nor did any witness suggest that the QPS were routinely (or ever) advised by the laboratory to send particular samples to other labs for testing of that kind. In fact, Dr Kogios and Ms Baker noted that this only occurred “sparingly”.¹⁰²⁰ The low number of samples sent for testing to other laboratories is considered in detail in Section 3.4 (Technical Aspects).
805. Finally, in the absence of a competent analysis of the amount of work involved in the testing that was going to be abandoned, and how much time might be gained by not doing that work, it was not possible to propose with any reliability that turnaround times would

¹⁰²⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [80]; Transcript, Day 23, 1 November 2022, 2890.22-29.

be improved significantly. In fact, on the evidence they did not improve after the measure was implemented.¹⁰²¹

806. These defects were obvious.

807. I engaged two experts to provide opinions in relation to this matter. Dr Budowle and Professor Wilson-Wilde are internationally recognised forensic DNA scientists. Dr Budowle holds a Bachelor of Biology and a PhD in Genetics and Professor Wilson-Wilde a Bachelor of Science, a Postgraduate Diploma of Science and a PhD in Molecular Genetics.

808. Dr Budowle observed that the paper appeared to be primarily concerned with concentration to 35µL.¹⁰²² Sometimes a laboratory will consider that even greater concentration is desirable – referred to as a concentration “to full”. The paper did not reveal whether any of the samples had been concentrated to full. It did not refer to any guidance available in the laboratory – and used as a matter of practice – to aid the decision whether to concentrate to 35µL or to full.¹⁰²³ He also observed that the paper contained no data or analysis as to whether the figure of 10.6% success rate was beneficial to the QPS, the justice system more broadly and to the Queensland community.¹⁰²⁴ It was just assumed that a success rate of 10.6% was inadequate and that a cold link rate of 1.45% was also inadequate. It will be recalled that this was the substance of Ms Reeves’ point. Moreover, Dr Budowle had noticed that the original Project #163 disclosed a success rate twice that shown in Project #184 and in the Options Paper.¹⁰²⁵ I observe that the later “study” reported in the “Update Paper”,¹⁰²⁶ differed from the data in the Options Paper yet again.

¹⁰²¹ Transcript, Day 3, 28 September 2022, p347.29-33.

¹⁰²² Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [9].

¹⁰²³ Transcript, Day 5, 30 September 2022, p586.45-587.3.

¹⁰²⁴ Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [9].

¹⁰²⁵ Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [9].

¹⁰²⁶ Discussed in section 4.3.

809. Dr Budowle found it remarkable that no examination was undertaken into these significant differences in rates of “success” within the laboratory while using each of them, separately, as the basis of decisions.¹⁰²⁷ Moreover, before deciding to omit a category of work altogether because of a perception that much of the work was wasted, work should have been done to consider ways to increase the prospects of success. One way, put forward by Dr Budowle, that might increase the success rate was to reduce the concentration of samples in the first instance.¹⁰²⁸ The laboratory typically arrived at a position in which the available mass of DNA was suspended in about 100µL of liquid – the “elution volume”. Many other laboratories use an elution volume half that amount – 50µL. Using that lesser amount means that the concentration of DNA is immediately *doubled* thereby increasing the number of samples above, say, the laboratory’s chosen threshold of 0.0088 ng/µL. As I have already mentioned, the scientific literature is redolent with descriptions of techniques that can be used to increase the prospects of success in getting profiles from low quant samples.
810. No such consideration was given to these techniques by the laboratory’s managers. This is explicable if the real end that the authors of the Options Paper wanted to achieve was to reduce the amount of work they had to do instead of maximizing success and reliability of results.
811. Dr Budowle opined that Ms Rika and Ms Reeves had raised highly pertinent points that should have been addressed. For example, he noted that Ms Reeves had posed “a very fundamental issue” about how “value” was to be defined: what is it, for whom and for what?¹⁰²⁹ In my opinion, had the question been taken up and considered with scientific

¹⁰²⁷ Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [11].

¹⁰²⁸ Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [24]; Transcript, Day 5, 30 September 2022, p587.22-588.4.

¹⁰²⁹ Exhibit 32, Dr Bruce Budowle, Assessment of the Options Paper and Update Paper Prepared by Queensland Health Forensic and Scientific Services (QHFSS), 19 September 2022, [27].

integrity, it is unlikely that the QPS would have consented to the proposed course of action.

812. Professor Wilson-Wilde rejected the idea that the 1.45% figure representing successful cold links was “the pertinent figure”. She said that even partial DNA profiles could yield useful information for an investigator.¹⁰³⁰ Moreover, although the finding of a victim’s DNA at a particular place might be very significant, there would be no question of the victim’s DNA being uploaded to NCIDD and so a sample of that kind would not fall within the 1.45% figure.¹⁰³¹ Similarly, finding a known suspect’s DNA at particular places may be highly informative and, in some cases, might constitute cogent evidence.¹⁰³² For reasons like these, NCIDD uploads are irrelevant in many, many kinds of investigations of Major Crime.
813. Professor Wilson-Wilde also pointed out something that should have been obvious at the time to those working in this field. The proposal not to test many samples that usually result in no profile would mean that the percentage success rate of the laboratory would increase but the new process would not “facilitate the maximum number of results that could be obtained from submitted samples as not all samples are progressing”.¹⁰³³
814. Dr Budowle said that a low quant was merely one factor to be considered when deciding whether and how to test a sample. A scientist would also have to consider the quality of the DNA, the type of sample it is – for example, has sperm actually been seen under a microscope? – as well as the seriousness of the offence to which the sample related.¹⁰³⁴ These factors were ignored by the authors of the Options Paper.
815. Moreover, a decision about a threshold taken in early 2018 must be reconsidered as new and more sensitive technology comes to be used – something that Ms Rika had pointed

¹⁰³⁰ Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [28].

¹⁰³¹ Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [20].

¹⁰³² Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [20], [21].

¹⁰³³ Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [31].

¹⁰³⁴ Transcript, Day 5, 30 September 2022, p577.43-578.2.

out in 2015. Dr Budowle said that having a "set value at one point might have made some sense, but it doesn't make sense in the more ... routine work of today."¹⁰³⁵ Every change to equipment requires a revalidation¹⁰³⁶ especially if the new equipment increases the sensitivity of detection of DNA.¹⁰³⁷ The Options Paper did not foreshadow any periodic review or reconsideration of the threshold following the introduction of new equipment to the laboratory.

816. It was a fundamental error to cull from the work of the laboratory a category of samples based upon their exhibiting a single characteristic – a quant below 0.0088ng/μL. This was a scientifically marginal criterion. Professor Wilson-Wilde was critical of the amalgamation of samples within the range as though the same factors had affected each of them in their potential to yield a sample.¹⁰³⁸ In fact, success depended upon much more than the quant: for example, whether the sample was a swab of blood or sperm rather than a trace sample.¹⁰³⁹

817. Dr Budowle was also of the opinion that the Options Paper was "very biased to sort of downgrade the success rate of the samples" in the range.¹⁰⁴⁰

818. I asked him what his reaction would have been, as a decision maker, if the Options Paper had been presented to him as the basis for a decision about testing. His answer:¹⁰⁴¹

I would have said, "go back and do it again. You haven't given me sufficient information and detailed information to effect a decision".

819. Professor Wilson-Wilde was of the view that the data chosen for inclusion in the Options Paper were those which were "particularly supportive of the apparent intent, ie to reduce the resource impost on the laboratory".¹⁰⁴² In short, the data were skewed to serve a

¹⁰³⁵ Transcript, Day 5, 30 September 2022, p578.34-42.

¹⁰³⁶ Transcript, Day 5, 30 September 2022, p580.3-7.

¹⁰³⁷ Transcript, Day 5, 30 September 2022, p580.17.

¹⁰³⁸ Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [6].

¹⁰³⁹ Transcript, Day 3, 28 September 2022, p387.23-24.

¹⁰⁴⁰ Transcript, Day 5, 30 September 2022, p596.28-29.

¹⁰⁴¹ Transcript, Day 5, 30 September 2022, p597.25-27.

¹⁰⁴² Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [5].

tendentious paper. A proper approach, she said, would have been to collect data for all samples analysed within a set time period, breaking down the samples by quantitation values (and grouped in defined and equal ranges), whether they were concentrated, progressing all samples through PCR and interpretation and recording the end result (reported by number/percentage of alleles obtained).¹⁰⁴³

820. I have referred to the definition of “Success” and “Fail” used in the Options Paper. Professor Wilson-Wilde was critical of this definition. She said that the definitions were ambiguous.¹⁰⁴⁴ Indeed they are. What does “suitable for comparing to reference DNA profiles and other casework samples” mean? What did the writers of the paper mean by those definitions when applying them to the data? None of that is obvious nor explained. Professor Wilson-Wilde pointed out that just two alleles (the “peaks” on an electropherogram) might be useful to police. Ten alleles from five loci might give a statistical weighting in the order of 100,000, a figure that might be very useful for deciding whether to exclude a suspect or to continue to investigate. This demonstrates why even the figure of 10.6% might be a substantial underestimate.¹⁰⁴⁵
821. Like Dr Budowle, Professor Wilson-Wilde said that Ms Rika’s and Ms Reeves’ criticisms had merit. They should have been addressed.¹⁰⁴⁶ The failure to address those valid criticisms raised, in her mind, an inference that the Options Paper had been written to achieve an end and that it had not been written as an impartial scientific evaluation.¹⁰⁴⁷ I draw the same inference.
822. Professor Wilson-Wilde offered a compelling example that illuminates the fundamental fallacy that is at the heart of the Options Paper. Some years ago she was working on a

¹⁰⁴³ Exhibit 26, Professor Linzi Wilson-Wilde, Expert Report, 20 September 2022, [7].

¹⁰⁴⁴ Transcript, Day 3, 28 September 2022, p382.31-32.

¹⁰⁴⁵ Transcript, Day 3, 28 September 2022, p383.10-42.

¹⁰⁴⁶ Transcript, Day 3, 28 September 2022, p384.38-44.

¹⁰⁴⁷ Transcript, Day 3, 28 September 2022, p385.2-10.

sexual assault case in which a swab from the inside of a pair of underpants revealed “a couple of sperm heads”.¹⁰⁴⁸ Professor Wilson-Wilde explained as follows:¹⁰⁴⁹

And it took 12 goes to get a full profile from the male, adjusting the chemistry to certain degrees. The first result gave only female DNA, so that was the difference between tweaking the chemistry. It is chemistry after all, and if you add a bit more of something or increase it ... or – you know, there are varying things and chemicals you can do to adjust the process and it’s the end result...

... I knew I had a very small amount of male DNA available to me, but I knew it was there. That was the significance of it, is that I knew I had male DNA

... But being able to go backwards and forwards and to the original item was what meant that I could get a result in the end.

823. There are scientists working at the laboratory who possess the skill and the dedication to have done similar brilliant work. However, the system of work imposed by management in Queensland in 2018, meant that the same kind of sample would not have been tested at all.
824. Both Professor Wilson-Wilde and Dr Budowle identified a reason why the laboratory may have been failing to get profiles from low quant samples.
825. When a physical sample, a swab or tape, is received at the laboratory it is first necessary to extract the biological material from it, suspend the biological material in solution and then extract the DNA. It will be recalled that a “quant” is a measure of the mass of DNA in ratio to the liquid in which it is held. The higher the volume of liquid for the same mass of DNA, the lower the quant.¹⁰⁵⁰
826. For reasons that will be considered elsewhere, but which were determined by a scientifically flawed process, the laboratory elected to extract DNA into a higher volume than many other laboratories do. This had the result that *all* their samples had lower concentrations than they would have had at a lower elution volume.¹⁰⁵¹ The added

¹⁰⁴⁸ Transcript, Day 3, 28 September 2022, p411.46.

¹⁰⁴⁹ Transcript, Day 3, 28 September 2022, p412.1-41.

¹⁰⁵⁰ Transcript, Day 3, 28 September 2022, p390.28-391.12; Transcript, Day 5, 30 September 2022, p587.31-588.4.

¹⁰⁵¹ Transcript, Day 3, 28 September 2022, p390.44-391.19.

complication is that when a sample is micro-concentrated some of the DNA within it may be lost. This means that the laboratory's extraction method automatically results in all of its samples having a lower quant. Samples with very low quants have an unnecessarily even lower quant, requiring micro-concentration, and such concentration reduces the potential amount of DNA available for analysis.

827. In this way, error compounded error. The result of these blunders then formed the data base of results for deciding not to test such samples at all – upon the basis of scientifically false arguments.
828. Despite these obvious deficiencies, the Options Paper was imparted to the QPS for their consideration, along with any responsibility for the decision to cease auto-microcon. On 30 January 2018, Ms Allen emailed a copy of the Options Paper to Superintendent Dale Frieberg, Forensic Services Group; Troy O'Malley, Acting Inspector, Forensic Technology Coordinator; Acting Inspector Ewen Taylor, DNA Management Section and to Paul Csoban, the then Executive Director of QHFSS.¹⁰⁵²
829. Superintendent Frieberg said in evidence that she read the Options Paper that evening but that she did not understand it because she did not have a scientific background.¹⁰⁵³ She forwarded the email to Acting Inspector Taylor for his advice.¹⁰⁵⁴
830. Acting Inspector Taylor also did not have any scientific qualifications.¹⁰⁵⁵ When he read the document he understood that only a very low percentage of useful samples, 1.45%, would not be tested unless specifically requested by the investigator.¹⁰⁵⁶ Acting Inspector Taylor forwarded the email to his senior staff within the DNA Management Unit, being Ruben Colloppen, Ken Gee Kee, Libby Harris and Olivia McIntyre, stating "For your advice

¹⁰⁵² Exhibit 28A, Statement of Dale Frieberg, 5 September 2022, DF-10, Email chain between Cathie Allen and Dale Frieberg dated 30 January 2018.

¹⁰⁵³ Transcript, Day 4, 29 September 2022, p464.3-5.

¹⁰⁵⁴ Exhibit 28A, Statement of Dale Frieberg, 5 September 2022, DF-10, Email chain between Dale Frieberg and Ewen Taylor dated 30 January 2018.

¹⁰⁵⁵ Transcript, Day 4, 29 September 2022, p493.39-45.

¹⁰⁵⁶ Transcript, Day 4, 29 September 2022, p504.26-33.

please”.¹⁰⁵⁷ Acting Inspector Taylor discussed the Options Paper with his staff and Acting Inspector O’Malley.¹⁰⁵⁸ All agreed that option 2 was the preferred outcome.¹⁰⁵⁹ Acting Inspector Taylor was unable to say whether any of the staff he had consulted had scientific qualifications.¹⁰⁶⁰

831. On 31 January 2018, Acting Inspector Taylor replied to Superintendent Frieberg’s email as follows:¹⁰⁶¹

I have reviewed the attached document and conferred with senior staff within the DNA Unit (mainly Olivia) and Forensic Register Tech - Troy O’Malley.

From our perspective, we are in agreement that:

There is clear data that it is not an efficient use of time and resources to continue with the ‘automicrocon’ process for Priority 2 (Major Crime) samples.

Option 2. “Cease the ‘auto-microcon’ process for Priority 2 casework....” Would appear to be a more productive & efficient choice.

Scientists time and resources would be better spent working samples with a higher DNA yield and more potential.

832. It would be beneficial to amend the Forensic Register to provide an automated Q-Prime update advising the Investigators of the option to request further ‘Auto-microcon’ processing for those samples for unsolved crime, which may prove worthwhile.

833. DNA staff can request this additional processing if/when a request is received from the investigators.

834. The Executive Director of FSS at the time, Paul Csoban, said that when Ms Allen gave him the Options Paper to read, he “had difficulty understanding the two figures of 1.4% and,

¹⁰⁵⁷ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-03, Email chain between Ewen Taylor and DNA Management Unit staff dated 31 January 2018.

¹⁰⁵⁸ Transcript, Day 4, 29 September 2022, p499.39.

¹⁰⁵⁹ Transcript, Day 4, 29 September 2022, p500.14-18; Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-03, Email chain between Ewen Taylor and DNA Management Unit staff dated 31 January 2018.

¹⁰⁶⁰ Transcript, Day 4, 29 September 2022, p498.41-499.13.

¹⁰⁶¹ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-03, Email chain between Ewen Taylor and Dale Frieberg dated 31 January 2018.

I think, 1.8%.”¹⁰⁶² He concluded that the “1.4% was the figure for information that would be missed out if we went for Option 2.”¹⁰⁶³ He said that he was led to believe that a change like this would not be proposed unless the change was worthwhile because the improvement would be significant.¹⁰⁶⁴

835. On 1 February 2018, Acting Inspector Taylor attended a meeting at QHFSS with Ms Allen, Mr Howes and Ms Brisotto to discuss unrelated matters, and the Options Paper was “briefly discussed”.¹⁰⁶⁵ In oral evidence, Acting Inspector Taylor stated that he was asked during that meeting whether he had read the Options Paper and what his thoughts were. He recalled that he had said that he had discussed the paper with the senior members of the DNA Management Unit and “that there appeared to be only one option or one best course of action”.¹⁰⁶⁶

836. Ms Allen’s diary notes from this meeting state:¹⁰⁶⁷

Streamline after Options Paper. Range – DNA insufficient range → would be applied for both Maj & Vol if QPS agrees to the Options Paper.

837. On 2 February 2018, there was a meeting to discuss the paper at QPS Headquarters. The attendees were Ms Allen, Paul Csoban, Superintendent Frieberg, Acting Inspector Taylor and Acting Inspector O’Malley. No minutes were taken and only Superintendent Frieberg and Acting Inspector Taylor took any notes. Superintendent Frieberg, Acting Inspector O’Malley, Ms Allen and Mr Csoban could not provide an independent recollection of the meeting.¹⁰⁶⁸ According to Mr Csoban and Acting Inspector Taylor, Ms Allen was the dominant speaker during the meeting.¹⁰⁶⁹

¹⁰⁶² Transcript, Day 4, 29 September 2022, p523.43-44.

¹⁰⁶³ Transcript, Day 4, 29 September 2022, p524.7-9, p535.7-15.

¹⁰⁶⁴ Transcript, Day 4, 29 September 2022, p531.24-46.

¹⁰⁶⁵ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, [16].

¹⁰⁶⁶ Transcript, Day 4, 29 September 2022, p506.17-22

¹⁰⁶⁷ Exhibit 192.35, Diary notes of Cathie Allen, 1 February 2018.

¹⁰⁶⁸ Exhibit 28A, Statement of Dale Frieberg, 5 September 2022, [35]; Exhibit 239.26, Statement of Troy O’Malley, 14 September 2022, [10]; Exhibit 171, Statement of Catherine Allen, 16 September 2022, [171]; Transcript, Day 4, 29 September 2022, p535.19.

¹⁰⁶⁹ Transcript, Day 4, 29 September 2022, p507.43-46, p534.35-38.

838. Acting Inspector Taylor's notes from the meeting state as follows:¹⁰⁷⁰

90% Doesn't Improve. 1.5% Results of remaining 10% Provide a result. Decided to invest Time + Resources into exhibits with higher DNA yield. Supt to Forward Email advice to Cathie approving Option 2.

839. In my view this was an accurate representation of the tenor of what was said in the Options Paper and, I infer, what was said by Ms Allen at the meeting.

840. Acting Inspector Taylor said in oral evidence that he had expressed this understanding to Ms Allen and Mr Csoban during the meeting and was not corrected.¹⁰⁷¹

841. Following the meeting, Superintendent Frieberg emailed Ms Allen agreeing to accept Option 2:¹⁰⁷²

Hi Cathie and Paul,

Thank you for your time this afternoon and for discussion around this options paper. Thank you also to both Troy and Ewen with your assistance and expertise/advice around the paper.

As discussed, I am in agreement that:

There is clear data that it is not an efficient use of time and resources to continue with the 'auto-microcon' process for Priority 2 (Major Crime) samples.

Option 2. "Cease the 'auto-microcon' process for Priority 2 casework...." Would appear to be a more productive & efficient choice.

Scientists time and resources would be better spent working samples with a higher DNA yield and more potential.

It would be beneficial to amend the Forensic Register to provide an automated Q-Prime update advising the Investigators of the option to request further 'Auto-microcon' processing for those samples for unsolved crime, which may prove worthwhile.

DNA staff can request this additional processing if/when a request is received from the investigators.

¹⁰⁷⁰ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-04, Diary notes dated 4 February 2018, p39.

¹⁰⁷¹ Transcript, Day 4, 29 September 2022, p508.20-28.

¹⁰⁷² Exhibit 192.38, Email from Dale Frieberg to Cathie Allen, Troy O'Malley, Ewen Taylor and Paul Csoban re 'RE: Options Paper for consideration', 2 February 2018.

I trust this is of assistance.

842. The QPS did not have officers with sufficient expertise and knowledge to make such a critical decision.
843. The QPS did not recognise that the pertinent figure to consider was not 1.45% - it was 10.60%. This figure represented those crime scene samples which resulted in an interpretable DNA profile and could be used by the QPS to compare to a reference sample and also the 1.45% of samples.
844. It will be recalled that NCIDD upload is mostly relevant to Volume Crime cases and that most Major Crime instead relies on comparison to reference samples. This is a matter of policing priorities and not science.
845. The QPS decision-making processes involved in the selection of Option 2 of the 2018 Options Paper were not informed by best scientific practice.
846. The QPS submitted that the role of the Superintendent of the FSG is not benefited by a scientific qualification.¹⁰⁷³ I disagree. As has been demonstrated, in order to make decisions about best practice for the FSG, relevant scientific knowledge is required. I therefore make the following recommendations:

Rec 101. The QPS should ensure that one of the requirements for appointment to the position of Superintendent of the Forensic Services Group is a tertiary qualification in science and experience in forensic science.

Rec 102. The QPS should ensure that one of the requirements for appointment to the position of the person who manages the DNA Management Section is a tertiary qualification in science and experience in forensic science.

847. On Friday, 2 February 2018, just after receiving that email, Ms Allen emailed Mr Howes and Ms Brisotto:¹⁰⁷⁴

¹⁰⁷³ QPS Response to Draft Recommendations, 2 December 2022, response to proposed recommendation 86.

¹⁰⁷⁴ Exhibit 192.39, Email from Cathie Allen to Justin Howes and Paula Brisotto re 'FW: Options Paper for consideration', 2 February 2018.

The QPS have agreed with Option 2, so we can proceed with that option. I will send out further information to management team but I will not be sending the below email. This is just for your information only at this stage.

848. On Monday 5 February 2018, Ms Allen sent an email to Mr Howes and Ms Brisotto as follows:¹⁰⁷⁵

Regarding the Options Paper, my intention was to email the management team letting them know that the Options Paper was presented to the QPS and that they have elected Option 2 for us moving forward. And I was going to attach the Options Paper. Do you see any issues with this?

849. Ms Brisotto's response was as follows:¹⁰⁷⁶

No, I don't, as the information in the options paper was taken from the report they had already read. I also think the options paper shows the information that was presented to the QPS did not offer any opinions or recommendations, only options for them to consider. The decision is therefore theirs (so to speak).

850. Mr Howes agreed.¹⁰⁷⁷

851. That same morning Ms Allen emailed the whole Management Team as follows:¹⁰⁷⁸

Hi Everyone

On Friday, Paul Csoban and I met with the Superintendent of Forensic Services Group, Dale Frieberg and other QPS officers that the Supt requested to attend. We discussed the Options Paper attached, which I had provided to the Supt earlier in the week. The Supt has indicated verbally and by email that the QPS' preferred option is Option 2 – no automatic concentration of Priority 1 or Priority 2 samples.

If you have any questions regarding this, please don't hesitate to send me an email or come and have a chat with me.

Cheers

Cathie

¹⁰⁷⁵ Exhibit 192.40, Email from Cathie Allen to Justin Howes and Paula Brisotto re 'Options Paper', 5 February 2018.

¹⁰⁷⁶ Exhibit 192.41, Email from Paula Brisotto to Cathie Allen and Justin Howes re 'RE: Options Paper', 5 February 2018.

¹⁰⁷⁷ Exhibit 192.42, Email from Justin Howes to Cathie Allen and Paula Brisotto re 'RE: Options Paper', 5 February 2018.

¹⁰⁷⁸ Exhibit 119, Email from Cathie Allen to Management Team re 'Microcon Options Paper', 5 February 2018.

852. Ms Allen was now asserting to her staff that even Priority 1 samples are to be culled according to the scheme in the Options Paper. It will be recalled that Priority 1 samples are concerned with the most serious and urgent of crimes that QPS have designated as such. It will also be recalled that Option 2 did not include Priority 1 samples in the proposed exclusions.
853. The exclusion from testing of these most important samples makes no sense. Samples in this category are submitted by QPS on the shared understanding between QPS and the laboratory that they relate to such grave investigations that the samples to be tested must be given absolute priority and results turned around urgently. All other testing is to be postponed because of the importance and urgency of Priority 1 testing. After all, that is why these samples are described as “Priority 1”. Why, in this context, would police agree to the delay involved in receiving a “DIFP” or “No DNA” result and, only then, being required to affirm that the sample must be tested to the limit? The designation “Priority 1” subsumes all other such considerations.
854. Certainly, Mr Howes understood, as late as Monday 5 February 2018, that only Priority 2 samples were to be affected. For this reason, he sent a questioning email to Ms Allen at 12.33 pm on that day:¹⁰⁷⁹

Hi Cathie, Option 2 has P1 proceeding with auto-mic.

Perhaps that point isn't crystal clear in the doc as 'a.' has two sentences where the second sentence has scientists order manually for the other samples if wanting to rework.

Pto fix, please retract, add 'b.' before the second sentence and re-send.

855. His reference to “the doc” was to page 9 of the Options Paper which stated that “Priority 1 samples could proceed with auto-microcon process”.¹⁰⁸⁰ Ms Allen gave him no written reply.

¹⁰⁷⁹ Exhibit 150, Email from Justin Howes to Cathie Allen, re ‘RE: Microcon Options Paper’, 5 February 2018.

¹⁰⁸⁰ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p9.

856. Mr Luke Ryan had the responsibility for changing certain software details to accommodate the new “DIFP” procedure. He was also puzzled about the inclusion of Priority 1 samples. He wrote to Mr Howes on the afternoon of Tuesday 6 February 2018 to ask whether the cessation of work would affect “P1 and P2 as per Cathie below [referring to her email to management] or just P2 as per options paper?”¹⁰⁸¹
857. Mr Ryan’s email to Mr Howes had been sent at 1.51 pm on 6 February 2018. There is no email by way of response from Mr Howes but at 1.53 pm Mr Ryan had the following ‘Teams’ exchange with Ms Allen:¹⁰⁸²

Ryan: dude!

Allen: yo

Ryan: I’m diong (*sic*) the VSTS for P2 removing auto mics

Allen: yup

Ryan: is it just P2 or is it P1 as well??

Allen: both P1 and P2

Ryan: Roger roger

just thought I’d check – your email says P1 and P2 but the options paper only says P2

I was wrong to doubt you!

Allen: you were wrong to doubt me

options paper says can extend to P1, so its been extended to P1

Ryan: please accept my humblest apologies and prostrations

Roger, great call!!! Paula asked for it to be live on 12/02

Allen: for work in FR, we can request the change to happen asap, but will need to be scheduled by the QPS. For our internal processes, if we can manually adjust from the 12th, then go for it.

¹⁰⁸¹ Exhibit 120, Email from Luke Ryan to Justin Howes re ‘FW: Microcon Options Paper’, 6 February 2018.

¹⁰⁸² Exhibit 176, Email from Luke Ryan to Cathie Allen and Luke Ryan re ‘Conversation with Luke Ryan’, 6 February 2018.

Ryan: Ok excellent thanks!!!

this is going to be excellent!!!

Allen: this is going to be great. QPS made the decision, without our recommendation being required

Ryan: The data supports the decision. We can spend more time putting out better results faster. Win win!

Allen: win win

858. In her oral evidence, Ms Allen said that Superintendent Frieberg's "advice to me was that Priority 1 samples should be treated the same as Priority 2 samples".¹⁰⁸³ Yet Superintendent Frieberg did not refer to Priority 1 samples in her agreement sent by email. That email referred expressly only to Priority 2 samples as expressed in the body of the Options Paper itself. Acting Inspector Taylor's notes did not refer to the application of the proposed process to Priority 1 cases. Superintendent Frieberg's notes only refer to the "'Auto-Microcon' process for Priority 2 (Major Crime) samples" as well as to the fact that she had "followed up with email to Cathie/Paul confirming" this fact. On the very day of the meeting Ms Allen emailed Mr Howes and Ms Brisotto to tell them that the "QPS have agreed with Option 2, so we can proceed with that option." She attached Superintendent Frieberg's email that referred only to Priority 2 samples. Ms Brisotto's evidence at the hearing was that Ms Allen did not refer to this matter when she called Ms Brisotto on the Friday afternoon.¹⁰⁸⁴ Mr Csoban also said in his oral evidence that Priority 1 samples were not discussed at the meeting.¹⁰⁸⁵

859. Superintendent Frieberg said in her evidence that she had not agreed to the application of the new process to Priority 1 samples.¹⁰⁸⁶ Mr Hickey, who appeared for Ms Allen at the hearings, did not put to Superintendent Frieberg, Acting Inspector Taylor or to Mr Csoban that the QPS had agreed to cease testing of Priority 1 samples within the defined

¹⁰⁸³ Transcript, Day 21, 28 October 2022, p259715-17.

¹⁰⁸⁴ Transcript, Day 16, 21 October 2022, p1945.25-28.

¹⁰⁸⁵ Transcript, Day 4, 29 September 2022, p538.14-47.

¹⁰⁸⁶ Transcript, Day 4, 29 September 2022, p481.5-13.

range of quants. Nor did Mr Hickey put to Superintendent Frieberg that she had ever agreed to do that at some point after the meeting.

860. I accept the evidence of Superintendent Frieberg, whose evidence was truthful and accurate. I also accept the comprehensive accuracy of the notes made by her and by Acting Inspector Taylor. I accept the evidence on Mr Csoban in this respect. Their evidence was supported by the other evidence I have referred to:

- a. The absence from Superintendent Frieberg's email agreement to the new process of any reference to Priority 1.
- b. The absence of any document emanating from the QPS to prove, or even suggest, that Priority 1 cases had been included.
- c. The absence of any document emanating from FSS to QPS to confirm the inclusion of Priority 1.
- d. The ignorance of Ms Brisotto, Mr Ryan and Mr Howes about this matter when, if the QPS had agreed to include Priority 1, it was to be expected that Ms Allen would have told them about it immediately after the meeting.
- e. The content of Ms Allen's "chat" with Mr Ryan, in which she referred to the inclusion of Priority 1 in ironic terms as a foreshadowed extension of the protocol as envisaged in the Options Paper.
- f. The omission of any reference to P1 in Ms Allen's emails of 2 February and 5 February 2018 to Ms Brisotto and Mr Howes.
- g. The absence of any such reference from Acting Inspector Taylor's subsequent handover note.

861. On 14 February 2018, Ms Allen attended a meeting at the FSG conference room. The meeting was attended by police officers concerned with DNA testing. None of these

officers had been present at the meeting on 2 February except Acting Inspector Taylor who chaired the later meeting.¹⁰⁸⁷ The minutes of the meeting contain, as “Item 5”, a report by Ms Allen about the 2 February meeting. The minutes record that she told those present that agreement had been reached to “Cease the ‘auto-microcon’ process for Priority 2 casework”.¹⁰⁸⁸ There is no reference to Priority 1 cases.

862. The conclusion is inescapable, and I find, that Ms Allen lied to her staff when she told them that the QPS had agreed to apply the DIFP regime to Priority 1 cases and she lied to me about it when she gave evidence.
863. Scientists continued to raise pertinent objections to the course that had been adopted – and about which their views were either not sought or were ignored. On 8 February 2018, Emma Caunt wrote to Kylie Rika giving details of a case in which an epithelial fraction had given up profiles of the complainant and the defendant. The defendant’s profile was, she said, a crucial piece of evidence that would have been ignored under the new regime. Ms Rika passed the issue up to Mr Howes in an email on 9 February 2018. She said, “This is a concern”. On 23 February 2018, having had no response from Mr Howes, she reminded him of her email. He promised to respond but never did so.¹⁰⁸⁹
864. In June 2018, Acting Inspector Taylor returned to his substantive position elsewhere.¹⁰⁹⁰ In his handover to Inspector Neville, who took up the position, he included a copy of the Options Paper. In his handover briefing note wrote:¹⁰⁹¹

Request for sample reworks. Please read ‘A review of automatic concentration of DNA extracts using Microcon’ document on your desk. FSS are currently trialling a process where reworks are only being conducted (Below 10% chance of success) when requested by Inspector DNA. This was agreed between Supt, Paul CSOBAN, Cathie and myself, to better funnel effects and funds. Investigators are advised that they can request a rework if exhibit is still pertinent via Qprime unit - 3209. You will be forwarded a task for decision on re-testing if the

¹⁰⁸⁷ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, [25].

¹⁰⁸⁸ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-05, Meeting Minutes dated 14 February 2018.

¹⁰⁸⁹ Exhibit 192.48, Email from Justin Howes to Kylie Rika re ‘RE: Auto-microcons’, 23 February 2018.

¹⁰⁹⁰ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, [25].

¹⁰⁹¹ Exhibit 37, Statement of Ewen Taylor, 23 August 2022, ET-02, Email chain from Ewen Taylor to David Neville dated 14 June 2018.

investigators decide to request it. If approved to reactivate, send an FR task to Luke Ryan: eg.

"I have received a request for further processing of the below exhibit. I have reviewed this investigation and I am supportive of this exhibit Reactivation. Exhibit 710158607.

Any issues please contact Inspector Ewen TAYLOR DMS 33646922.

'FSS Result: 3523546 710158607 DNA INSUFFICIENT FOR FURTHER PROCESSING

This item/sample was submitted for DNA analysis. Low levels of DNA were detected in this sample and it was not submitted for further DNA profiling. Please contact the DNA Management Section if this sample is requested to be assessed for further processing via QPRIME task to Unit Code 3209"

865. Inspector Neville said that he first read the Options Paper in August 2018.¹⁰⁹² An email dated 16 August 2018 outlined Inspector Neville's understanding of the Options Paper:¹⁰⁹³

Hi Cathie and Justin,

I was just reading the report that you both authored titled "A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filer Devices: Options for QPS consideration".

Can I start with telling you how pleasing this report was. This is a great example of how LEAN philosophy can be applied within the laboratory setting. It seemed a great deal of effort for a measly 1.4% success rate.

I understand that the QPS agreed to eliminate this step for priority 2 cases based on the advice. The paper indicated that this initiative will allow you to "... potentially reallocate staff time currently allocated to processing, interpreting and reporting 'auto-microcon' samples, to samples with higher DNA yield, thus improving the turnaround times for results of these samples." This would be a great outcome. Can I ask how this is progressing and if you are seeing the desired outcome, please?

The report also indicates a cost saving in the analysis. Are you able to give an indication of the actual saving please?

¹⁰⁹² Exhibit 3, Statement of David Neville, 26 August 2022, [95].

¹⁰⁹³ Exhibit 192.108, Email from David Neville to David Neville re 'Elimination of auto-microcon step', 16 August 2018.

Again, this is a very good example of a QH initiative that if successful, helps us disrupt crime. So thank you both for initiating it and I look forward to hearing about its success.

866. Inspector Neville appears to have sent this email to himself by mistake, so he never received a response. Its significance is that it reflects the fact that QPS had been misled about the what the adoption of the new process would mean for investigations. It also supports my conclusion that the QPS had not agreed to the inclusion of Priority 1 cases in this new procedure.
867. QPS continued to act on the basis that they had only agreed to limit the work done on Priority 2 cases. As late as 14 November 2018 Inspector Neville was asserting his belief in that respect. On that date he emailed Ms Allen referring to 15 samples that had been submitted as Priority 1 in a certain investigation. Four of these samples were reported as having insufficient DNA for further testing yet, when tested on QPS request, three of them yielded a useable profile. He wrote:¹⁰⁹⁴

Could you also confirm if the microcon step has been removed from the workflow as a matter of routine for P1 samples. My understanding as per the below was that this was only to occur for P2.

868. Inspector Neville went on to explain the basis for his understanding as follows:

The removal of the microcon step in the process was agreed to on 2 February 2018 by Supt Frieberg based on advice included in the attached paper. This paper estimates that there would be less than a 2% reduction in the number of useable results if the step was eliminated.

Based on the fact that 3 out of 4 samples for this case yielded a result when testing was continued, anecdotally it would seem that we may be missing out on more than 2% of results.

Since eliminating this step, has your laboratory undertaken any statistical analysis to determine if there has been a drop in the proportion of samples that give a useable profile, please.

¹⁰⁹⁴ Exhibit 54, Email from David Neville to Cathie Allen re 'Removal of the microcon step from P1 workflow.', 14 November 2018.

869. Inspector Neville had copied his colleagues, Superintendent McNab and Acting Inspector Simpfendorfer, into his email to Ms Allen. Ms Allen did not respond to Inspector Neville, although she copied him into her response to his question. She addressed her reply to Superintendent McNab and Acting Inspector Simpfendorfer. She wrote, relevantly:¹⁰⁹⁵

During a meeting on 1st of Feb 2018, Paul Csoban (previous Executive Director for FSS) and I met with Supt Dale Frieberg to discuss the Options Paper that had previously been provided to the QPS for decision. During this meeting, the Superintendent agreed that Option 2 was the preferred option, which was later confirmed via email (as per below). During the discussion, the second part of Option 2 (section a) was discussed, which related to Priority 1 samples and the Superintendent indicated that Priority 1 samples should be processed the same as Major crime (P2) and Volume crime samples (P3), which is not to be automatically progressed through the Microcon process. After the approval from the QPS in Feb 2018, all samples have not automatically progressed through the Microcon process.

870. This was a lie. As I have already said, no such agreement was reached at that meeting or afterwards.

871. Ms Allen went on:

Automatic progression of samples through the Microcon process means that all available DNA extract will be consumed, so no further testing can be conducted on these samples after this step. This means that if a sample could yield a profile by specific Y chromosome testing for example, there would be no extract available for that testing to be conducted. It also means that samples that are eligible to be pooled together, as they are from the same item or area, are not able to be as there is no DNA extract left to undertake the pooling. Scientists or Forensic officers reviewing results in the context of a case are able to request a Microcon process for a sample or samples.

...

If the QPS wishes for P1 samples to automatically be processed through the Microcon process, which leaves no available extract for other testing, this process can be re-introduced. Please confirm if the QPS requires the re-introduction of this step.

¹⁰⁹⁵ Exhibit 54, Email from Cathie Allen to David Neville re 'FW: Removal of the microcon step from P1 workflow.', 15 November 2018.

872. This was false. The unchallenged evidence is that micro-concentration involves reducing, not exhausting, the volume of liquid in which the DNA is held. Samples are generally held in about 90µL of liquid. The laboratory typically reduced this volume to 35µL although, in some cases, a decision might be made to reduce the volume to 15µL (termed micro-concentration “to full”). In the former case, testing of the sample would leave an adequate volume of the sample remaining to undergo any further testing that might be required. In the latter case, all of the sample would be used.

873. It must not be overlooked that the Options Paper itself stated in its ‘Introduction’ that micro-concentration was employed “to reduce the volume of extract from approximately 100µL to ≤35µL for amplification”.¹⁰⁹⁶

874. In her oral evidence Ms Allen admitted that the statement was untrue.¹⁰⁹⁷ She could hardly have done otherwise for the evidence was overwhelming. In her oral evidence she tried, vainly, to explain that what she meant was that the sample *might* be exhausted.¹⁰⁹⁸ I reject her attempt at explaining the inexplicable. This was yet another lie.

875. Ms Allen also wrote:¹⁰⁹⁹

As the decision on the automatic Microcon process was made last financial year, the budget for this financial year has been adjusted for that consumable, so this will increase the cost.

876. I have seen no evidence to substantiate this statement. Indeed, I doubt that it is true because, of the thousands of samples tested each year, the number of samples that fall within the DIFP range and are in Priority 1 cases could not constitute a significant proportion.

¹⁰⁹⁶ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p4.

¹⁰⁹⁷ Transcript, Day 21, 28 October 2022, p2620.31-34.

¹⁰⁹⁸ Transcript, Day 21, 28 October 2022, p2619.28-2620.8.

¹⁰⁹⁹ Exhibit 54, Email from Cathie Allen to David Neville re ‘FW: Removal of the microcon step from P1 workflow.’, 15 November 2018.

877. Inspector Neville also asked whether the laboratory had undertaken any statistical analysis to determine if there has been a drop in the proportion of samples that give a useable profile. Ms Allen's response was as follows:¹¹⁰⁰

While the Microcon process has not been automatically applied to Major crime samples (P2) since mid Feb, scientists have reviewed those results and requested a Microcon process if in the context of the case it could have been of potential benefit.

878. This was untrue. Scientists had not "reviewed those results" as Ms Allen knew when she sent the email.¹¹⁰¹

879. There is another remarkable feature of Ms Allen's email. Inspector Neville had written that, according to his understanding, there would be less than a 2% reduction in the number of useable results if the relevant samples were not tested.¹¹⁰² Now, Ms Allen knew perfectly well that that figure concerned the percentage of profiles that could be uploaded to NCIDD and that the number of useable profiles being obtained from the relevant range was not less than 2%. It was about 10% (at least, according to the data used in the Options Paper).

880. The irrelevant figure of 2% that Inspector Neville was putting forward in his email was at the forefront of his concerns. In substance, he was asking why he was seeing success in three out of four samples when the QPS had been told that the success rate was less than 2%? Yet Ms Allen did not correct his mistaken view.

881. Her explanation in oral evidence for this failure was unsatisfactory. It was, as best as I could follow it, encapsulated in this answer, in which she said that she:¹¹⁰³

¹¹⁰⁰ Exhibit 54, Email from Cathie Allen to David Neville re 'FW: Removal of the microcon step from P1 workflow.', 15 November 2018.

¹¹⁰¹ Transcript, Day 21, 28 October 2022, p2625.10-41.

¹¹⁰² Exhibit 54, Email from David Neville to Cathie Allen re 'Removal of the microcon step from P1 workflow.', 14 November 2018.

¹¹⁰³ Transcript, Day 21, 28 October 2022, p2623.7-10.

...didn't necessarily focus on that because [Inspector Neville] asked me to direct my answer to Acting Inspector Simpfendorfer and Superintendent McNab. So I was then dealing with two different people.

882. The answer was not responsive.
883. The purpose of her email was, self-evidently, to dissuade the QPS from requiring that Priority 1 samples be fully tested. Ms Allen was marshalling every argument that she could concoct to that end. Consistently with that state of mind, Ms Allen's email to the QPS was a deliberately crafted series of lies and misleading dodges. Her attempts to explain these falsehoods to me were equally dishonest.
884. One minute after sending her reply to Acting Inspector Simpfendorfer and Superintendent McNab, Ms Allen sent a copy of it to Mr Howes and Ms Brisotto, thanking Mr Howes for his help.¹¹⁰⁴ Mr Howes and Ms Brisotto must both have understood its most conspicuous features, namely the lies in it, yet neither of them did anything.
885. Seeking further advice, Acting Inspector Simpfendorfer emailed Ms Allen on 15 November 2018 asking, "what would be the decision making advice around preserving the sample and also enhancing chances of getting a result?"¹¹⁰⁵ Ms Allen responded on the next day with a comprehensive, and accurate, explanation of the factors that scientists could take into account when deciding "between concentrating the sample vs preserving the extract for other testing".¹¹⁰⁶ She did not mention the possibility of concentrating to 35µL as an answer to his concerns. She concluded:¹¹⁰⁷

We have assessed a large amount of data to provide the best indication of how profiles have behaved and provide this advice to the QPS to assist.

¹¹⁰⁴ Exhibit 127, Email from Cathie Allen to Justin Howes and Paula Brisotto re 'FW: Removal of the microcon step from P1 workflow.', 15 November 2018.

¹¹⁰⁵ Exhibit 54, Email from Gerard Simpfendorfer to Cathie Allen re 'RE: Removal of the microcon step from P1 workflow.', 15 November 2018.

¹¹⁰⁶ Exhibit 54, Email from Cathie Allen to Gerard Simpfendorfer re 'RE: Removal of the microcon step from P1 workflow.', 16 November 2018.

¹¹⁰⁷ Exhibit 54, Email from Cathie Allen to Gerard Simpfendorfer re 'RE: Removal of the microcon step from P1 workflow.', 16 November 2018.

886. In fact, none of the factors that she referred to were routinely considered by scientists at the laboratory because as we have seen, at Ms Allen’s urging, samples that might benefit from the exercise of the kind of judgment described by her were, instead, not tested as a matter of routine.
887. Misunderstanding the email and acting upon the false assumption that Ms Allen had been giving the QPS expert advice in good faith, Acting Inspector Simpfendorfer emailed on 20 November 2018 to ask whether the factors she identified were taken into account when a DIFP result was given in P1 cases only, in P1 and P2 cases or in all cases. He asked whether these factors were considered only when the QPS asked for a rework and how the laboratory provided advice about these factors to the QPS.¹¹⁰⁸
888. Of course, the truth was simple. Ms Allen’s management scheme was not to have scientists waste time on such matters and these factors were never considered for DIFP samples. Nor was QPS ever given advice of that kind in order that they would be able to participate in deciding – for it was intended that no decision was going to be made.
889. Unable to tackle the detailed questions posed by the QPS, Ms Allen’s response on 21 November 2018 dissembled:¹¹⁰⁹

Scientists in Forensic DNA Analysis apply scientific principles to processing and reworking of all samples that they review, as they are bound by the Code of Conduct for the Queensland Public Service and are committed to ensuring the best possible outcome for the Queensland Community. Reporting scientists are questioned under oath about the scientific decisions that they have made and provide answers based on scientific principles.

890. Ms Allen forwarded her email to Mr Howes and Ms Brisotto. Mr Howes responded, “Thanks for sending on, and great email.”¹¹¹⁰

¹¹⁰⁸ Exhibit 54, Email from Gerard Simpfendorfer to Cathie Allen re ‘Removal of the Microcon step – QPS advice’, 20 November 2018.

¹¹⁰⁹ Exhibit 54, Email from Cathie Allen to Gerard Simpfendorfer re ‘RE: Removal of the Microcon step – QPS advice’, 21 November 2018.

¹¹¹⁰ Exhibit 151, Email from Justin Howes to Cathie Allen and Paula Brisotto re ‘RE: Removal of the Microcon step – QPS advice’, 21 November 2018.

891. Ms Allen's reply to him, 2 minutes later, was:¹¹¹¹

Thanks, Justin

I'm not feeling that great about it, to be honest.

892. Acting Inspector Simpfendorfer was still not content. On 22 November 2018 he wrote to Ms Allen again. He was still puzzled by how the process worked. He asked at what point of the examination process these factors were taken into consideration. His question could not be answered truthfully. The factors were never taken into consideration for DIFP samples. He asked how FSS provided "this advice to QPS to assist".¹¹¹² The truthful answer was that such advice was never provided because it was never required under a process that automatically put aside these samples submitted for testing.

893. He asked other pertinent and intelligent questions based upon his mistaken assumption that had been generated by Ms Allen's falsehoods that the laboratory was applying scientific judgment to this part of its work and that the work was being done with integrity.

894. Ms Allen forwarded the email to Mr Howes and Ms Brisotto with the comment:¹¹¹³

Another day, another email ...

895. Ms Allen ignored Acting Inspector Simpfendorfer's latest email for a week and so, on 30 November 2018, he wrote asking whether she had "had a chance to consider the below email?"¹¹¹⁴

896. Ms Allen replied:¹¹¹⁵

¹¹¹¹ Exhibit 151, Email from Cathie Allen to Justin Howes and Paula Brisotto re 'RE: Removal of the Microcon step – QPS advice', 21 November 2018.

¹¹¹² Exhibit 54, Email from Gerard Simpfendorfer to Cathie Allen re 'RE: Removal of the Microcon step – QPS advice', 22 November 2018.

¹¹¹³ Exhibit 53, Email from Cathie Allen to Paula Brisotto and Justin Howes re 'FW: Removal of the Microcon step – QPS advice', 22 November 2018.

¹¹¹⁴ Exhibit 54, Email from Gerard Simpfendorfer to Cathie Allen re 'RE: Removal of the Microcon step – QPS advice', 30 November 2018.

¹¹¹⁵ Exhibit 54, Email from Cathie Allen to Gerard Simpfendorfer re 'RE: Removal of the Microcon step – QPS advice', 30 November 2018.

I'm currently working on this with the Team Leaders in Forensic DNA Analysis.

897. She pleaded that work demands had prevented an earlier reply.
898. On 5 December 2018, Ms Allen emailed Acting Inspector Simpfendorfer to tell him that she together with the Team Leaders had “devised wording” for result lines that would give “more visibility to the QPS regarding re-working options that are available”.¹¹¹⁶ She did not respond to any of his other points. Acting Inspector Simpfendorfer replied on the next day to say that he would “wait and see how it looks”.¹¹¹⁷ Ms Allen forwarded the email to Mr Howes and Ms Brisotto with the comment:¹¹¹⁸

Outcome to the microcon tennis conversation

899. Later, Mr Howes said that some proposed wording had been fashioned that would suggest to QPS that a sample that had a low quantity of DNA might be processed, including by concentration. It had been given to staff for “review”.¹¹¹⁹
900. In this way, the need to answer the important questions asked by Acting Inspector Simpfendorfer were avoided.
901. In the meantime, on 19 November 2018, Acting Inspector Simpfendorfer emailed Ms Allen requesting that the laboratory recommence auto-microcon processes for Priority 1 samples in the DIFP range. In her response email, Ms Allen repeated and reinforced the proposition about the exhaustion of the sample in her email on 20 November.¹¹²⁰

¹¹¹⁶ Exhibit 54, Email from Cathie Allen to Gerard Simpfendorfer re ‘RE: Removal of the Microcon step – QPS advice’, 5 December 2018.

¹¹¹⁷ Exhibit 54, Email from Gerard Simpfendorfer to Cathie Allen re ‘RE: Removal of the Microcon step – QPS advice’, 6 December 2018.

¹¹¹⁸ Exhibit 158, Email from Cathie Allen to Justin Howes and Paula Brisotto re ‘FW: Removal of the Microcon step – QPS advice’, 6 December 2018.

¹¹¹⁹ Exhibit 158, Email from Justin Howes to Cathie Allen and Paula Brisotto re ‘RE: Removal of the Microcon step – QPS advice’, 6 December 2018.

¹¹²⁰ Exhibit 145, Statement of Justin Howes, 16 August 2022, Exhibit JH-60, Email from Cathie Allen to Gerard Simpfendorfer dated 20 November 2018.

As previously advised, once the microcon concentration step has been taken, this will completely consume the sample and no DNA extract will be available for any further testing that the QPS may wish to use.

902. On 20 November 2018 Ms Allen advised Ms Brisotto and Mr Howes that the QPS wanted to progress relevant Priority 1 samples through the concentration process. Mr Howes asked whether the concentration should be “to full, which will take all the sample as you mention” or should the relevant scientist decide upon the concentration.¹¹²¹ Ms Allen replied that “all P1’s for any case should be Microconned to Full.”¹¹²²
903. This was unnecessary and wrong. However, it served to prove Ms Allen’s point that she had made to the QPS: all of the sample *would be exhausted*. In my opinion this was an act of spite.

4.2 Internal concerns about thresholds

904. In the years that followed the introduction of the DIFP threshold, multiple scientists developed and raised concerns about the DIFP and No DNA testing thresholds. Their concerns were ignored, and no review of the appropriateness of the process commenced until March 2022.
905. Ms Alicia Quartermain is a reporting scientist who has worked at FSS since 2005. When the process change occurred in 2018, Ms Quartermain considered the phrase “DNA insufficient for further processing” was accurate for these low quant samples. Over time, Ms Quartermain became increasingly concerned with the DIFP process and the accuracy of the results being recorded in this way in sworn statements.¹¹²³

¹¹²¹ Exhibit 149, Email from Justin Howes to Cathie Allen and Paula Brisotto re ‘RE: Auto-Microcon process – P1 workflow’, 20 November 2018.

¹¹²² Exhibit 149, Email from Cathie Allen to Justin Howes and Paula Brisotto re ‘RE: Auto-Microcon process – P1 workflow’, 20 November 2018.

¹¹²³ Exhibit 59, Statement of Alicia Quartermain, [51].

906. As early as 2019 Ms Quartermain began routinely to rework sexual assault samples or blood swabs which returned a quantification value below 0.0088ng/μL. She also reworked other samples which sat at the upper end of the DIFP range.¹¹²⁴

907. On 7 March 2019, Ms Quartermain wrote to her line manager, Ms Rika, and carbon copied Mr Howes. Ms Quartermain proposed that the DIFP threshold should be revised as, based on her experience, the statement was not accurate.¹¹²⁵ It is clear from Ms Quartermain's email that she believed she had identified a serious issue. Given what I have said above, her words were prescient. She wrote:¹¹²⁶

Our customers are not just QPS, but the Courts, the complainants, the defendants and the general community. I believe we should revise the value range we are using for 'DNA insuff for further processing' and/or potentially reinstate P2 samples which quant in the range of 0.001-0.0088ng/μL to go for an auto-mic. We sign our statements in good faith, and they state that we could be liable for anything we know is false....

908. Mr Howes forwarded Ms Quartermain's email to the team leader of the analytical team, Ms Brisotto, and wrote "FY!".¹¹²⁷ In giving evidence, Ms Brisotto said she did not take any action in relation to the email and did not discuss it with Mr Howes. When asked why she did not take any action Ms Brisotto responded: "[i]f it was already raised to the team leader for reporting of results and interpretation of results, then it's not something for me to action".¹¹²⁸ I find Ms Brisotto's dismissal of the issue very concerning. Ms Quartermain's email put her on notice that the work her team were doing in quantitation of samples and marking them as DIFP was leading both to a loss of evidence and to potentially false evidence being given in court.

¹¹²⁴ Transcript, Day 7, 10 October 2022, p882.42-47; Exhibit 59, Statement of Alicia Quartermain, [52]

¹¹²⁵ Exhibit 61, Email from Alicia Quartermain, 7 March 2019.

¹¹²⁶ Exhibit 61, Email from Alicia Quartermain, 7 March 2019.

¹¹²⁷ Exhibit 61, Email from Alicia Quartermain, 7 March 2019.

¹¹²⁸ Transcript, Day 16, 21 October 2022, p1988.25-29.

909. Mr Howes also told me he did nothing in relation to the email sent by Ms Quartermain on 7 March 2019. Under cross-examination he accepted that, with hindsight, this was a failure of his duty and responsibility.¹¹²⁹
910. In or around April 2020, Ms Quartermain provided Ms Rika with examples of DIFP samples she had reworked and from which she had obtained usable DNA profiles.¹¹³⁰ She offered to conduct a review of samples in this range. Ms Rika took these examples to Mr Howes who said in his evidence that he had not felt any sense of urgency in reviewing the DIFP range at the end of 2020.¹¹³¹ Ms Quartermain was not given permission to conduct a review,¹¹³² and no other action taken.
911. A year later, on 24 April 2021, Ms Quartermain again reiterated her concerns to Mr Howes via email. She wrote:¹¹³³

Reporting these samples as DIFP is technically incorrect. I strongly feel that we should be processing a lot of these samples these days, especially ones that may have a quant value close to the cut-off range.

912. Ms Quartermain offered to do research around the samples and sought authorisation from Mr Howes to process combur-positive or SAIK samples (which were not being processed due to the DIFP threshold) and to review the data obtained. Ms Quartermain had already prepared a short, one page spreadsheet which contained recent examples of DIFP samples which she had reworked on her own initiative.¹¹³⁴ She was not granted permission to undertake the work by Mr Howes.¹¹³⁵ When giving evidence, Mr Howes could not provide any reason why he did not accept Ms Quartermain's proposal to conduct the data analysis.¹¹³⁶

¹¹²⁹ Transcript, Day 19, 26 October 2022, p2403.3-7.

¹¹³⁰ Transcript, Day 7, 10 October 2022, p883.5-10.

¹¹³¹ Transcript, Day 19, 26 October 2022, p2422.13-18.

¹¹³² Transcript, Day 7, 10 October 2022, p883.39.

¹¹³³ Exhibit 106, Email from Alicia Quartermain to Justin Howes about DIFP, 24 April 2021.

¹¹³⁴ Exhibit 59, Statement of Alicia Quartermain, 10 October 2022, AQ-2.

¹¹³⁵ Transcript Day 19, 26 October 2022, p2424.4-5.

¹¹³⁶ Transcript, Day 19, 26 October 2022, p2424.10-15.

913. Ms Quartermain told the Commission when she prepared the email to Mr Howes on 24 April 2021, she looked back at the email she sent to him in 2020 and provided effectively the same information. She confirmed that the only difference between the 2020 email and the 2021 email to Mr Howes was that with the introduction of the 3500 Genetic Analyser equipment the sensitivity of the process had potentially increased.¹¹³⁷
914. The Commission heard evidence that there was no re-evaluation of threshold limits following the introduction of the 3500 Genetic Analyser in February 2021. This was despite it also having been brought to Mr Howes' attention by Dr Moeller and Ms Caunt that the instrument was more sensitive.¹¹³⁸
915. During the hearings, Mr Howes was shown the email sent by Ms Quartermain on 24 April 2021.¹¹³⁹ There is no evidence before me as to why no action was taken to review the DIFP threshold at that time. Rather it was a task which, on Mr Howes' own evidence, would have been relatively quick to complete.¹¹⁴⁰
916. Ms Quartermain told me that all major crime samples which fall below 0.0088ng/µL should be assessed by reporting scientists on a sample-by-sample basis. The reporting scientist could assess the sample based on the sample type and quant value and determine whether a rework would be appropriate.¹¹⁴¹

Internal concerns about thresholds raised with Executive Director

917. In 2022 three scientists in the reporting team explicitly raised their scientific concerns with Acting Executive Director of FSS Lara Keller who subsequently referred their concerns to the Ethical Standards Unit (**ESU**) of the Department.

¹¹³⁷ Transcript, Day 7, 10 October 2022, p885.30-42.

¹¹³⁸ Transcript, Day 19, 26 October 2022, p2424.33-45; Transcript, Day 9, 12 October 2022, p1213.32-1214.20; Exhibit 72, Statement of Emma Caunt, 16 September 2022, [26].

¹¹³⁹ Transcript, Day 19, 16 October 2022, p2423.14-26.

¹¹⁴⁰ Transcript, Day 19, 26 October 2022, p2421.34-44.

¹¹⁴¹ Transcript, Day 7, 10 October 2022, p888.10-26.

Kylie Rika

918. On 15 March 2022, Kylie Rika met with Ms Keller. Ms Rika provided a bundle of documents to Ms Keller relating to Project 184 and the subsequent Options Paper.

919. The same day, Ms Keller referred Ms Rika's concerns to ESU. Ms Keller summarised Ms Rika's concerns as,

In summary, this staff member has reported that:

- They provided feedback on a draft paper for which they were listed as a signatory/reviewer
- The feedback was not incorporated, and their name was removed from the signatory list for the final version
- They went on to question the science on two other occasions, but without success

920. Ms Keller gave the bundle of documents which had been provided by Ms Rika to the ESU referral for their consideration. The bundle of documents was comprehensive and included:

- a. Ms Rika's handwritten notes detailing a timeline of the concerns raised around the DIFP threshold. These notes raised the following matters:
 - i. there was a spreadsheet relating to feedback given for Project 184 which did not contain a response from the author on some of the Management Team's feedback, including Ms Rika's and Ms Reeves';
 - ii. QPS had subsequently been given an options paper based on a quantification value of 0.0088, Ms Rika noted the "analysis of data indicates threshold should be less than this value";
 - iii. In November 2021, Ms Rika and Adrian Pippia raised in a Management Team meeting that they needed to consider reviewing data to inform DIFP thresholds as staff were getting good results from reworking results which had previously been stated to be DIFP; and

- iv. On 10 February 2022, Ms Rika asked Mr Howes whether there was any progress with her request for further data exploration. Mr Howes reported there was no movement to his knowledge.
- b. a draft version of Project 184, including the tracked changes of Ms Rika’s feedback;
- c. an email from Ms Reeves to Mr Howes on 9 January 2018 attaching Ms Reeves’, Ms Rika’s and Rhys Parry’s feedback to Project 184;
- d. a copy of the Project 184 proposal (with every second page missing);
- e. a copy of the Options Paper;
- f. a copy of Cathie Allen’s email to the Management Team on 5 February 2018 advising that QPS’ preferred option was “no automatic concentration of Priority 1 or 2 samples”;
- g. an email chain regarding auto microcon processes in February 2018. Within this email chain Emma Caunt raises that she had a look at the reports for this process and “NCIDD aside it shows that 10% of samples that went through the auto-microcon gave interpretable results”;
- h. an Implementation Plan for 3500xL PowerPlex 21 Casework authored by Ms Rika on 3 December 2020;
- i. meeting minutes from November 2021 where Ms Rika advised that she was collecting samples where better results were obtained following concentration; and
- j. Ms Rika’s spreadsheet of samples referred to above.¹¹⁴²

¹¹⁴² Exhibit 198.3, Email from Lara Keller to ESU, 15 March 2022.

921. It is evident that the material provided to ESU was extensive and heavily scientific. In summary, the material was concerned with the process in 2018 whereby Project 184 was abandoned, and the Options Paper was developed and presented to QPS without knowledge of FSS staff (as discussed in section 4.1, The “Options Paper”). Notably, none of the material provided nor Ms Keller’s comments addressed the fact that a project must be signed off by the Management Team, as was explored earlier in this chapter.
922. Ms Keller did not communicate to ESU that Ms Rika had reported she was “scared after what happened to Amanda”.¹¹⁴³ Ms Rika told Ms Keller that Ms Reeves had raised concerns about missed sperm in samples, submitted a public interest disclosure (**PID**) and was the subject of retribution. Ms Keller also did not pass on information provided to her that as a result of a “whole of staff meeting” people within the laboratory felt threatened.

Dr Ingrid Moeller

923. On 17 March 2022 Dr Ingrid Moeller met with Ms Keller. Ms Keller’s file note records that Dr Moeller wanted to discuss “DIFP”, “sperm” and “inaction by management”.¹¹⁴⁴ During their meeting, Dr Moeller raised a variety of issues, including but not limited to the DIFP concern. Ms Keller further recorded that Dr Moeller was “scared of Cathie” as she “punishes people”.¹¹⁴⁵ During the meeting, Dr Moeller made a comment that “it was possible criminals are getting off scot free in Queensland”.¹¹⁴⁶ Ms Keller informed Dr Moeller that she would need to refer her disclosures to the ESU as a potential PID.
924. On the same day, Ms Keller referred Dr Moeller’s concerns to the ESU and requested advice. Ms Keller provided ESU with her file notes of the meeting with Dr Moeller.¹¹⁴⁷

¹¹⁴³ Exhibit 288, Lara Keller file note of meeting with Kylie Rika, 15 March 2022.

¹¹⁴⁴ Exhibit 198.8, Email from Lara Keller to ESU, 17 March 2022.

¹¹⁴⁵ Exhibit 198.8, Email from Lara Keller to ESU, 17 March 2022.

¹¹⁴⁶ Exhibit 198.8, Email from Lara Keller to ESU, 17 March 2022.

¹¹⁴⁷ Exhibit 198.8, Email from Lara Keller to ESU, 17 March 2022.

Angelina Keller

925. On 15 June 2022, Ms Angelina Keller emailed Ms Lara Keller to organise a meeting to discuss her concerns. In her email, Ms Angelina Keller emphasised the issue was important, but she needed to be discreet.¹¹⁴⁸
926. Ms Angelina Keller met with Ms Lara Keller on 17 June 2022. Ms Lara Keller took a file note of the meeting. Specifically, Ms Angelina Keller’s primary concern was that there was no review of threshold values following the introduction of the 3500 Genetic Analyser.¹¹⁴⁹ On 24 June 2022, Ms Lara Keller forwarded Ms Keller’s documentation regarding her concerns along with Ms Lara Keller’s own handwritten notes to ESU for consideration. Ms Lara Keller noted within the referral that Ms Angelina Keller was the third staff member to raise concerns “about the threshold limits for DNA quantification”.¹¹⁵⁰

ESU response to concerns

927. On 18 March 2022, Jess Byrne, Director of ESU, emailed Ms Lara Keller regarding the assessment of the matters raised by Ms Rika and Dr Moeller on 15 and 17 March 2022 respectively.¹¹⁵¹
928. Ms Byrne outlined lengthy reasons for her finding that the matter did not amount to possible corrupt conduct or a PID.¹¹⁵² Having noted that the ESU “does not possess the specialist expertise in relation to the content to understand if any of the original feedback was considered and/or implemented” she went on to summarise the concerns.
929. Ms Byrne stated that Ms Rika’s concerns were centred around feedback she provided as part of the Options Paper that the threshold limits were too high.¹¹⁵³ Ms Rika was concerned her feedback was not incorporated and her name was removed from the signatory list in the final version. Ms Byrne identified that every second page of the paper

¹¹⁴⁸ Exhibit 198.17, Email from Lara Keller to ESU, 24 June 2022.

¹¹⁴⁹ Exhibit 198.17, Email from Lara Keller to ESU, 24 June 2022.

¹¹⁵⁰ Exhibit 198.17, Email from Lara Keller to ESU, 24 June 2022.

¹¹⁵¹ Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

¹¹⁵² Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

¹¹⁵³ Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

was missing, including page 3 where Ms Rika's name was listed. Ms Byrne noted that when the full copy was provided, Ms Rika's name was still on the signatory list. From this, it was concluded that it did not appear Ms Rika had been excluded from the Project. While this is true, no signatures had been made on the copy provided to ESU which would suggest it was not the final copy. On this basis, it suggests ESU did not appreciate the extent of the concern being raised by Ms Rika. In considering whether the information amounted to maladministration Ms Byrne stated that ESU: ¹¹⁵⁴

Were not aware of any requirement that the quorum involved with reviewing the process must unanimously agree to the changes.

930. Ms Keller had also received an email from Ms Rika on 17 March 2022 explaining why the signatory page was missing but stating "the fact remains that Amanda, Rhys and I provided feedback that 0.0088 was probably too high to halt samples and the report to QPS still went ahead". ¹¹⁵⁵ This email was not passed on to the ESU.
931. In relation to Dr Moeller's concerns, ESU considered they were further agitations of the concerns already raised by Ms Rika and dealt with them in the same way. Ms Byrne emphasised that as both Ms Rika and Dr Moeller were concerned about the repercussions of the complaints, Ms Keller should provide the employees with similar support provisions as those afforded under the *Public Disclosure Act 1998 (Qld)* (despite not constituting a PID). ¹¹⁵⁶ Ms Byrne encouraged Ms Keller to continue checking in with Ms Rika and Dr Moeller regularly and to provide updates about the progress of actions being taken. ¹¹⁵⁷
932. Consistently with its approach to Ms Rika and Dr Moeller, the ESU found the concerns of Ms Angelina Keller did not amount to suspected corrupt conduct or a PID.
933. In the particulars of the complaint assessment form prepared by ESU on 24 June 2022, it was noted that: ¹¹⁵⁸

¹¹⁵⁴ Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

¹¹⁵⁵ Exhibit 198.6, Email chain between Kylie Rika and Lara Keller dated 17 March 2022.

¹¹⁵⁶ Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

¹¹⁵⁷ Exhibit 198.10, Email from Jess Byrne to Lara Keller, 18 March 2022.

¹¹⁵⁸ Exhibit 198.19, Complaint assessment form regarding complaint of Angelina Keller, 4 July 2022.

The concerns regarding more evidence being available through the new technology, are a further possible example that the process change have highlighted that, in hindsight, the feedback provided previously by staff (QESU0010408) may have been valid. However, the concerns are insufficient to amount to a breach of trust placed in a person holding an appointment or be considered criminal or dismissible.

934. Ms Lara Keller acknowledged she did not appreciate the nature of the concerns raised with her.¹¹⁵⁹ Ms Keller said that her role was not to understand the science.¹¹⁶⁰ She said that if there was a concern about scientific issues, then she expected Ms Allen, as the most senior expert, to address them¹¹⁶¹
935. Following the ESU assessment, Ms Lara Keller did not take further steps to address the concerns raised by the scientists. Ms Keller's evidence was that by this time she was confident the external review was going to address the DIFP concerns.¹¹⁶²
936. I accept that there were limited options available to Ms Lara Keller at the time arising from the inadequate structure of FSS that allowed for no scientific oversight.

4.3 Removal of the DIFP threshold: 2022

QPS concerns about thresholds in 2021

937. In November 2021, results from an investigation prompted Inspector Neville to also raise concerns regarding the DIFP threshold. He told Ms Allen that 33 samples had been reported as having insufficient DNA for further testing yet, upon further testing, 10 of them yielded a profile and assisted police to identify an offender.¹¹⁶³ Inspector Neville made the connection between this investigation and his concerns from November 2018.¹¹⁶⁴

¹¹⁵⁹ Transcript, Day 17, 24 October 2022, p2150.16-2151.11.

¹¹⁶⁰ Transcript, Day 17, 24 October 2022, p2150.43.

¹¹⁶¹ Exhibit 131, Supplementary statement of Lara Keller, 24 October 2022, [37].

¹¹⁶² Transcript, Day 17, 24 October 2022, p2151.42.

¹¹⁶³ Exhibit 3, Statement of David Neville, 26 August 2022, [174].

¹¹⁶⁴ Exhibit 3, Statement of David Neville, 26 August 2022, [178].

938. He had a telephone conversation with Ms Allen and Mr Howes and they assured him that repeated tests done by the laboratory had revealed that obtaining a DNA profile under a particular quantitation value was highly unlikely and that the results obtained by Inspector Neville were merely an “outlier”.¹¹⁶⁵ Ms Allen repeated her falsehood that the laboratory was hesitant to test samples in the low quantitation range because this would leave no sample remaining for future testing.¹¹⁶⁶
939. During this conversation, Ms Allen claimed that it was up to the QPS to determine whether testing should continue because the scientists were not able to assess the likelihood of a result for a particular sample.¹¹⁶⁷ This contradicted her earlier untrue advice in November 2018, when Ms Allen assured Acting Inspector Gerard Simpfendorfer that “scientists reviewing results in the context of a case are able to request a Microcon process for a sample or samples.”¹¹⁶⁸ Concerned by this, Inspector Neville asked whether scientists looked at the photographs of the sampled area and presumptive screening results when deciding whether testing should be progressed further. She did not answer the question but said, “just because it is a red stain, it doesn’t mean it was blood to us”.¹¹⁶⁹ In fact the scientists in the analytical team did not bother to look at these photographs.
940. Following this conversation, Inspector Neville sent an email to Ms Allen and Mr Howes, attaching a spreadsheet of results obtained from the investigation:¹¹⁷⁰

I wondered if there was a particular reason for this case as to why approx. 30% of the samples yielded a result after the work was requested. Can you please

¹¹⁶⁵ Exhibit 3, Statement of David Neville, 26 August 2022, [180], Exhibit 64A, Diary notes of David Neville dated 1 December 2021.

¹¹⁶⁶ Exhibit 3, Statement of David Neville, 26 August 2022, [180], Exhibit 64A, Diary notes of David Neville dated 1 December 2021.

¹¹⁶⁷ Exhibit 3, Statement of David Neville, 26 August 2022, [180], Exhibit 64A, Diary notes of David Neville dated 1 December 2021.

¹¹⁶⁸ Exhibit 192.54, Email from Cathie Allen to Justin Howes and Paula Brisotto re ‘FW: Removal of the Microcon step – QPS advice’, 6 December 2018.

¹¹⁶⁹ Exhibit 3, Statement of David Neville, 26 August 2022, [180], Exhibit 64A, Diary notes of David Neville dated 1 December 2021.

¹¹⁷⁰ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from David Neville to Cathie Allen dated 1 December 2021.

advise what the actual threshold is and advice as to whether this needs to be reviewed.

Finally, sorry to sound demanding, can you also provide information on your expected likelihood of success in normal casework (i.e the likelihood of DNA insufficient samples yielding a result if testing is continued).

941. In response, Ms Allen repeated that the Options Paper had reviewed a large dataset and found that below a particular quantitation threshold, a very small percentage of samples may provide some type of DNA profile if they were processed.¹¹⁷¹ She stated, “we’ve monitored this and have found that with a larger dataset this small percentage didn’t vary”.¹¹⁷²
942. This was untrue. The laboratory had not undertaken any steps to monitor the threshold and, when questioned before me, Ms Allen was unable to point to any dataset in existence at this time that could have rendered this statement accurate.¹¹⁷³ She did not respond to Inspector Neville’s subsequent request for the percentage indicated by this dataset.¹¹⁷⁴ No such dataset existed.
943. Unsatisfied, Inspector Neville undertook a review himself. He examined results obtained during 2021 when QPS had requested testing after being advised a sample contained insufficient DNA. It showed that 51 out of 160 yielded a useable profile.¹¹⁷⁵ On 13 December 2021, Inspector Neville forwarded these results to Ms Allen and questioned the validity of the threshold, stating:¹¹⁷⁶

I found some correspondence from February 2018 where QHFSS made a recommendation to QPS that testing of samples that contained less than

¹¹⁷¹ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from Cathie Allen to David Neville dated 3 December 2021; Transcript, Day 21, 28 October 2022, p2644.32-34.

¹¹⁷² Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from Cathie Allen to David Neville dated 3 December 2021.

¹¹⁷³ Transcript, Day 21, 28 October 2022, p2645.27-40.

¹¹⁷⁴ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from David Neville to Cathie Allen dated 3 December 2021.

¹¹⁷⁵ Exhibit 3, Statement of David Neville, 26 August 2022, [183].

¹¹⁷⁶ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 66, Email from David Neville to Cathie Allen dated 13 December 2021.

0.008ng/uL of DNA should discontinue because the chance of obtaining a profile was less than 2%

I think the 30% success rate of retesting warrants a little further examination to make sure we are maximising our chances of solving crime, particularly for major crime matters.

944. Ms Allen assured Inspector Neville that the laboratory would review the scientific data available to them and provide further advice to the QPS in due course.¹¹⁷⁷ The laboratory did not have access to any data to permit a review.¹¹⁷⁸ Ms Allen also did not take any steps to obtain the data required to perform a review of the threshold, even though Inspector Neville stated that this issue was a “high priority” for the QPS.¹¹⁷⁹ In oral evidence, Ms Allen cited school holidays, negative media attention, and COVID 19 as reasons for her inaction.¹¹⁸⁰ I reject these excuses. She certainly never told Inspector Neville that she would be unable to review his concerns for these reasons.¹¹⁸¹ Instead, she repeatedly lied to Inspector Neville about the steps that the laboratory was taking to review the DIFP threshold. This was done in a deliberate effort to maintain the DIFP process in circumstances in which Inspector Neville was rightly seeking its reconsideration.
945. On 17 December 2021, Inspector Neville emailed a photograph which showed a smear of a red blood-like substance on a shard of glass that had initially been reported as containing insufficient DNA for further processing but which later yielded a full profile. He again asked Ms Allen whether scientists were viewing the photographs available on the Forensic Register and the results of presumptive testing before a decision was made to cease processing and report a sample as DIFP.¹¹⁸²

¹¹⁷⁷ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 66, Email from David Neville to Cathie Allen dated 13 December 2021.

¹¹⁷⁸ Transcript, Day 21, 28 October 2022, p2652.17-30.

¹¹⁷⁹ Transcript, Day 21, 28 October 2022, p2654.27-39.

¹¹⁸⁰ Transcript, Day 21, 28 October 2022, p2654.11-15.

¹¹⁸¹ Transcript, Day 21, 28 October 2022, p2654.22-25.

¹¹⁸² Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from David Neville to Cathie Allen dated 17 December 2021.

946. Ms Allen avoided Inspector Neville’s question and instead said:¹¹⁸³

If samples that have been deemed ‘insufficient DNA for further processing’ are processed further, they all first undergo a concentration step, followed by amplification. This is in contrast with samples that are not deemed in this range, as these samples amplification, without a concentration step. Just wanted to draw to your attention that there is additional work undertaken on the DNA extract to attempt to achieve a DNA result for the samples deemed ‘insufficient DNA for further processing’.

947. Inspector Neville reiterated his interest in the difference that he had demonstrated between success rates,¹¹⁸⁴ but received no response.

948. Ms Allen failed to correct Inspector Neville’s misunderstanding regarding the true percentage of samples that would result in a useable profile as cited in the Options Paper,¹¹⁸⁵ despite knowing that the 2 per cent he referred to related to NCIDD upload and the 30 per cent referred to the chance of obtaining a useable profile.¹¹⁸⁶ In evidence, Ms Allen said her managerial judgment was affected by other matters she was dealing with, including negative media attention, HR issues and COVID 19.¹¹⁸⁷ I reject this as a falsehood.

Media interest and QPS response

949. From November 2021, the laboratory was criticised in articles published by the Australian. At first, the articles focussed on the alleged mishandling of DNA evidence in the 2013 investigation into the murder of Shandee Blackburn. However, by February 2022 the Australian was also commenting on the thresholds used by the laboratory to triage the testing of crime scene samples. On 17 February 2022, the Australian published an article claiming that the Queensland threshold was “astoundingly high”.¹¹⁸⁸

¹¹⁸³ Transcript, Day 21, 28 October 2022, 2657.13-2658.2.

¹¹⁸⁴ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 65, Email from David Neville to Cathie Allen dated 17 December 2021.

¹¹⁸⁵ Transcript, Day 21, 28 October 2022, p2659.39-2660.7

¹¹⁸⁶ Transcript, Day 21, 28 October 2022, p2659.11-20.

¹¹⁸⁷ Transcript, Day 21, 28 October 2022 p2660.18-35.

¹¹⁸⁸ The Australian, Queensland DNA debacle: killers ‘getting free pass’, 17 February 2022.

950. On 21 February 2022, Inspector Neville emailed Ms Allen, following on from the same chain he had used to raise issues since 1 December 2021. He disclosed that the QPS had been drawn into comment internally on the matters raised in the media regarding the thresholds used by the laboratory:¹¹⁸⁹

To date I have not received any feedback or explanation as to the difference between the predicted (<2%) and observed success rates (30%) for samples that reportedly contained a low concentration.

Could you please provide advice as to how the Queensland threshold for testing accords with other jurisdictions. Can you also please advise the outcome of any internal review that you have undertaken based on the information I provided. I need this information as a matter of urgency to brief the executive in relation to this matter.

951. Ms Allen again failed to provide any clarification even though she must have known that the QPS were primarily concerned with useable profiles and not NCIDD uploads.¹¹⁹⁰ She said that the “cherry picking” of samples by QPS could explain their success rate.¹¹⁹¹

952. On 22 February 2022 Inspector Neville submitted an Executive Briefing Note to the Assistant Commissioner of Support Command outlining his concerns regarding the DIFP threshold and calling for a review of it.¹¹⁹² Inspector Neville continued to plead for information from Ms Allen regarding the predicted and observed success rates to no avail.¹¹⁹³

953. Finally, on 24 February 2022, he sent a detailed email inquiring whether the actual success rate identified in the Options Paper was 10%. He made the following observations:

¹¹⁸⁹ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from David Neville to Cathie Allen dated 21 February 2022.

¹¹⁹⁰ Transcript, Day21, 28 October 2022, p2665.36-41.

¹¹⁹¹ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from Cathie Allen to David Neville dated 22 February 2022.

¹¹⁹² Exhibit 3, Statement of David Neville, 26 August 2022, [218]-[220]; Exhibit 78, Executive Briefing Note: Potential Issues with Testing of DNA by Queensland Health Forensic and Scientific Services.

¹¹⁹³ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from David Neville to Cathie Allen dated 23 February 2022.

- a. Using the number of new links to NCIDD to measure the value of analysis was problematic, given that the probative value of evidence will vary depending on sample type and location;
- b. The 10% success rate in the Options Paper was much closer to the 30% observed by the QPS;
- c. Investigators do not have access to information regarding the quantity and quality of DNA present in order to make informed decisions regarding requests for DIFP samples to be further worked;
- d. For samples above 0.006ng/μL the success rate was closer to 24%; and
- e. Based on these observations, it might be worthwhile lowering the threshold.¹¹⁹⁴

954. Ms Allen responded on 3 March 2022, verifying that the 1.86% related to DNA profiles that could be uploaded to NCIDD. Despite months of questioning, this was the first time she had admitted that Inspector Neville’s concerns about the different percentages were justified.¹¹⁹⁵

External Review

955. In response to mounting media interest, during March 2022 meetings were held between senior executives within Queensland Health to discuss the prospect of an external review into the laboratory’s systems and processes.¹¹⁹⁶ The External Review was first raised in February 2022, with the first briefing note sent to the Director General on 18 February 2022 recommending a review.¹¹⁹⁷ During two meetings with the Director-General (then John Wakefield) in March 2022, Queensland Health staff from FSS or who managed FSS

¹¹⁹⁴ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from David Neville to Cathie Allen dated 24 February 2022.

¹¹⁹⁵ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from Cathie Allen to David Neville dated 3 March 2022.

¹¹⁹⁶ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [96]-[99]; Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [14].

¹¹⁹⁷ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, LK-129, Director-General Briefing Note.

said that an independent review of the laboratory was not necessary because the laboratory was NATA accredited.¹¹⁹⁸

956. This confidence based on NATA accreditation was misconceived. The accreditation does not establish that the systems and processes are best practice or even appropriate. The DIFP threshold, which was one of the key issues in the media at the time, was not a process which would have been investigated by NATA. The limited degree to which NATA provides sufficient oversight of the laboratory's operations is considered in section 2.7, Quality management.
957. The information being provided to the Director-General at the time suggested that the media interest was a result of the grumblings of a disaffected former employee¹¹⁹⁹ and that concerns regarding thresholds were a "red herring".¹²⁰⁰ As at 14 March 2022, the Minister and the Director-General laboured under the mistaken belief that it was "slightly over 1 per cent" of samples that would benefit should the threshold be removed. This misinformation was being communicated from Ms Allen to Ms Keller and briefed upwards.¹²⁰¹
958. Despite persistent correspondence from Inspector Neville to Ms Allen and Ms Keller, the Director-General and Minister were not told that the QPS were urgently seeking a review of the DIFP threshold.¹²⁰² Accordingly, there was no opportunity to correct their mistaken view of the seriousness of the situation. The failure to treat these concerns with the requisite level of urgency and adequately communicate them to the Minister and Director-General contributed to unnecessary delays in setting up an independent review.
959. In February and March 2022, Queensland Health internal and external lawyers worked on terms of reference for the external review. The draft terms of reference included a review

¹¹⁹⁸ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [14].

¹¹⁹⁹ Transcript, Day 6, 4 October 2022, p704.1-6.

¹²⁰⁰ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [14].

¹²⁰¹ Transcript, Day 6, 4 October 2022, p708.14-16.

¹²⁰² Transcript, Day 17, 24 October 2022, p2134.44-46.

of the “No DNA detected” threshold and Ms Keller suggested adding the words “or insufficient DNA detected” to that item.¹²⁰³ It took nearly a month for the terms of reference to be finalised.¹²⁰⁴ Those terms of reference were voluminous and required consideration of all processes at the laboratory; evidently they would take many months or even years of work for experts to report back to Queensland Health. On 4 April 2022, Mr Drummond approved the recommendation for an independent review¹²⁰⁵ after multiple iterations of briefing notes were sent to his office.¹²⁰⁶ In April and May 2022, Queensland Health lawyers attempted to engage eminent experts to undertake the review. It took multiple weeks to find a suitable reviewer.¹²⁰⁷ As at 6 June 2022 when this Commission of Inquiry was announced, the External Review still had not begun and the idea was jettisoned.

960. Queensland Health submitted that it would be speculation to find that the steps taken to commence the External Review were insufficient and would not have led to a timely investigation of the ongoing issues.¹²⁰⁸ I disagree. It had taken Queensland Health at least four months to consider the review and search for a reviewer without actually ever beginning it. This was despite the increasingly urgent concerns being raised by scientists, the QPS and the Australian.

Preparation of the Update Paper

Delay

961. In the context of Inspector Neville’s request for data about the performance of samples in the DIFP range, on 1 February 2022 at an interdepartmental meeting Ms Allen undertook to obtain the data necessary to review the threshold and provide the QPS with

¹²⁰³ Exhibit 284, Email from Lara Keller to Nicola Lord, 27 February 2022.

¹²⁰⁴ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [107].

¹²⁰⁵ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, LK-130, Director-General Briefing Note.

¹²⁰⁶ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, LK-129, Director-General Briefing Note - Draft.

¹²⁰⁷ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [102].

¹²⁰⁸ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p25.

a report (“**the Update Paper**”).¹²⁰⁹ A month later, on 3 March 2022, she promised to provide the Update Paper to the QPS in two weeks’ time.¹²¹⁰

962. Despite receiving several emails that consistently stressed the urgency of this issue to the QPS, Ms Allen did not progress the work in a timely manner. Ms Allen did not take any steps to obtain the data to complete the Update Paper until 18 February 2022, more than two weeks after she promised to do so.¹²¹¹ She claimed that the stress and anxiety caused by negative media attention contributed to her inaction.¹²¹² I do not accept that this provides a satisfactory explanation. Her tardiness must be viewed in its context: Ms Allen had misled the QPS regarding the steps being taken by the laboratory to monitor the threshold. She had stood by while knowing that the QPS misunderstood the true percentage of samples affected by the threshold and failed to take steps to correct their misunderstanding.

963. Given this context, I find that Ms Allen deliberately delayed and obstructed the QPS’s request for up-to-date data on the performance of re-worked samples in the DIFP range and deliberately delayed the preparation of the Update Paper despite receiving urgent requests from the QPS for its provision. Ms Allen was motivated to delay the preparation of the Update Paper in order to:

- a. avoid criticism of the DIFP process;
- b. prevent the removal of the DIFP process, which would result in increased work;
and
- c. avoid being seen to be responsible for a faulty process that could lead to miscarriages of justice.

¹²⁰⁹ Transcript, Day 21, 28 October 2022, p2663.20-22.

¹²¹⁰ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 69, Email from Cathie Allen to David Neville dated 3 March 2022.

¹²¹¹ Exhibit 145, Statement of Justin Howes, 16 August 2022, JH-38, Email from Cathie Allen to Troy O’Malley dated 18 February 2022.

¹²¹² Transcript, Day 21, 28 October 2022, p2664.30-33.

964. Lara Keller gave evidence that by March 2022, she was “suspicious” that Ms Allen was intentionally delaying the preparation of the Update Paper.¹²¹³ She followed up with Ms Allen in early March 2022 and discovered that the request for a quote from bdna, the operator of the Forensic Register, was only sent by Ms Allen on 18 February 2022.¹²¹⁴ Ms Keller did not convey her dissatisfaction with Ms Allen nor the urgency she said she felt regarding the Update Paper to the Deputy Director-General, Professor Keith McNeil. On 15 March 2022, Ms Keller was asked by the Deputy Director-General whether she was aware of any issues being raised aside from the Blackburn case. Her response was as follows:¹²¹⁵

The only formal request is from the Inspector of Biometrics, Queensland Police Service. This was initiated by email in December 2021, and requests reassessment of agreed testing thresholds. A quotation was sought from the Forensic Register vendor to extract relevant data to undertake this reassessment. This is referenced in a version of the Ministerial brief.

965. Ms Keller submitted that she believed that Ms Allen was progressing the Update Paper, and that it was unreasonable to expect her to “micromanage” Ms Allen.¹²¹⁶ As will be dealt with below, the Update Paper was not provided to the QPS until 24 June 2022.

Secrecy in the laboratory

966. Inside the laboratory, Ms Allen instructed Mr Howes, Ms Brisotto and Mr McNevin to commence preparation of the Update Paper from March 2022. Mr Howes and Ms Brisotto both enquired whether the Update Paper ought to be raised as a project. Ms Allen instructed that it not be.¹²¹⁷ Like the Options Paper, this represented a departure from the laboratory’s standard operating procedures in relation to change management.

¹²¹³ Transcript, Day 17, 24 October 2022, p2124.6-12.

¹²¹⁴ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [85], Exhibit LK-124, Email from Lara Keller dated 15 March 2022; Transcript, Day 17, 24 October 2022, p2128.45-2129.4.

¹²¹⁵ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [85], Exhibit LK-124, Email from Lara Keller dated 15 March 2022; Transcript, Day 17, 24 October 2022, p2128.45-2129.4.

¹²¹⁶ Ms Lara Keller’s response to Counsel Assisting’s Possible Adverse Findings, 30 November 2022, p10.

¹²¹⁷ Exhibit 145, Statement of Justin Howes, 16 August 2022, JH-46, Email from Cathie Allen to Justin Howes and Paula Brisotto dated 30 March 2022.

967. Just as the Options Paper was kept from dissenters in 2018, so was the Update Paper kept secret to prevent dissent or disagreement.
968. Mr Howes was aware that Ms Rika and Ms Quartermain had shown a keen interest in reviewing the results obtained from samples initially reported as DIFP. He did not take steps to discuss the Update Paper with them. Instead he chose Mr McNevin to conduct the data review, despite knowing that Ms Rika had been collating data in relation to the DIFP threshold,¹²¹⁸ and Mr Parry's statistical expertise.¹²¹⁹ He suggested to Mr McNevin that he work on the review at home or in private rooms away from his usual desk.¹²²⁰ In my opinion Mr Howes took these steps to prevent other scientists, particularly those who disagreed with the recommendations of Project #184 and the Options Paper, from knowing about the new data. This approach was antithetical to good scientific practice, which requires that research is openly discussed and debated.
969. Mr Howes maintained that he selected Mr McNevin as they were assigned to carry out the review of the threshold as per the Implementation Plan for the 3500xL Genetic Analyzer.¹²²¹ That recommendation was made in December 2020 and could have been acted upon immediately by obtaining a range of samples to test on the new instrument.¹²²² The review of the threshold was not started until there was no other choice because of the QPS pressure. The data selected for inclusion in the Update Paper pre-dated the introduction of the 3500xL.¹²²³ I do not accept that the Update Paper was a simple review of the threshold recommended by the 3500xL implementation plan.

Withholding the Update Paper

970. On 5 April 2022, Ms Keller told Superintendent McNab that she had received legal advice to put a "hold on the Supplementary Report until the findings of the External Review were

¹²¹⁸ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [27].

¹²¹⁹ Transcript, Day 19, 26 October 2022, p2411.28-35.

¹²²⁰ Transcript, Day 19, 26 October 2022, p2408.1-11.

¹²²¹ Transcript, Day 19, 26 October 2022, p2411.45-2412.2.

¹²²² Transcript, Day 19, 26 October 2022, p2412.16-18.

¹²²³ Transcript, Day 19, 26 October 2022, p2420.5-7.

known”.¹²²⁴ Ms Keller said this reflected her mistaken understanding based on a conversation she had with Chief Legal Counsel at Queensland Health.¹²²⁵ She said that by this stage she believed that an External Review of the laboratory was “imminent” so that the urgency to progress the Update Paper had subsided.¹²²⁶ At that stage, the external reviewers had not been appointed and no timeframe had been set for the completion of the external review.¹²²⁷ The QPS had not reduced the urgency of their request and had not agreed to the external review being the mechanism for the resolution of their concerns.

971. Ms Keller said that Superintendent McNab was comfortable with that approach to withhold the Update Paper.¹²²⁸ I do not think she was correct because two days later Superintendent McNab emailed Inspector Neville:¹²²⁹

I’ve expressed to Lara that as the client we are very uncomfortable that such a serious matter would be delayed for the same reasons you outlined, but not just from a public optics point of view, but also as you outlined, from a potential risk to victims particularly those who are victims of sexual assault.

She is going to speak to their legal department and get back to me.

972. Ms Keller should have ensured that the Update Paper was provided to the QPS more promptly.

QPS submission to the Women’s Safety and Justice Taskforce

973. On 30 May 2022, Inspector Neville sent a further email to Ms Allen and Ms Keller, copying in Superintendent McNab and attaching a spreadsheet of results. He said:¹²³⁰

¹²²⁴ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [87].

¹²²⁵ Transcript, Day 17, 24 October 2022, p2176.4-10.

¹²²⁶ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [88]; Transcript, Day 17, 24 October 2022, p2175.42-p2176.2.

¹²²⁷ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [102].

¹²²⁸ Transcript, Day 17, 24 October 2022, p2176.27-38.

¹²²⁹ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 71, Email from Bruce McNab to David Neville dated 7 April 2022.

¹²³⁰ Exhibit 3, Statement of David Neville, 26 August 2022, Exhibit 72, Email from David Neville to Cathie Allen dated 30 May 2022.

Since January 2021 QPS have requested 393 samples to continue with testing and found that 33% of these samples returned a useable profile. The success rate was 66% for the samples that pertained to sex offences.

The success rate observed for samples relating to sex offences is disturbingly high and raises the risk that we may be missing evidence that could identify an offender. The QPS needs to take steps to mitigate this risk...the QPS is no longer comfortable with the automatic discontinuation of testing of samples below the .008ng/uL threshold.

974. Ms Allen told Ms Keller that it was likely the figures contained in Inspector Neville's email were unreliable, because they were skewed and based on a known outcome.¹²³¹
975. On 31 May 2022, the QPS submission to Discussion Paper 3 from the Women's Safety and Justice Taskforce was published. The submission publicly revealed the concern that had been raised by Inspector Neville since December 2021, namely, that the percentage of useable profiles being generated from samples that were initially reported as having insufficient DNA for further processing was higher than anticipated by the Options Paper. The submission identified the percentage of cases in which a useable DNA profile was obtained as approximately 30% for all cases and 66% for sexual assault cases.¹²³²

2 June 2022 meeting

976. In response to the public ventilation of concerns regarding thresholds raised by the QPS and the increased media scrutiny, a meeting was convened on 2 June 2022. Those in attendance were the Minister for Health, the Acting Director-General, and Ms Keller. Ms Allen also attended for part of the meeting.¹²³³
977. The Minister questioned Ms Keller about the accuracy of the data referred to in the QPS submission to the Women's Safety and Justice Taskforce. Ms Keller conveyed Ms Allen's information that there may have been some "cherry picking" of the data referred to in the QPS submission given that the QPS had chosen to further work cases that were sexual

¹²³¹ Transcript, Day 18, 25 October 2022, 2226.12-24.

¹²³² Exhibit 192.5, Queensland Police Service Submission to the Women's Safety and Justice Taskforce, 31 May 2022, pp21-22.

¹²³³ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [16].

assaults.¹²³⁴ She said that she was unable to confirm the accuracy of the QPS data as the laboratory did not yet know how it was derived.¹²³⁵ She did not disclose to the Minister or the Director-General that the same data had been provided to her before the QPS submission was published nor that she was aware that the QPS had been raising concerns regarding the threshold since 1 December 2021.¹²³⁶ Ms Keller also did not mention that she had received concerns from Ms Rika and Dr Moeller regarding the threshold.¹²³⁷

978. Ms Keller told the Minister and the Director-General that the key figure was that which related to NCIDD upload, being 1.86%, as identified in the Options Paper.¹²³⁸ She also said that there was no reason for concern because the laboratory was NATA-accredited.¹²³⁹

979. When asked at the meeting about the status of any review of the thresholds, Ms Keller said that the laboratory was currently preparing the Update Paper, which was in draft. She did not mention her decision to withhold the report from the QPS, pursuant to supposed legal advice.¹²⁴⁰ Ms Keller said that the draft Update Paper identified a “slightly higher” rate than the Options Paper,¹²⁴¹ being approximately 5 per cent.¹²⁴²

980. In her evidence, Ms Keller said that she had highlighted the 1.86% and 5% figures in the meeting, as Ms Allen had repeatedly told her these were the most important.¹²⁴³ Of course, the percentage of samples that would likely return a useable profile in the DIFP range was much higher, being initially identified as 10.60% in the Options Paper and then 25.5% in the draft Update Paper.¹²⁴⁴ These were the figures that should have been

¹²³⁴ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [113].

¹²³⁵ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [113].

¹²³⁶ Transcript, Day 18, 25 October 2022, p2228.36-47.

¹²³⁷ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [72].

¹²³⁸ Transcript, Day 6, 4 October 2022, p708.41-43.

¹²³⁹ Transcript, Day 6, 4 October 2022, p708.45-709.1.

¹²⁴⁰ Transcript, Day 18, 25 October 2022, p2231.4-11

¹²⁴¹ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, para 113.

¹²⁴² Transcript, Day 6, 4 October 2022, p708.41-708.43.

¹²⁴³ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, para 114.

¹²⁴⁴ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, p6; Exhibit 194.3, Assessment of Low Quantification Value DNA Samples', 21 June 2022, p1.

compared to the 30% and 66% figures put forward by QPS. These figures were not drawn to the attention of the Minister or Director-General.

981. I am satisfied that Ms Allen deliberately provided false information regarding the percentage of samples that resulted in useable profiles in the DIFP range to Ms Keller in late 2021 and early 2022, in an effort to minimize the concerns being raised by the QPS regarding testing thresholds. She was motivated to do so by an attempt to avoid criticism for the DIFP process and to prevent its removal, which would have the effect of increased work, turnaround times and backlogs. Ms Keller said she did not tell the Minister about the relevant figures because she did not understand what should be compared to the QPS figures and she had relied on Ms Allen.¹²⁴⁵

982. All of this lack of understanding of the significance of the issues being raised by the QPS, as well as the lack of appreciation of the need for urgency to address the issues, is due to two things. *First*, those outside the sphere of professional DNA work naturally do not have the necessary knowledge to apprehend the real issues. *Second*, nobody could have imagined that a scientist and public servant, Ms Allen, was deliberately misleading them. As a result, the department leadership was not equipped to grapple with the real problem: a malignancy in the scientific management of FSS.

2 June 2022 emails

983. Following the meeting, Ms Keller sent two emails to the Minister for Health and Director-General.¹²⁴⁶ The first forwarded an email from Ms Allen, attaching the 2018 Options Paper, the draft 2022 Update Paper and the email from Superintendent Frieberg selecting Option 2, dated 2 February 2018.¹²⁴⁷ In the body of Ms Keller's email, she repeated the misleading percentages:¹²⁴⁸

¹²⁴⁵ Transcript, Day 18, 25 October 2022, p2231.32-2232.6.

¹²⁴⁶ Exhibit 24, Statement of Lara Keller, 20 September 2022, [113].

¹²⁴⁷ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, SD-1, FW: Options Papers- First one and Draft of Second.

¹²⁴⁸ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, SD-1, FW: Options Papers- First one and Draft of Second.

Papers attached as discussed.

2018 options paper: 1.86% were suitable to be uploaded to the National Criminal Investigation DNA database

2022 review paper: 5.3% “ “ (but note smaller number assessed)

984. Ms Keller gave evidence that the email was prepared jointly with Ms Allen, who checked that the email contained the correct figures.¹²⁴⁹ She said she was still naively trusting of Ms Allen’s advice at this time.¹²⁵⁰ I am satisfied that Ms Allen deliberately provided false and misleading information to Ms Keller on 2 June 2022 when she said that the important numbers from the Options Paper and the Update Paper, and the appropriate numbers to compare to the QPS statistics in their submission to the Women’s Safety and Justice Taskforce, were 1.86% and 5.3% respectively.
985. Accordingly, the Director-General’s understanding remained that these were the relevant percentages.¹²⁵¹ The Director-General stated in evidence that had the correct figures been identified at that stage, being 10.6% and 25.5%, there would have been a very different response from officials within Queensland Health in relation to the thresholds issue.¹²⁵² Instead, it took until mid-August for the Director-General to learn the true percentages of relevance.¹²⁵³
986. The second email sent by Ms Keller to the Minister and Director-General forwarded another email from Ms Allen, this time attaching a timeline of QPS and FSS engagement regarding thresholds commencing in December 2021, a table containing the number of requests for further processing of DIFP samples for 2021 and 2022, and an excel spreadsheet. In relation to the excel spreadsheet, Ms Allen stated:¹²⁵⁴

Attached is the excel spreadsheet that I’ve been working on – reviewing whether the processing of a DNA insufficient gave a new DNA profile that hadn’t been

¹²⁴⁹ Transcript, Day 18, 25 October 2022, p2233.40-2233.42.

¹²⁵⁰ Transcript, Day 18, p2233.44-47.

¹²⁵¹ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [44].

¹²⁵² Transcript, Day 6, 4 October 2022, p712.16-712.25.

¹²⁵³ Transcript, Day 6, 4 October 2022, p715.1-715.4.

¹²⁵⁴ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, SD-2, FW: documents- timeline and number of requests.

seen before (given we don't know how the QPS are making decisions on what to process). I haven't finished but here's what I've got so far.

987. The spreadsheet had been prepared by reference to what had been sent by Inspector Neville on 30 May 2022.¹²⁵⁵ However, while Inspector Neville had collated data on whether a useable profile was obtained, Ms Allen's amendments identified whether testing had resulted in "new" DNA profiles.¹²⁵⁶ This is despite the fact that she knew by this stage that the figure that the QPS was concerned with was the percentage of useable profiles that were being lost as a result of the DIFP threshold.¹²⁵⁷ Notably, most of the completed portions of Ms Allen's spreadsheet related to cases where "No new DNA profiles" had been found.
988. Further, Ms Allen was aware of a spreadsheet that Ms Rika had advised the Management Team she was preparing, which collated data relating to results obtained from samples initially reported as DIFP.¹²⁵⁸ No attempts were made by Ms Allen to include this data in the spreadsheet that was provided to the Director-General and Minister for Health.
989. Further, in Ms Allen's spreadsheet the timeline of QPS concerns about DIFP were shown to have started in December 2021 instead of when they were initially raised in late 2018. I am satisfied Ms Allen deliberately provided false and misleading information to Ms Keller on 2 June 2022 when she sent these two emails.

6 June 2022 decision

3 June 2022

990. On 3 June 2022, the Acting Director-General telephoned Ms Keller and requested advice about reverting to the workflow that was in place prior to the 2018 change and the likely resources that would be involved. He asked for the information by that afternoon.¹²⁵⁹

¹²⁵⁵ Transcript, Day 21, 28 October 2022, p2678.7-2678.14.

¹²⁵⁶ Transcript, Day 21, 28 October 2022, p2674.10-14.

¹²⁵⁷ Transcript, Day 21, 28 October 2022, p2677.15-2677.20.

¹²⁵⁸ Exhibit 2, Statement of Kylie Rika, 16 September 2022, Exhibit KR-7, Spreadsheet as at 9 September 2022.

¹²⁵⁹ Exhibit 24, Statement of Lara Keller, 20 September 2022, [114]; Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [116]; Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [46].

991. The Acting Director-General wanted to revert to pre-2018 processes to remove the effect of the 2018 decision which was causing the QPS such concern.¹²⁶⁰
992. Ms Keller met with Ms Allen and asked her to put together the proposal in accordance with the Director-General's request.¹²⁶¹
993. Ms Allen sent the following email to Lara Keller and a member of her office, Alison Slade, at 3:58pm on 3 June 2022:¹²⁶²

Hi Lara & Alison

Option 1 – Preferred:

Revert to pre 2018 workflow – which is where all samples above a quant value of 0 are processed through to DNA profiling. Samples that identify as being beneficial for concentration can be based on DNA profile achieved, item criticality and case context.

Option 2 – Not the preferred:

Discontinue 2018 workflow and concentrate samples with a quant value between 0 and 0.0088ng/uL and then process through to DNA profiling stage. This has a risk of there being no DNA sample available for testing by other technologies not undertaken in Queensland, future technologies or testing requested by Defence. In previous discussions, the QPS did not support an automatic concentration process, as the sample hadn't been assessed in the context of the case and may leave no sample remaining for future testing.

Costs: Approx 4,400 samples were marked as DNA Insufficient during 2021 (calendar year). Therefore 2,200 samples would be processed in a 6 month period. Additional costs of reagents would be: Profiling Kits: \$40,000 and Concentration Kits (if option 2 chosen) \$15,000.

Risks: additional Labour required to process – could result in manual injury to staff (WH&S), fatigue and increase in lab errors, additional cost in overtime to maintain throughput; Increase in TAT for results to the QPS (essentially adding 1 months work to a 6 month period – ie 7 months work to process in 6 months) – which may equate to an increase in 1 week TAT - increase from 2 weeks to 3 weeks. This may create a backlog situation and require additional resources to clear the backlog, however training needs to be considered. It takes 12 months

¹²⁶⁰ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [35].

¹²⁶¹ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [16]; Exhibit 24, Statement of Lara Keller, 20 September 2022, [118].

¹²⁶² Exhibit 24, Statement of Lara Keller, 20 September 2022, Exhibit LK-61.

to train a staff member to report results and provide a Statement of Witness and give court evidence. There is a decrease in throughput during training as competent staff members are producing less work due to the training burden.

994. Ms Allen claimed that she relied upon her “working knowledge of the laboratory and its workflows” to prepare the email to Ms Keller.¹²⁶³ She said she had discussed the proposed options with Mr Howes and Ms Brisotto before sending the email to Ms Keller.¹²⁶⁴ However, the email:

- a. Incorrectly identified option 1 as the pre-2018 workflow when in fact it was option 2;¹²⁶⁵ and
- b. contained the false statement that concentration prior to amplification would consume the DNA sample volume resulting in no sample being available if further testing was required. This was untrue because this would only occur if a sample was concentrated to “full”, and not to 35µL as was the standard workflow pre-2018.¹²⁶⁶

995. In evidence Ms Allen claimed that these false statements were a result of an “unintended human error”.¹²⁶⁷ In submissions, Ms Allen maintained that she had made a genuine mistake in mischaracterising the proposed options.¹²⁶⁸ This evidence was a lie. It is not plausible that she could have made such a mistake.

996. Ms Allen also failed to identify the scientific risks and benefits of the proposed options, including which option would result in the greatest chance of obtaining a useable DNA profile,¹²⁶⁹ or that the pre-2018 process may not be appropriate given changes to instrumentation or processes in the laboratory since that time.

¹²⁶³ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [24].

¹²⁶⁴ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [17]; Transcript, Day 20, 27 October 2022, p2559.19-2559.40.

¹²⁶⁵ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [19].

¹²⁶⁶ Transcript, Day 19, 26 October 2022, p2352.1-4.

¹²⁶⁷ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-05, Advice regarding information supplied.

¹²⁶⁸ Written submissions on behalf of Cathie Allen and on behalf of Justin Howes, 28 November 2022, pp25-26.

¹²⁶⁹ Transcript, Day 20, 27 October 2022, p2563.40-2564.39.

997. Ms Allen crafted the options deliberately with the intention that the Acting Director-General would choose option 1, which did not involve micro-concentration. That option had a personal benefit for Ms Allen because it would result in a data set containing many unusable profiles, so that the DIFP threshold would not be shown to have lost much evidence. She was motivated to avoid criticism of the laboratory, herself and the Options Paper decision in 2018, and to prevent a real review of the decision.
998. Ms Allen submitted that the opportunity afforded to scientists to rework low quant samples did not support this intention.¹²⁷⁰ I disagree. Reworks were not guaranteed for every sample. In any event, they would only occur following amplification, by which point some of the sample would have already been consumed.
999. Ms Allen also submitted that the high risk of detection meant it was “inherently improbable” she would deliberately provide misleading advice.¹²⁷¹ I do not consider this a persuasive argument. Ms Allen had previously engaged in misleading conduct during the Options Paper saga despite the possibility of detection. I am not convinced that this provides such inherent improbability. Further, as will be covered, many scientists raised concerns regarding the consequences that flowed from Ms Allen’s email on 3 June 2022, yet it took months for the issue to be resolved.
1000. At 5:10pm, Ms Keller sent an email to the Director-General adopting the content of Ms Allen’s email, with slight adjustments for emphasis and formatting. Ms Keller said that she relied on Ms Allen to provide scientific direction in relation to the proposal¹²⁷² and that she did not understand the options presented.¹²⁷³ She was not told about the scientific risks and benefits of the options presented.¹²⁷⁴ Accordingly, Ms Keller did not adequately identify the scientific risks and benefits of the options presented to Mr Drummond on 3 June 2022 at 5:10pm. Ms Allen was in Ms Keller’s office when she

¹²⁷⁰ Written submissions on behalf of Cathie Allen and on behalf of Justin Howes, 28 November 2022, pp25-26.

¹²⁷¹ Written submissions on behalf of Cathie Allen and on behalf of Justin Howes, 28 November 2022, pp25-26.

¹²⁷² Exhibit 24, Statement of Lara Keller, 20 September 2022, [116].

¹²⁷³ Exhibit 24, Statement of Lara Keller, 20 September 2022, [117] - [120].

¹²⁷⁴ Transcript, Day 18, 25 October 2022, p2211.1-2211.4.

prepared the email to the Director-General, and as it was formulated, Ms Keller read parts of the email aloud.¹²⁷⁵ Ms Keller even went so far as to print the email in hard copy and add a notation to the top of the document stating “3/6/2022 email constructed under advice from Cathie Allen.”¹²⁷⁶

1001. Ms Keller submitted that she was entitled to accept the scientific advice provided by Ms Allen at face value, given her role as a manager¹²⁷⁷ and I accept that that is so.

1002. Ms Keller did not have sufficient or adequate knowledge about the laboratory’s scientific processes so as to be able to provide adequate advice to the Director-General, or understand Ms Allen’s advice to her.

6 June 2022

1003. On 6 June 2022, Ms Keller attended a meeting with the Acting Director-General.¹²⁷⁸ He confirmed he had selected Option 1¹²⁷⁹ based on the advice from Ms Keller.¹²⁸⁰

1004. The Director-General’s initial preference was to concentrate samples, given his understanding that this would improve the chances of a DNA profile.¹²⁸¹ However, he was influenced to select Option 1 by:

- a. The advice that Option 1 represented the pre-2018 workflow;¹²⁸²
- b. The advice that Option 2 would result in consumption of the sample;¹²⁸³

¹²⁷⁵ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [25].

¹²⁷⁶ Exhibit 11, Email from Lara Keller to Shaun Drummond re ‘Forensic DNA testing impacts’, 3 June 2022.

¹²⁷⁷ Ms Lara Keller’s response to Counsel Assisting’s Possible Adverse Findings, 30 November 2022, pp17-19.

¹²⁷⁸ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [125].

¹²⁷⁹ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, [126]; Exhibit 24, Statement of Lara Keller, 20 September 2022, LK- 60F, File note taken by Lara Keller dated 6 June 2022.

¹²⁸⁰ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [31].

¹²⁸¹ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [52]; Transcript, Day 6, 4 October 2022, p729.31-729.34.

¹²⁸² Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [47].

¹²⁸³ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [48].

- c. The advice that concentration would improve only a small percentage of samples;¹²⁸⁴ and
- d. The advice that the concentration step would result in increased resource demand in consumables and staff and a potential backlog.¹²⁸⁵

1005. The first three of those reasons were falsehoods that Ms Allen intended should influence Mr Drummond's decision.

1006. Following the meeting, the Minister for Health was briefed.¹²⁸⁶ A press conference was held by the Premier of Queensland and the Minister for Health announcing the Commission of Inquiry. During the press conference, the Minister for Health stated that the threshold in place since 2018 had been removed and that every sample would be processed through to DNA profiling and after that, potentially, further concentration.¹²⁸⁷

Advising staff and implementation

1007. Ms Keller convened a staff meeting on the same day following the press conference to inform staff of the workflow change¹²⁸⁸ She had a "vague recollection" of stating that the Minister had requested a reversion to pre-2018 processes during the meeting.¹²⁸⁹ This led to confusion among staff within the laboratory as to whether it was the Minister, Premier, or Director-General who had made the decision to change processes on 6 June 2022.¹²⁹⁰ Emails were sent from management team members advising staff of the new process and wrongly attributing the decision to the Premier.¹²⁹¹

¹²⁸⁴ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [49].

¹²⁸⁵ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [51].

¹²⁸⁶ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [54], [60].

¹²⁸⁷ Exhibit 290, Transcript of Press Conference of Premier Anastacia Palaszczuk and Health Minister Yvette D'Ath, 6 June 2022, p3.

¹²⁸⁸ Exhibit 24, Statement of Lara Keller, 20 September 2022, [128] - [130].

¹²⁸⁹ Exhibit 24, Statement of Lara Keller, 20 September 2022, [129].

¹²⁹⁰ Exhibit 147, Statement of Justin Howes, 16 September 2022, [13] - [14]; Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [60].

¹²⁹¹ Exhibit 241.29, Email from Luke Ryan to multiple recipients 'DNA Insufficient – Quant transition to Amp', 6 June 2022; Exhibit 241.31, Email from Sharon Johnstone to the Reporting Team 'FW: DNA Insufficient – Quant transition to Amp', 6 June 2022.

1008. Scientists in the laboratory immediately recognised that the process did not constitute a reversion to the pre-2018 workflow. Ms Quartermain asked Ms Allen why the Premier would choose the workflow that was “not the best option” and whether advice had been given that micro-concentration before amplification gave the best chance of getting a useable profile.¹²⁹² Reporting scientist Emma Caunt emailed Sharon Johnstone, Ms Rika and Mr Howes on 7 June 2022 asking why the process was inconsistent with the workflow in place before the introduction of DIFP.¹²⁹³ Mr Howes specifically drew to Ms Allen’s attention that the process described by the Minister in the press conference was not the pre-2018 process.¹²⁹⁴
1009. Ms Allen responded that proceeding straight to amplification was the option that had been selected.¹²⁹⁵ She deliberately did not explain to staff that the process had been presented to the Director-General on 3 June 2022 as the ‘pre-2018 workflow’ because she knew that was false. Mr Howes did not take his concerns any further, even though he knew that the proposed process was likely to produce less useable profiles and sample wastage.¹²⁹⁶ He updated the laboratory’s Standard Operating Procedures with comments directing staff to process samples directly through to amplification.¹²⁹⁷
1010. Ms Allen maintained in her evidence to the Commission that at this stage she did not realise:
- a. That her email dated 3 June 2022 had contained errors regarding what was the pre-2018 workflow;¹²⁹⁸ and

¹²⁹² Exhibit 59, Statement of Alicia Quartermain, 21 September 2022, [13] - [15].

¹²⁹³ Exhibit 72, Statement of Emma-Jayne Caunt, 16 September 2022, EC-07, Email from Emma Caunt, Subject: RE: DNA Insufficient – Quant transition to Amp, 7 June 2022.

¹²⁹⁴ Exhibit 147, Statement of Justin Howes, 16 September 2022, [16]; Transcript, Day 19, 26 October 2022, p2435.5-25.

¹²⁹⁵ Transcript, Day 19, 26 October 2022, p2435.13-14; Transcript, Day 7, 10 October 2022, p877.30-33.

¹²⁹⁶ Transcript, Day 19, 26 October 2022, p2443.47 – 2444.4.

¹²⁹⁷ Exhibit 147, Statement of Justin Howes, 16 September 2022, [15].

¹²⁹⁸ Transcript, Day 20, 27 October 2022, p2568.7-2568.13.

- b. That the Director-General had selected an option that was, on her evidence, not intended to be put forward as the preferred option.¹²⁹⁹

1011. I reject this evidence. Ms Allen set out to deceive her Executive-Director, the Director-General and the Minister and succeeded in doing so.

Expert opinion

1012. I engaged two experts, Professor Wilson-Wilde and Dr Budowle to provide an opinion in relation to the process implemented on 6 June 2022. I asked the experts to consider:

- a. whether the process constituted international best practice;
- b. whether it was preferable for reporting scientists to decide on a case-by-case basis whether a sample should be micro-concentrated before amplification; and
- c. the risks posed by the process implemented on 6 June 2022 to the accuracy of results produced by the laboratory.¹³⁰⁰

1013. Both experts agreed that the process was not best practice, given it was not appropriately validated by the laboratory prior to its implementation,¹³⁰¹ and given the lack of discretion afforded to scientists as to whether they would concentrate a particular sample and when, in the context of the case.¹³⁰²

1014. Dr Budowle pointed out that the laboratory did not have adequate experimental data about its concentration methodology to make informed decisions on how to proceed

¹²⁹⁹ Transcript, Day 20, 27 October 2022, p2567.44-2567.47.

¹³⁰⁰ Exhibit 27, Professor Linzi Wilson-Wilde, Report as to the appropriateness of process by which scientists are not performing micro-concentration, 7 August 2022,; Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022.

¹³⁰¹ Transcript, Day 3, 28 September 2022, p392.40-393.7; Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, [22].

¹³⁰² Transcript, Day 3, 28 September 2022, p392.1 – 392.9; Transcript, Day 5, 30 September 2022, p594.10-594.16.

once a quantitation value is obtained.¹³⁰³ Professor Wilson-Wilde opined that the decision whether and when to concentrate should be determined on a sample-to-sample basis, and take into consideration sample type, case type and quantitation result.¹³⁰⁴

1015. Based on the evidence before me, I find that:

- a. The decision-making involved in the 6 June 2022 decision was not informed by best scientific practice and did not take into consideration the scientific risks, impacts, benefits and updates to processes and equipment within the laboratory.
- b. The process adopted as a result of the 6 June 2022 decision did not have an applicable validation and was not validated by the laboratory before its implementation.
- c. The process adopted as a result of the 6 June 2022 decision was not scientific best practice because:
 - i. it did not allow scientists to exercise their discretion as to what stage a sample could be concentrated; and
 - ii. it involved the application of a blanket rule regarding at what stage a sample could be concentrated, which did not take into consideration sample type, case type and quantitation result.

1016. Queensland Health submit that the decision-making was responsive to the immediacy of the circumstances and appropriate given that context. It is not disputed that prompt action was required to determine an alternative workflow once the DIFP threshold was abandoned. However, to act on advice that does not consider the scientific risks, impacts, and benefits of a process is to act on deficient information. There was no reason to think the laboratory could not provide the scientific risks and benefits of the options within a

¹³⁰³ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, [23].

¹³⁰⁴ Exhibit 27, Professor Linzi Wilson-Wilde, Report as to the appropriateness of process by which scientists are not performing micro-concentration, 7 August 2022, p3.

short time. The context that was omitted from Ms Keller's email on 3 June 2022 was of such importance that I do not accept Queensland Health's submission that there was a process vacuum that required immediate action without consideration of scientific merit.¹³⁰⁵ Had this information been provided, the benefits realised by option 2 would have been impossible to overlook.

Advising the QPS

1017. As confusion was building in the laboratory, the QPS remained unaware of the change of process apart from the Minister's comments at the press conference. The QPS was not consulted regarding the decision to process low quantitation samples directly to amplification.¹³⁰⁶ In response to an email chain on 9 June 2022 about an unrelated topic, Ms Keller briefly mentioned to Superintendent McNab that "presumably you are aware of the return to pre-threshold processes".¹³⁰⁷ This did not explain that samples were being amplified prior to concentration because Ms Keller, and the Director General, did not know that that was an important fact.

1018. On 21 June 2022, at the suggestion of Ms Allen, Ms Keller emailed Superintendent McNab to advise that the DIFP threshold had been removed but, again, she did not explain that samples were being amplified prior to concentration.¹³⁰⁸ Ms Keller gave evidence that she simultaneously believed that:

- a. She had communicated the 6 June decision to QPS on 9 June 2022;¹³⁰⁹ and
- b. Ms Allen should communicate the 6 June decision to the QPS.¹³¹⁰

¹³⁰⁵ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, p26.

¹³⁰⁶ Transcript, Day 5, 30 September 2022, p647.8-12; Transcript, Day 3, 28 September 2022, p355.1-355.4.

¹³⁰⁷ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, p37.131.

¹³⁰⁸ Statement of David Neville, 14 September 2022, Exhibit 200, p165.

¹³⁰⁹ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, p37.131.

¹³¹⁰ Exhibit 131, Supplementary Statement of Lara Keller, 21 October 2022, p37.133; Transcript, Day 18. 25 October 2022, p49.31-45.

1019. Ms Keller submitted that it was not unreasonable to expect Ms Allen to properly explain the change to QPS, given her role involved advising the QPS on the coordination of forensic DNA Analysis services, her involvement in the data review and her responsibility for all aspects of operational management.¹³¹¹ Ms Allen said that it was either her or Ms Keller's responsibility to inform police of the change in process¹³¹² but that the QPS were aware of the change in any event given the public announcement.¹³¹³ Ms Allen agreed that Ms Keller's email to the QPS did not explain that samples would not be concentrated¹³¹⁴ and described the QPS not being properly informed of the changes in process on 6 June as an "oversight".¹³¹⁵ Given Ms Allen and Ms Keller both consistently communicated with the QPS, they each had an obligation to advise them of the changes in process but it was only Ms Allen who actually had the technical knowledge to do so accurately.
1020. At no stage did anyone tell Inspector Neville.¹³¹⁶ Upon being advised by Superintendent McNab that the threshold had been removed on 21 June 2022, Inspector Neville naturally assumed that the laboratory was concentrating all samples in the DIFP range, as they had been before 2018.¹³¹⁷

Provision of the Update Paper to the QPS

1021. Ms Keller finally provided the Update Paper to Superintendent McNab on 24 June 2022. The Update Paper identified that 25.4% of low quantitation samples were suitable for comparison with a reference sample after being re-worked, and 6.3% were suitable for upload to NCIDD.¹³¹⁸

¹³¹¹ Ms Lara Keller's response to Counsel Assisting's Possible Adverse Findings, p19.

¹³¹² Transcript, Day 21, 28 October 2022, p2577.1-6.

¹³¹³ Transcript, Day 21, 28 October 2022, p2577.11-16.

¹³¹⁴ Transcript, Day 21, 28 October 2022, p2577.22-47.

¹³¹⁵ Transcript, Day 21, 28 October 2022, p2581.22-23.

¹³¹⁶ Transcript, Day 21, 28 October 2022, p2579.16-18; Transcript, Day 3, 28 September 2022, p355.1-355.4.

¹³¹⁷ Transcript, Day 3, 28 September 2022, p355.29 – 355.35.

¹³¹⁸ Exhibit 194.3, Assessment of Low Quantification Value DNA Samples, 21 June 2022.

QPS response to 6 June decision

1022. On 15 July 2022, Acting Superintendent Darren Pobar met with Inspector Neville to discuss his concerns regarding the new process.¹³¹⁹ Inspector Neville was worried that turnaround times would be affected if the laboratory was concentrating all samples in the DIFP range, including volume crime samples.¹³²⁰ Later that day, Superintendent Pobar emailed Ms Gregg seeking clarification on the process following the 6 June decision. His email raised concerns about the backlogs and turnaround times expected if the threshold was lifted.¹³²¹ He did not receive a response.¹³²²
1023. Inspector Neville was alerted by Olivia McIntyre, a member of the QPS DNA Management Unit, to the fact that the laboratory was not concentrating samples prior to amplification on 20 July 2022.¹³²³ He contacted Superintendent Pobar, and as a result, Superintendent Pobar sent another email to Ms Gregg seeking clarification on the testing processes.¹³²⁴ Later that day, the QPS was finally told that samples were not being concentrated.¹³²⁵

Dr Moeller raises concerns after the 6 June decision

1024. On 17 June 2022, Dr Moeller emailed Ms Keller to question why DIFP samples were being amplified without concentrating them first, given that those samples were concentrated prior to the DIFP process.¹³²⁶ Ms Keller referred Dr Moeller to Ms Allen and Mr Howes, despite knowing that Dr Moeller was fearful of Ms Allen and had concerns about previous inaction by Mr Howes.¹³²⁷

¹³¹⁹ Exhibit 212.1, Statement of Darren Pobar, 15 September 2022, p2.5.

¹³²⁰ Exhibit 12, Statement of David Neville, 14 September 2022, [18].

¹³²¹ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-27, RE_Further clarification previous email_Assessment of low quant DNA samples report, p24.

¹³²² Transcript, Day 5, 30 September 2022, p648.20-26.

¹³²³ Exhibit 12, Statement of David Neville, 14 September 2022, [19].

¹³²⁴ Exhibit 49, Statement Darren Pobar, 15 September 2022, Exhibit 12, Email from Darren Pobar to Helen Gregg.

¹³²⁵ Exhibit 49, Statement Darren Pobar, 15 September 2022, Exhibit 13, Email from Helen Gregg to Darren Pobar.

¹³²⁶ Exhibit 130, Statement of Lara Keller, 20 September 2022, LK-11.27, Email Ingrid Moeller re process.

¹³²⁷ Exhibit 130, Statement of Lara Keller, 20 September 2022, LK-11.23, Ingrid Moeller LK notes, p5, p7.

1025. In her evidence, Ms Keller stated that the advice Dr Moeller was seeking was “highly technical”¹³²⁸ and that she did not know that the laboratory concentrated samples.¹³²⁹ Ms Keller was of the opinion that ‘science’ was outside the scope of the role she was employed to do¹³³⁰ and that even after receiving Dr Moeller’s email, she did not understand that the process adopted was not the pre-2018 process.¹³³¹ Ms Keller says she never connected Dr Moeller’s email to the information provided to her by Ms Allen on 3 June 2022.¹³³² She wrote “*possibly linked to email advice to A/DG 3/6/22*” on top of a printed copy of Dr Moeller’s email.¹³³³ The Acting Director-General continued to act under a misapprehension about the pre-2018 process between June and August 2022 because the false statements in the 3 June email were not raised with him earlier.
1026. Ms Keller did not advise the Acting Director-General about the concerns of scientists within the laboratory. Mr Drummond said that he expected that Ms Keller would have briefed him had there been disagreement between the scientists about his decision on 6 June 2022, particularly since he had not received the resourcing brief yet.¹³³⁴ Had she briefed him, his misapprehension could have been short-lived.
1027. Ms Keller submitted that it is unreasonable and unfair to expect her to have reacted to Dr Moeller’s email by taking steps to correct the information provided to the Director General.¹³³⁵ Such an expectation assumes that Ms Keller was in a position to know that Dr Moeller was right rather than Ms Allen. As I have already said, the scientific aspects were impenetrable. Ms Keller submitted that she was conscious of Dr Moeller’s concerns about Ms Allen and Mr Howes, but the concerns about Mr Howes’ responsiveness did not provide a basis for Ms Keller to divert from normal processes and protocol to ‘leapfrog’

¹³²⁸ Transcript, Day 18, 25 October 2022, p2202.11.

¹³²⁹ Transcript, Day 18, 25 October 2022, p2202.38-39.

¹³³⁰ Transcript, Day 18, 25 October 2022, p2203.20-23.

¹³³¹ Transcript, Day 17, 24 October 2022, p2185.26.

¹³³² Transcript, Day 18, 25 October 2022, p2193.13-15.

¹³³³ Exhibit 130, Statement of Lara Keller, 20 September 2022, LK-11.27, Email Ingrid Moeller re process.

¹³³⁴ Transcript, Day 6, 4 October 2022, p742.23-35.

¹³³⁵ Ms Lara Keller’s response to Counsel Assisting’s Possible Adverse Findings, 30 November 2022, p21.

over the top of him. Ms Keller noted she only recently returned from sick leave and had other matters to attend to.¹³³⁶

1028. On the basis of Ms Keller's response, Dr Moeller emailed her concerns to Ms Allen and Mr Howes on 20 June 2022, explaining that she did not understand the decision to amplify DIFP samples without concentrating them first.¹³³⁷ Ms Allen replied that Mr Howes would speak to her about the decision, however this never happened¹³³⁸ and instead Mr Howes delegated the task to Ms Rika. Despite being told by Ms Keller that the intention was to revert to the pre-2018 process¹³³⁹, and knowing that samples were not processed directly to amplification pre-2018, Mr Howes allowed the incorrect process to be implemented without intervening or taking steps to brief Ms Keller or anyone else in Queensland Health.
1029. Ms Allen said that even after receiving Dr Moeller's email, she did not identify that any mistake had been made in her advice from 3 June¹³⁴⁰ or that the process chosen would produce less useable profiles than the other.¹³⁴¹ I do not accept this. The email from Dr Moeller explicitly states that "automicrocon was the process we used prior to the DIFP process"¹³⁴² and Ms Allen provided no good reason as to why she would not have understood that this meant her advice to Ms Keller was wrong.
1030. Ms Allen referred Dr Moeller's concerns to Mr Howes instead of engaging with her to address her concerns because she knew that she could not properly explain why the laboratory had not reverted to the pre-2018 process.

¹³³⁶ Ms Lara Keller's response to Counsel Assisting's Possible Adverse Findings, p22.

¹³³⁷ Exhibit 77, Statement of Ingrid Moeller, 6 October 2022, IM-07, Email from Cathie Allen to Ingrid Moeller and Justin Howes dated 20 June 2022.

¹³³⁸ Exhibit 77, Statement of Ingrid Moeller, 6 October 2022, [40].

¹³³⁹ Transcript, Day 19, 26 October 2022, p2434.6-17.

¹³⁴⁰ Transcript, Day 20, 27 October 2022, p2572.38-42.

¹³⁴¹ Transcript of day 20, 27 October 2022, p2573.2-6.

¹³⁴² Exhibit 77, Statement of Ingrid Moeller, 6 October 2022, IM-07, Email from Cathie Allen to Ingrid Moeller and Justin Howes dated 20 June 2022, p2.

Ms Rika raises concerns

1031. On 24 June 2022, Dr Moeller sent a case example to Ms Rika referring to a case in which she had concentrated a DIFP sample and subsequently obtained an uploadable profile.¹³⁴³ Ms Rika forwarded this example to Ms Brisotto in Mr Howes' absence, and raised concerns about the process of amplifying DIFP samples without the chance to concentrate them first. The response from Ms Brisotto was that there were "pros and cons to either strategy" and the decision was not theirs.¹³⁴⁴ She told Ms Rika that the spreadsheet that she and the other scientists were keeping was not a full dataset and that she, Ms Brisotto, was not sure how it could be used. Ms Brisotto told Ms Rika that whether she kept using it was a matter for her and the other managers.
1032. Despite being told by Ms Allen that they were to revert to the pre-2018 process and, despite knowing that samples had not been processed directly to amplification pre-2018, Ms Brisotto allowed the incorrect process to be implemented without intervening or taking steps to brief Ms Keller or anyone else in Queensland Health.
1033. Much like Dr Moeller's correspondence with Ms Keller, Ms Allen and Mr Howes, Ms Rika's concerns were not considered by management staff at the laboratory and the 6 June 2022 process was allowed to continue. By late June, at least three scientists had raised their concerns to management, all of which were dismissed or ignored. The reporting structure in place within Queensland Health did not provide adequate opportunity for genuine scientific issues affecting work integrity to be raised and dealt with regarding the 6 June 2022 decision or for any proper consultations with scientists who were in a good position to give useful advice.

¹³⁴³ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, PB36, Email 24062022 PMB_KDR.

¹³⁴⁴ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, PB36, Email 24062022 PMB_KDR.

Dr Rosengren is notified

1034. Dr David Rosengren, ordinarily the Chief Operating Officer at Queensland Health, acted as the Director-General for two weeks from 8 August 2022 to 22 August 2022 while Mr Drummond was on leave.¹³⁴⁵
1035. On the night of Friday 12 August 2022, Dr Rosengren received a phone call from Matthew Rigby, Executive Director at the Office of the Director-General and Megan Fairweather, Chief Legal Counsel at Queensland Health, advising of potential inaccuracies with the options provided to Mr Drummond which informed his decision on 6 June 2022.¹³⁴⁶ The information provided to Dr Rosengren at that time was that it was not possible to revert strictly to the pre-2018 workflow due to the introduction of new technology.¹³⁴⁷ Dr Rosengren requested further advice on the original options and any further clarification that was required. On Monday 15 August 2022, Dr Rosengren spoke again to Mr Rigby and Ms Fairweather who advised that the options provided to Mr Drummond on 3 June had not been accurately recorded. Dr Rosengren agreed that the options should be rewritten.¹³⁴⁸
1036. A meeting was held on 16 August 2022 between Dr Rosengren and legal and executive officers, where the Associate Director-General, Jasmina Joldic, was briefed about the Commission, Mr Drummond's decisions was discussed, and Dr Rosengren asked that further information be obtained from Ms Allen and Ms Gregg, who was now acting as the Executive Director, about the true position of the pre-2018 workflow.¹³⁴⁹ Dr Rosengren later decided that, to ensure clarity, he would call Ms Gregg directly.
1037. During this phone call, Dr Rosengren said that he wanted advice from the laboratory at a technical level regarding clarification of the forensic DNA analysis workflows to revert as

¹³⁴⁵ Exhibit 53, Statement of Shaun Drummond, 21 September 2022, [67].

¹³⁴⁶ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [24].

¹³⁴⁷ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [24].

¹³⁴⁸ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [26].

¹³⁴⁹ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [27].

closely as possible to the workflow in place before the introduction of the thresholds in 2018.¹³⁵⁰ The problem put to Dr Rosengren at that time was that there was ambiguity about the workflow of samples processed in the laboratory.¹³⁵¹

1038. Ms Gregg also did not have adequate knowledge of the DNA Analysis Unit's scientific processes in order to be competent to provide advice to the Acting Director-General. Ms Gregg submitted that she had only been in the Executive Director role for a number of weeks and that there were a number of reasons why she lacked sufficient knowledge of the DNA Analysis Unit.¹³⁵² This is true. Dr Rosengren was still under the false impression that there was confusion around the workflows because of advancements in technologies. Later that day, Mr Drummond called Dr Rosengren to check in and Mr Drummond learned for the first time about the differences in scientific opinion between staff in the laboratory.¹³⁵³

The incorrect information

1039. It was during a meeting with Queensland Health lawyers on 15 August 2022 that Ms Allen claims that she first realised that the information she had given to Ms Keller on 3 June 2022 was incorrect. As I have said, I do not accept that Ms Allen was unaware of the falsity of the information she had deliberately provided.

1040. On 16 August 2022, shortly after Dr Rosengren had called Ms Gregg, Ms Allen emailed Ms Gregg advising that the information she had provided on 3 June 2022 was incorrect:¹³⁵⁴

Hi Helen

Yesterday afternoon, I had a meeting with Mr Glen Rice QC, Megan Fairweather, Chief Legal Counsel, and Karen Watson, Crown Law. During this meeting, it was highlighted that I had not been clear in an explanation regarding options that had been put forward as alternative workflows to the one currently in place (related to the 'DNA insufficient for further processing' and attached emails). I would like to acknowledge my

¹³⁵⁰ Transcript of day 6, 4 October 2022, p846.38-47.

¹³⁵¹ Transcript of day 6, 4 October 2022, p847.18-20.

¹³⁵² Closing Submissions on behalf of Helen Gregg, p5.

¹³⁵³ Transcript, Day 6, 4 October 2022, p741.45 - p742.10.

¹³⁵⁴ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-05, Advice regarding information supplied.

unintended human error and provide a correction to the previous information put forward.

My recollection is that I was completing a Hot Issues Brief for the Director-General on the 3rd of June 2022, when I was asked by Lara Keller, A/Executive Director to devise options that could be put forward to the Director-General on alternative workflows that did not include the 'DNA insufficient for further processing' workflow and some costing data associated with this.

After completing the Hot Issues Brief, I drafted some options and emailed them to Lara Keller and Alison Slade. I then worked on these options with Alison and a draft was sent to Lara for review. Lara then wrote an email to the Director-General with information from the draft, whilst I was in her office with her. Lara read parts of the email to me as she was drafting it.

I wish to clarify the wording that was used regarding the Options as the information provided doesn't adequately explain the options, and it would benefit from additional wording as clarification. The clarification only relates to the workflows within Option 1 and 2, and does not relate to the costings. The clarification I would like to make has been highlighted in yellow below.

Option 1 – Preferred:

Discontinue the 2018 workflow and progress all samples with a quant value above 0.001ng/ul through to DNA profiling. Samples that are identified as being beneficial for concentration can be based on the DNA profile achieved, item criticality and case context. This workflow was used in the laboratory prior to the implementation of PowerPlex 21 (ie prior to 2012). This workflow ensures that resources are applied to samples that will benefit from the additional concentration in the context of the case. In 2012, an in-house laboratory recommendation, regarding processing with PP21, was put forward suggesting that samples with low quantitation values would benefit from concentration. Laboratory review of this recommendation hasn't been undertaken since that time, and new equipment has been introduced into the laboratory.

Option 2 – Least preferred:

Discontinue the 2018 workflow and concentrate all samples with a quant value between 0.001ng/ul and 0.0088ng/ul and then process through to DNA profiling stage. This workflow was used within the laboratory between 2012 and early 2018, when the workflow change was approved by QPS based on an Options Paper provided to them. Note, the concentration step creates a risk of there being no DNA samples available for testing by other technologies not undertaken in Queensland, future technologies or testing requested by Defence. In previous discussions, the QPS did not support an automatic concentration process, as the sample hadn't been assessed in the context of the case and may leave no sample remaining for future testing. The exception to this is Priority 1 or urgent samples.

I believe that I made this unintended human error regarding an inadequate explanation of the information due to the work pressure from the negative media attention for the work unit over the past 6 months, the error that I discovered relating to the Shandee Blackburn case that required a Hot Issues Brief to be drafted and the short timeframe to provide information.

I understand that given the above clarification, this information may need to be put forward to the Director-General and with this additional information a different option may be chosen, and the Director-General may liaise with QPS regarding this.

To ensure that unintended human errors of this kind don't occur again, I would consider requesting one of my Team Leaders to peer review the information to ensure that it is clear to the reader of the intent.

Cheers Cathie

1041. In this email to Ms Gregg, Ms Allen made changes with significant consequences. First, she changed the wording of the first option from "Revert to the 2018 workflow" to "Discontinue the 2018 workflow". Secondly, she provided explanation that Option 1 was used prior to 2012, and Option 2 was used between 2012 and 2018. Thirdly, she added that new equipment had been introduced in the laboratory since 2012.
1042. Ms Gregg spoke to Ms Allen after receiving her email, but Ms Allen did not provide any further information other than what was contained in her email.¹³⁵⁵ Despite the significant disparity between the previous advice given to Mr Drummond and the information Ms Allen was now providing, as well as the significant implications of the 6 June 2022 decision, Ms Gregg did not question Ms Allen further about the information she had provided. Instead, she reviewed Standard Operating Procedures and consulted with Mr Howes and Ms Brisotto briefly to clarify her understanding of the process¹³⁵⁶ before she, Ms Allen and Ms Slade drafted an email to Dr Rosengren to notify him of this incorrect information.
1043. Ms Gregg submitted that she consulted with Mr Howes, Ms Brisotto, Ms Slade, Dr Rosengren and Ms Fairweather regarding the reversion to the pre-2018 process between 16 August and 17 August 2022, and placed considerable weight on their independent

¹³⁵⁵ Transcript, Day 6, 4 October 2022, p797.46 - p798.6.

¹³⁵⁶ Transcript, Day 6, 4 October 2022, p798.40-46.

advice.¹³⁵⁷ For different reasons none of those persons could provide reliable, independent scientific advice. The information obtained from Mr Howes and Ms Brisotto related only to what was the pre-2018 process. It was not advice on re-implementing such a process or its effects. Dr Rosengren, Ms Slade and Ms Fairweather could not give any scientific advice about the reversion to the pre-2018 process. Ms Gregg did not seek any advice independent of Ms Allen about the reversion to the pre-2018 process.

1044. On 17 August 2022, Ms Gregg sent an email to Dr Rosengren, mirroring Ms Allen's email with some additional explanation:¹³⁵⁸

Dear David

I have received advice from Cathie Allen, Managing Scientist for Police Services FSS, that on Monday afternoon, she had a meeting with Mr Glen Rice QC, Megan Fairweather, Chief Legal Counsel, and Karen Watson, Crown Law. During that meeting, Cathie conceded that the attached email of 3 June 2022 was not sufficiently clear in explaining the 'options' put forward as alternative workflows to the one currently in place for 'DNA insufficient for further processing'.

The email wording had been provided following an urgent request by Lara Keller, A/Executive Director, to devise options that could be put forward to the Director-General on alternative workflows that did not include the 'DNA insufficient for further processing' workflow and some costing data associated with this.

Cathie would like to acknowledge her unintended human error and provide a correction to the previous information put forward.

Information about DNA testing prior to 2018

It is helpful to explain that DNA Analysis is performed using 4 basic steps: 1. Extraction; 2. Quantification; 3. Amplification and 4. Capillary Electrophoresis.

The DNA samples processed at the laboratory are broadly divided as:

Major crime (committed against a person, such as murder), categorised as Priority 1 or Priority 2

Volume crime (committed against property, such as break and enter), categorised as Priority 3.

¹³⁵⁷ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p6.

¹³⁵⁸ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-14, Wording to describe pre-2018 thresholds and options, p1.

In early 2018, a process was approved by QPS to modify the DNA testing process for Priority 1 and 2 (major crime) samples with a quant value between 0.001ng/uL and 0.0088ng/uL. The new process meant that this cohort were no longer subjected to a 'microcon' process following stage 2 (of 4) in the DNA testing process, and were effectively 'paused' at that stage 2 unless the further processing steps were requested by QPS or initiated at the discretion of the Forensic DNA Analysis Scientist.

Immediately prior to this, as described in the **attached** workflow (Extract 19.4 SOP 17117V19), all Priority 1 and 2 samples in this cohort would undergo the workflow for the PP21 profiling kit (Powerplex21 and STRMix) which included 'microcon' to maximise the chances of a DNA result being obtained after processing through stages 3 and 4 of the profiling process.

The other workflow used, immediately before the 2018 changes, was for Priority 3 (volume crime) samples using the ProfilerPlus profiling kit. These samples were processed through all 4 stages of DNA profiling process, without concentration. The ProfilerPlus profiling kit has since been discontinued and the volume crime samples are also now processed through Powerplex21 and STRMix.

1045. The two options provided in the email from Lara Keller to the Acting Director-General on 3 June 2022 were intended to differentiate that volume crime (Priority 3) samples would not be included in any recommendation for returning to the microcon process, given that this had never been conducted on these samples. It was also intended to provide an option to allow for some scientific discretion for using the microcon process, taking into consideration other case information, against the risk of the process using up sample volume. It is now necessary to clarify any misconception that may have arisen following the short form of the options put forward urgently on 3 June 2022. The new or corrected information is highlighted in yellow or strikethrough.

Clarification about the 3 June 2022 options

Option 1 – Preferred **Discretionary concentration**

Discontinue the 2018 workflow and progress all **Priority 1 and Priority 2** samples with a quant value above **0.001ng/uL** through to DNA profiling. Samples that are identified as being beneficial for concentration can be, based on the DNA profile achieved, item criticality and case context. **This workflow was used in the laboratory prior to the implementation of PowerPlex 21 (ie prior to 2012). This option ensures that resources are applied to samples that will benefit from the additional concentration in the context of the case. In 2012, an in-house laboratory recommendation, regarding processing with PP21, was put forward suggesting that samples with low quantitation values would benefit from**

concentration. Laboratory review of this recommendation hasn't been undertaken since that time, and new equipment has been introduced into the laboratory.

Option 2 – ~~Least preferred:~~ Concentration of all samples in range

Discontinue the 2018 workflow and concentrate all Priority 1 and Priority 2 samples with a quant value between 0.001ng/uL and 0.0088ng/uL and then process through to DNA profiling stage in accordance with the attached workflow for PP21. This workflow was used within the laboratory between 2012 and early 2018. Note, the concentration step creates a risk of there being no DNA samples available for testing by other technologies not undertaken in Queensland, future technologies or testing requested by Defence. In discussions with the QPS regarding the 2018 workflow, the QPS supported an automatic concentration process for Priority 1 or urgent samples, and were aware that automatic concentration of the sample may leave no sample remaining for future testing.

If option 2 is preferred, it may be prudent to consult with QPS given the potential impact on reduced sample quantity being available for future testing.

In light of this updated advice from Cathie Allen, Option 2 is the closest to the process used immediately prior to 2018, however requires an estimated additional 2FTE and \$35,000 per annum in consumables. Option 1 (in place since 6 June 2022) requires additional FTE which we are in the process of recruiting to (MOHRI granted but no funding). If Option 2 is preferred, a revised funding brief will be prepared.

1046. For reasons already outlined, it is not true that the information contained in the email of 3 June 2022 was merely unclear in explaining the options. The information was simply false. Similarly, the use of the words “correction”, “clarity” and “misconception” when advising Dr Rosengren of this incorrect information contradicts the changes subsequently made by Ms Allen.
1047. I received a submission from Ms Gregg that she had used the words “not sufficiently clear” because Ms Allen had used the words “I had not been clear” in her email to Ms Gregg on 16 August 2022 and that was how the issue was presented to Ms Gregg at the time.¹³⁵⁹ Ms Gregg submitted that Dr Rosengren had adopted a similar phrase when referring to a phone conversation he had with advisors on 12 August 2022, when he stated that the

¹³⁵⁹ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p7.

effect of the discussion was whether there was “sufficient clarity” in the memorandum.¹³⁶⁰

1048. As with the advice provided on 6 June, there was no indication or discussion of the scientific risks and benefits of the options presented, implementation of the 3500xL Genetic Analyzer instruments and other instruments, updated risks and benefits, and new standards for scientific best practice when providing advice to Dr Rosengren on 17 August 2022. In Ms Gregg’s case, the omission can be explained by her lack of knowledge of the laboratory’s scientific processes and her natural reliance upon Ms Allen’s expertise and good faith.

1049. Ms Gregg submitted that there was no evidence that an analysis of the scientific risks and benefits was required or formed part of Dr Rosengren’s instructions at the time and it was reasonable for her to take the course of action she did in circumstances where she was seeking to reverse and mitigate the effects of previous erroneous advice.¹³⁶¹ Ms Gregg submitted that the circumstances around not advising Dr Rosengren about the 3500xL implementation specifically included that he already knew there was new instruments and there was no instruction to consider this when formulating her advice.¹³⁶² I do not accept this submission; any advice to the Director-General on a technical matter should have been accompanied by adequate scientific advice on the topics identified but, of course, Ms Gregg’s only practical source for such advice was the person who was lying to her.

Consultation with QPS

1050. Ms Gregg did not advise the Acting Director-General that she had received correspondence from Inspector Neville on 17 August 2022 raising concerns about the lack of a concentration step.¹³⁶³

¹³⁶⁰ Exhibit 58, Statement of Dr Rosengren, 17 September 2022, [24].

¹³⁶¹ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p13.

¹³⁶² Closing Submissions on behalf of Helen Gregg, 25 November 2022, p5.

¹³⁶³ Exhibit 49, Statement Darren Pobar, 15 September 2022, Exhibit 12, Email from Darren Pobar to Helen Gregg.

1051. Inspector Neville had emailed Ms Gregg to follow up on the email she had sent to Acting Superintendent Darren Pobar on 20 July 2022 in which Ms Gregg had attempted to explain the current testing processes of the laboratory. Inspector Neville asked if there was a risk of profiles being missed by not concentrating low-level samples.
1052. After receiving Ms Gregg's email outlining Ms Allen's 'error', and with no knowledge of Inspector Neville's email, Dr Rosengren called Inspector Neville and asked him to approve a directive that the laboratory automatically concentrate samples in the DIFP range. Inspector Neville advised that Ms Allen had warned him about the consumption of samples in the DIFP range through concentration and said that he now suspected that advice was untrue.¹³⁶⁴ After Inspector Neville advised that he was hesitant to accept the risk for a Queensland Health decision given his lack of expertise and he would take advice, the Acting Director-General and his office took steps to make the decision within Queensland Health. A draft memorandum was sent to Inspector Neville which stated that the concentration process was to be undertaken automatically for all P1 and P2 samples in the DIFP range.¹³⁶⁵
1053. On the morning of 19 August 2022, Inspector Neville provided feedback on the draft memorandum, again outlining his concerns that the proposed directive would result in a sample being exhausted. He considered that the decision to reimplement automatic concentration to be an internal matter that Queensland Health must decide in the context that QPS desires to maximise the potential to obtain a profile from a sample.¹³⁶⁶
1054. Dr Rosengren forwarded Inspector Neville's email to Mr Drummond as an update for when he returned. Mr Drummond called Dr Rosengren to see if there were issues he needed support with.¹³⁶⁷ At this point in time, Dr Rosengren was still under the impression that the memorandum was clarifying that the process at the laboratory was a

¹³⁶⁴ Statement of David Neville, 14 September 2022, [24] - [29].

¹³⁶⁵ Exhibit 12, Statement of David Neville, 14 September 2022, [27] - [28]; Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, Exhibit DR-06, FSS SOP Draft memo, Exhibit DR-08, FWD-FSS SOP draft memo.

¹³⁶⁶ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, DR-08, FWD-FSS SOP draft memo.

¹³⁶⁷ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [41] - [42].

reversion, as close to the pre-2018 workflow as possible, subject to technological advances¹³⁶⁸ and that QPS were concerned about consuming samples.¹³⁶⁹ Dr Rosengren advised Mr Drummond that he was intending to circulate a memorandum clarifying the workflows to revert as close to pre-2018 workflows as possible.¹³⁷⁰

19 August 2022 decision

1055. A number of emails were exchanged between Dr Rosengren, Ms Gregg, and Mr Rigby reviewing and amending the wording of the memorandum on 19 August 2022. Ms Gregg, Ms Allen, Ms Brisotto, Mr Howes, Ms Fairweather and Ms Slade attended a Teams meeting where Ms Fairweather advised that QPS wanted to leave some sample for further testing¹³⁷¹ and Ms Gregg suggested a compromise of requesting QPS permission to do a second amplification.¹³⁷² Ms Allen, Mr Howes and Ms Brisotto agreed to the idea, and the process was emailed to the Director-General.¹³⁷³ Dr Rosengren then included this QPS approval into his memorandum.¹³⁷⁴ Ms Gregg did not advise Dr Rosengren that she had not made any investigations into the change in process to include the QPS having to approve the exhaustion of a sample, that it had never been introduced in the laboratory before, and that there was no data analysis supporting or analysing such a change. Due to her lack of actual expertise in the field, she could not have appreciated these matters.
1056. Ms Gregg accepted that this requirement for QPS approval had never been part of laboratory processes in the past.¹³⁷⁵ She was also aware that what she had suggested was not something that QPS had asked for in their correspondence.¹³⁷⁶ Ms Gregg said she did

¹³⁶⁸ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [42].

¹³⁶⁹ Transcript, Day 6, 4 October 2022, p858.32-39.

¹³⁷⁰ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, [42].

¹³⁷¹ Exhibit 57, Statement of Helen Gregg, 16 September 2022, [36].

¹³⁷² Transcript, Day 6, 4 October 2022, p807.35-39.

¹³⁷³ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, DR-01, FW Forensic DNA testing impacts, p3-4.

¹³⁷⁴ Exhibit 58, Statement of Dr David Rosengren, 16 September 2022, DR-13, RE-Updated memo for consideration, p3.

¹³⁷⁵ Transcript, Day 6, 4 October 2022, p808.33-41.

¹³⁷⁶ Transcript, Day 6, 4 October 2022, p808.11-14.

not think that the change was particularly significant¹³⁷⁷ because she viewed it as an administrative process change,¹³⁷⁸ but accepted when questioned that if a scientist believed a second amplification was necessary and the QPS declined it, that would be a significant interference with the scientific discretion that existed before 19 August 2022.¹³⁷⁹

1057. The change in process to include the QPS having to approve the exhaustion of a sample was introduced without consultation with scientists in the laboratory and without consideration as to the effect on laboratory functions, quality of results or preparation of a workflow to accommodate it.
1058. Queensland Health submitted that this was an administrative decision made on an interim basis, and the lack of consultation or consideration should be considered in that context.¹³⁸⁰ I do not think that that is correct. But the error must be understood as having been one made in a good faith attempt to repair matters at a time when the truth was being hidden by the person who was justifiably regarded as the ethical advisor and as the ultimate source of scientific opinion.
1059. Ms Gregg submitted that her suggestion to have QPS approve the exhaustion of samples was reasonable in the circumstances, particularly given the QPS's opinions, the scrutiny by multiple other persons including those in Queensland Health's legal department, the support she received from the Managing Scientist and the considerable time pressure.¹³⁸¹ Ms Gregg accepted, with the benefit of hindsight, it would have been advisable to tell the Director-General about the lack of any consideration of the process before implementing it.¹³⁸² However, I am not able to say that that would have made any difference anyway because nobody could have known what Ms Allen was really doing.

¹³⁷⁷ Transcript, Day 6, 4 October 2022, p809.3.

¹³⁷⁸ Transcript, Day 6, 4 October 2022, p809.38-40.

¹³⁷⁹ Transcript, Day 6, 4 October 2022, p810.44 - p811.2.

¹³⁸⁰ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p27.

¹³⁸¹ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p10.

¹³⁸² Closing Submissions on behalf of Helen Gregg, 25 November 2022, p12.

1060. Ms Gregg did not tell the Director-General that this change would not adhere to the Change Management standard operating procedure.¹³⁸³ Queensland Health submitted that this procedure would not have applied as this was an administrative matter.¹³⁸⁴ I do not accept that this change was merely administrative. Ms Gregg submitted that the laboratory's change management procedures do not apply to directives from the Director General.¹³⁸⁵ While that may be true, it would be appropriate practice in my view for any decision made about the laboratory technical processes within Queensland Health to be made in accordance with the laboratory's change management procedures. However, none of this matters now because the real reason for the successive errors was the combination of deliberated misleading advice from the head of the laboratory and the various administrators not knowing that they were being misled.

1061. Dr Rosengren sent the final memorandum to Ms Gregg at 3:20pm on 19 August 2022. This memorandum requested that:¹³⁸⁶

... the workflow to revert to the concentration process for Priority 1 and Priority 2 samples stipulated in Standard Operating Procedure 17117V19 (diagram section 19.4 attached). For clarity, all Priority 1 and Priority 2 samples with a quantitation result between 0.001ng/uL (LOD) and 0.0088ng/uL, should be concentrated down to a volume of 35uL and undergo one amplification process.

1062. This memorandum made two changes to the process in the laboratory:

- a. P1 and P2 samples in the DIFP range were now being concentrated to a blanket volume of 35µL, without any discretion being exercised by a reporting scientist; and
- b. If further amplification was considered beneficial and would exhaust the sample, then written approval from QPS would be required by the reporting scientist prior to another amplification being undertaken.

¹³⁸³ Transcript, day 6, 4 October 2022, p814.35-38.

¹³⁸⁴ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p27.

¹³⁸⁵ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p9.

¹³⁸⁶ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-23, DG Memo from Dr David Rosengren.

1063. Ms Gregg sent the memorandum to staff at the laboratory at 3:33pm, advising staff to “hold all quants effective immediately”.¹³⁸⁷ Ms Gregg replied to Inspector Neville’s email on 17 August 2022, advising him of the decision of Dr Rosengren and that a review was being undertaken to identify any samples processed within the DIFP range since 6 June 2022 in order to concentrate them.¹³⁸⁸
1064. Queensland Health submitted that in the circumstances as at 19 August 2022, it was a reasonable administrative response to seek to perfect the reversion to the pre-2018 workflow. Queensland Health also submitted that I should take the view that the interim decisions made by the Acting Director-General were understandable in the circumstances, as a decision for the immediate future was required and both the 6 June and 19 August decisions were made in good faith, and an urgent and peculiar context.¹³⁸⁹ I do not disagree with any of these statements. Nevertheless, Professor Linzi Wilson-Wilde said, “however understandable in the circumstances, it wouldn’t be in line with best practice”.¹³⁹⁰
1065. As with the 6 June 2022 decision, the process adopted as a result of the 19 August 2022 decision did not have an appropriate validation and was not validated by the laboratory before its implementation. The decision was not best practice because:
- a. it did not allow scientists to exercise their discretion as to whether and at what stage a sample could be concentrated; and
 - b. it involved the application of a blanket rule, which did not take into consideration sample type, case type and quantitation result.

¹³⁸⁷ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-24, Untitled.

¹³⁸⁸ Exhibit 57, Statement of Helen Gregg, 16 September 2022, HG-27, RE_Further clarification previous email_Assessment of law quant DNA samples report.

¹³⁸⁹ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, p25.

¹³⁹⁰ Transcript, Day 3, 28 September 2022, p393.6-7.

Scientists raise concerns

1066. In the days following the decision, Ms Allen, Ms Brisotto, Mr Howes and Ms Gregg discussed questions that had been raised by staff.¹³⁹¹ Scientists had started emailing questions about the new workflow to their Team Leaders¹³⁹² and on 23 August 2022, Ms Rika asked Mr Howes whether a meeting with staff would be available. Mr Howes suggested the workflow he had created be tried first.¹³⁹³
1067. Ms Gregg eventually held two meetings with staff to discuss the change made by Dr Rosengren. The first meeting was held on 25 August 2022 and multiple scientists asked clarifying questions including whether the QPS knew that concentrating samples in the DIFP range to 35µL might not be the best option and whether the direction only related to P1 and P2 samples.¹³⁹⁴ Staff also raised concerns about the lack of transparency and consultation with reporting scientists.¹³⁹⁵ Ms Rika had emailed Ms Gregg prior to the meeting listing concerns she and Ms Caunt had about the new process.¹³⁹⁶
1068. Ms Gregg struggled to answer the questions raised by staff¹³⁹⁷ and Ms Allen did not attend the meeting.
1069. During the second meeting with staff on 30 August 2022, Ms Gregg tried to answer some questions she could not answer at the last meeting. Once again Ms Allen did not attend. Ms Gregg's message was to reiterate that the direction in the memorandum was that the permission of the QPS was needed if a sample was to be exhausted.¹³⁹⁸

¹³⁹¹ Exhibit 241.52, Email from Cathie Allen to Helen Gregg, Justin Howes, Paula Brisotto 'RE: clarification', 22 August 2022.

¹³⁹² Exhibit 241.54, Email from Justin to Emma Caunt, Kylie Rika and Sharon Johnstone 'RE: recent A/DG memo', 23 August 2022; Exhibit 241.51, Email from Justin Howes to Kylie Rika regarding microcon of bone samples, 22 August 2022.

¹³⁹³ Exhibit 2, Statement of Kylie Rika, 16 September 2022, KR-19, Email from Justin Hoes, RE: Exhaustion of extract.

¹³⁹⁴ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [57].

¹³⁹⁵ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [58].

¹³⁹⁶ Exhibit 194, Email from Helen Gregg to Kylie Rika 'RE: new workflow implemented by the DG - potential issues', 25 August 2022.

¹³⁹⁷ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [59].

¹³⁹⁸ Exhibit 2, Statement of Kylie Rika, 16 September 2022, [62] - [63].

1070. Scientists also raised with Ms Gregg whether they could exhaust P1 and P2 samples outside the DIFP threshold and Ms Gregg advised them to “err on the side of caution” and get approval to exhaust any samples.¹³⁹⁹ That extended the scope of the 19 August 2022 decision, which was on its terms applicable only to P1 and P2 samples in the DIFP range. Ms Gregg accepted that she recommended that scientists should seek approval for results outside of the DIFP range but submitted that she did so to adopt a process advocated by Dr Kogios and Ms Baker: enhanced communication and consultation between the QPS and the laboratory.¹⁴⁰⁰ The report of Dr Kogios and Ms Baker did not exist on 19 August. Ms Gregg submitted that she recommended this cautious approach for borderline DIFP samples due to scientists’ concerns that any actions they may take may be scrutinised negatively by the Commission of Inquiry.¹⁴⁰¹ Whatever the reason, such decisions must be informed by best scientific practice and be validated through the normal processes.
1071. Ms Gregg did not tell Dr Rosengren or Mr Drummond about the concerns of laboratory scientists about the scientific soundness of the process introduced on 19 August 2022 which were raised with her in meetings after that decision.¹⁴⁰² Ms Gregg submitted that this must be considered in light of the 19 August decision intending to implement a temporary workflow while the Commission considered the issue of thresholds and the exercise of discretion.¹⁴⁰³ It was also submitted that Ms Gregg was reassured by other scientists that the concerns raised were subject to debate and they did not agree the concerns were valid. Given the significant involvement of both Acting Directors-General in the decisions in question, it was incumbent on Ms Gregg to advise them of the discontent that was expressed by a significant number of scientists for apparently sound scientific reasons.

¹³⁹⁹ Transcript, Day 6, 4 October 2022, p820.14-19.

¹⁴⁰⁰ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p13.

¹⁴⁰¹ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p13.

¹⁴⁰² Transcript, day 6, 4 October 2022, p819.12-15.

¹⁴⁰³ Closing Submissions on behalf of Helen Gregg, 25 November 2022, p13.

Expert opinion

1072. Dr Budowle considered that QHFSS does not have adequate experimental data about its concentration methodology to make informed decisions on how to proceed once a quantitation value is obtained.¹⁴⁰⁴ If obtaining the most robust data possible is the primary goal (which it should be) he supported the option of concentrating the sample first, and so preferred the 19 August decision.¹⁴⁰⁵
1073. Dr Budowle noted that it is not clear from the laboratory documentation how a decision would be made to concentrate to full (15µl) or half ('standard', 35µl) volume target. There is no apparent scientific reason presented as to standard or full volume concentration being made the default concentration for any samples. Dr Budowle recommended that the laboratory develop criteria for deciding between the two.¹⁴⁰⁶
1074. Regarding the 6 June and 19 August decisions, Professor Linzi Wilson-Wilde OAM concluded that “without a proper validation and understanding what the implications are and looking at the workflows, [she] wouldn't consider a knee-jerk reaction as an appropriate pathway” and did not consider either decision in line with best practice.¹⁴⁰⁷

Executive Director handover

1075. Ms Keller returned from leave on 1 September 2022.¹⁴⁰⁸ She met with Ms Gregg who advised there had been a reconsideration of the options put forward to Mr Drummond in Ms Keller's email of 3 June 2022 and a new decision had been made.¹⁴⁰⁹ In a later meeting, Ms Allen advised Ms Keller that she had made an “unintended human error” regarding

¹⁴⁰⁴ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, p10.27-28.

¹⁴⁰⁵ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, p10.

¹⁴⁰⁶ Exhibit 31, Dr Bruce Budowle, Review and Assessment of the Appropriateness of Not Concentrating Low Quantity DNA Samples by Queensland Health Forensic and Scientific Services (QHFSS), 15 September 2022, p10.

¹⁴⁰⁷ Transcript, Day 3, 28 September 2022, p393.3-7.

¹⁴⁰⁸ Exhibit 131, Statement of Lara Keller, 21 October 2022, [145].

¹⁴⁰⁹ Exhibit 131, Statement of Lara Keller, 21 October 2022, [143].

the options proposed.¹⁴¹⁰ She did not give an adequate explanation to Ms Keller as to why she had provided her with incorrect information on 3 June 2022.

1076. Ms Keller did not ask Ms Allen how she could have made such an error.¹⁴¹¹ She stated that Ms Allen took responsibility for it¹⁴¹² and that both she and Ms Allen were upset about it.¹⁴¹³ Ms Keller repeatedly did not take responsibility for providing incorrect scientific advice to Mr Drummond.¹⁴¹⁴ As I have found, Ms Keller was entitled to accept the advice given to her by Ms Allen at face value. Ms Keller stated that she was concerned about the scientific consequences of the purported error Ms Allen had made, but did not undertake any investigations into the scientific consequences of the 6 June decision.¹⁴¹⁵ She stated that her role was to make the change of process from 6 June to 19 August as smooth as possible.¹⁴¹⁶

Request to pause

1077. On 7 September 2022, Ms Quartermain raised concerns with Inspector Neville about not determining the level to which a sample would be concentrated on a case-by-case basis.¹⁴¹⁷ Ms Quartermain also raised concerns about the data included in the Options Paper and the attitude of the laboratory management when concerns were raised internally.¹⁴¹⁸ Given the inaction by management following scientists' concerns stemming from the 6 June and 19 August decision, it is not surprising that their concerns began being raised directly with QPS. Queensland Health submitted that the "inaction" might be more properly described as "compliance with a direction from the Director-General in circumstances where there was no consensus among scientists as to methodology to be

¹⁴¹⁰ Exhibit 131, Statement of Lara Keller, 21 October 2022, [143].

¹⁴¹¹ Transcript, Day 18, 25 October 2022, p2193.27-29.

¹⁴¹² Transcript, Day 18, 25 October 2022, p2193.32.

¹⁴¹³ Transcript, Day 18, 25 October 2022, p2194.23-29.

¹⁴¹⁴ Transcript, Day 18, 25 October 2022, p2194.32, p2195.21-22.

¹⁴¹⁵ Transcript, Day 18, 25 October 2022, p2196.28-30.

¹⁴¹⁶ Transcript, Day 18, 25 October 2022, p2195.37-39.

¹⁴¹⁷ Statement of Alicia Quartermain, 6 October 2022, [23] - [24]; Transcript, Day 7, 10 October 2022, p950.20-29.

¹⁴¹⁸ Exhibit 12, Statement of David Neville, 14 September 2022, [32].

applied”.¹⁴¹⁹ I do not consider that compliance with a direction renders management staff incapable of taking action on concerns from staff. Serious concerns about the quality of results had been raised with multiple management staff, none of which had been addressed.

1078. Inspector Neville emailed Mr Rigby on 8 September 2022, explaining that a scientist had contacted him and expressed concerns about wasting evidence because of the strict automatic concentration level to 35µL. He requested that the 19 August directive be urgently reviewed in light of this information.¹⁴²⁰ Mr Rigby responded that the primary objective was to undertake DNA testing in a manner that has been appropriately validated by FSS scientists and approved by QPS. He suggested that there be a meeting between QPS and FSS. A meeting was held with Ms Keller and Inspector Neville on 14 September 2022 however Inspector Neville’s concerns were not alleviated. He emailed shortly after the meeting and asked for advice as to whether concerns about losing sample with a blanket 35µL concentration volume had any basis and asked that the change in process involve discretion for a scientist to concentrate based on the quantity of DNA.¹⁴²¹
1079. On 15 September 2022, another scientist contacted QPS to seek approval to concentrate to 15µL rather than 35µL leading Inspector Neville to believe that there might be substance to Ms Quartermain’s concerns.¹⁴²² Inspector Neville again emailed his concerns to Ms Keller. Ms Keller responded to his 14 September email that she trusted their meeting had clarified the process and they “look forward to receiving definitive advice from QPS regarding permission to consume remaining sample”, and in the meantime, “will collate and analyse data as discussed”.¹⁴²³
1080. The next day, on 16 September 2022, Inspector Neville again emailed Ms Keller requesting that the change in process be explored to examine its merits and asked if a

¹⁴¹⁹ Submissions on behalf of the State of Queensland, through Queensland Health, 25 November 2022, p28.

¹⁴²⁰ Exhibit 12, Statement of David Neville, 14 September 2022, Exhibit 206, Email from David Neville to Matt Rigby.

¹⁴²¹ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-140, FW FSS SOP draft memo, p4.

¹⁴²² Exhibit 278, Email chain between David Neville and Lara Keller, ‘FW FSS SOP draft memo’, 15 September 2022.

¹⁴²³ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-140, FW FSS SOP draft memo, p3.

timeframe could be established.¹⁴²⁴ Inspector Neville had not been provided any advice about the blanket 35uL concentration volume wasting sample and both Ms Gregg and Ms Keller ignored Inspector Neville's request for reconsideration of the blanket rule. Ms Keller forwarded the email to Ms Gregg, and Ms Gregg's only response to Inspector Neville was that she could give a better indication of a timeframe next week.

1081. After not receiving a timeframe by Tuesday 20 September 2022, Inspector Neville emailed Ms Keller and requested QHFSS temporarily pause testing P1 and P2 samples within the DIFP range until they received advice on the outcome of their data analysis. He requested confirmation by return email that testing has been paused.¹⁴²⁵ Ms Keller asked Inspector Neville to be specific about his request and confirm whether this represented a formal request from QPS, to which he responded:¹⁴²⁶

This week a third scientist made a request to concentrate to a different volume because they thought that concentrating to 35uL was not appropriate for that sample. We are in a position now that we have multiple experts indicating that the concerns raised initially may be valid. This is a formal request from QPS made in consultation with A/Supt Larissa Miller.

1082. Ms Keller discussed Inspector Neville's email with Nick Steele, the General Manager of the laboratory, and soon after forwarded Inspector Neville's email to Mr Steele, writing that she "think[s] this requires briefing up".¹⁴²⁷
1083. On 21 September 2022, Ms Keller advised Inspector Neville that she had briefed up and would be in contact when she was able.¹⁴²⁸

The Taskforce

1084. A Queensland Health Taskforce responding to the Commission of Inquiry into Forensic DNA Testing in Queensland ("Taskforce") was established to assist with the recommendations made by the Commission of Inquiry in its Interim Report.

¹⁴²⁴ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-140, FW FSS SOP draft memo, p3.

¹⁴²⁵ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-140, FW FSS SOP draft memo.

¹⁴²⁶ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-141, RE FSS SOP draft memo.

¹⁴²⁷ Exhibit 243.3, Statement of Lara Keller, 22 November 2022, LK-149. Not in Orb yet.

¹⁴²⁸ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-141, RE FSS SOP draft memo.

1085. On 20 September 2022, the Senior Director of the Taskforce, Catherine Scott, received Ms Keller's email asking Inspector Neville if the request to pause was a formal request. After advising other members of the Taskforce, Ms Scott emailed Ms Keller asking whether she had heard back from Inspector Neville. Ms Keller replied that she had verbally briefed Mr Steele and forwarded the correspondence to Ms Scott.¹⁴²⁹
1086. That night, Ms Keller emailed Mr Steele advising him that a meeting was scheduled for the next day that would launch the data analysis project and that she recommended that the Acting Director-General's direction of 19 August 2022 be maintained, pending the results of the data analysis.

Briefing the Director-General

1087. Four days after his request to pause testing, Inspector Neville emailed Ms Gregg on 24 September 2022 requesting an update on timeframes. Ms Gregg did not respond until two days later, on 26 September 2022, and advised that it would be months, not days or weeks, until the proposal could be properly evaluated.¹⁴³⁰ Inspector Neville asked Ms Gregg to confirm that testing in this range had been paused and said that the QPS could not wait months to test some of the samples. Ms Gregg did not respond to him. Two hours later, Ms Keller asked Ms Gregg to prepare a brief for the Acting Director-General.
1088. During this period, the Taskforce was only aware of the advice from Ms Keller on 20 September to Mr Steele. On 26 September 2022, Lindon Smallwood, a Director at the Taskforce, introduced himself to Inspector Neville who informed him that he had asked for a pause in testing, did not know whether it had been implemented and that Ms Gregg had told him it would take months to resolve.¹⁴³¹ Mr Smallwood raised this with Mr Aaron Suthers, the Executive Director of the Taskforce the next morning, raising concerns about why the laboratory hadn't stopped testing, the process of the Director-General sending

¹⁴²⁹ Exhibit 243.3, Statement of Lara Keller, 22 November 2022, LK-151, RE FSS SOP draft memo.

¹⁴³⁰ Exhibit 279, Statement of Helen Gregg, 26 October 2022, [9(d)].

¹⁴³¹ Exhibit 243.2, Statement of Aaron Suthers, ATS-12, Email from L Smallwood to A Suthers dated 27 September 2022, p2.

memorandums directly to the laboratory on technical and operational matters and why scientists were going to QPS rather than their own management.¹⁴³²

1089. The Taskforce staff had also become aware that Inspector Neville might provide evidence at the Commission of Inquiry about his request to pause testing.¹⁴³³ Mr Smallwood emailed Ms Gregg on 27 September 2022 to ask for an update on the request to pause.¹⁴³⁴

1090. Despite several emails back and forth between Ms Gregg, Ms Keller and the Taskforce staff, including Ms Keller voicing her surprise that Inspector Neville contacted the Taskforce directly, Ms Keller only advised the Taskforce that she and others were in active discussions with Inspector Neville and were actively briefing up.¹⁴³⁵

1091. A draft brief was sent between Ms Gregg, Ms Keller, Mr Steele and Keith McNeil, the Deputy Director-General before being cleared by Ms Keller that afternoon. This briefing note recommended that all P1 and P2 samples in the DIFP range continue to be processed in accordance with the Director-General's memorandum of 19 August 2022 until the completion of the study the laboratory was conducting. The brief relied on ISO standards for general requirements to validate new methods as a reason for declining the pause until a "rigorous analysis" of "any alternative processes can be appropriately designed, evaluated and considered, and/or until the conclusion of the DNA Commission of Inquiry"¹⁴³⁶ despite unvalidated processes being implemented on 6 June 2022 and 19 August 2022 on direct advice from the laboratory. The reliance on validation standards was a red herring; the pausing of testing requested by Inspector Neville was not an alternative or new process that required a validation before it could be enacted; it was

¹⁴³² Exhibit 243.2, Statement of Aaron Suthers, ATS-12, Email from L Smallwood to A Suthers dated 27 September 2022, p1.

¹⁴³³ Exhibit 286, Email from Tamara Scharneck to Aaron Suthers, 'Fwd: Testing pause timeline' dated 25 October 2022, p2-3.

¹⁴³⁴ Exhibit 243.2, Statement of Aaron Suthers, 21 November 2022, ATS-5, Email from L Keller to L Smallwood dated 27 September 2022 at 9:11 pm, p2.

¹⁴³⁵ Exhibit 243.2, Statement of Aaron Suthers, 21 November 2022, ATS-7, Email from L Keller to L Smallwood dated 27 September 2022 at 9:11 pm.

¹⁴³⁶ Exhibit 243.2, Statement of Aaron Suthers, 21 November 2022, ATS-13, Email from A Suthers to the generic SPRcorro email account dated 28 September 2022 at 8:03 pm, p5.

simply a stop on testing entirely. Ms Keller later stated that she cleared the briefing note as a pause would have resulted in significant backlog and created an issue of turnaround times.¹⁴³⁷

1092. The main concern voiced in this brief was the backlog of work for the laboratory should the pause be enacted.¹⁴³⁸ Significantly, this brief also stated that there were differing views within the laboratory about concentrating to 35µL, and the introduction of discretionary alternative processes may be counter-productive to the timely issuing of results.¹⁴³⁹ Dr Budowle said that having a fixed process was a “process for failure”¹⁴⁴⁰ and that criteria should be defined to inform a scientist as to their discretion to concentrate to 35µL or 15µL.¹⁴⁴¹ Again, the scientific knowledge and capabilities of those drafting this brief is reflected in the inadequate scientific advice provided.
1093. On the afternoon of 28 September 2022, the brief was progressed to the Director-General’s office. That afternoon, Ms Keller emailed a copy of the briefing note to Mr Suthers, the Executive Director of the Taskforce. Over the eight days that had passed since the request to pause, Ms Keller did not obtain any advice from scientific staff within the laboratory with relevant scientific or legal knowledge regarding the request to pause the testing of samples but, of course, when an administrator is receiving deeply conflicting views about highly technical matters, and is unknowingly being misled by some, the path to clarity is apt to be impossible to see.
1094. Ms Keller submitted that because she is not a lawyer and has no legal training or background it would be unfair to suggest that she should have been alive to the legal issue of whose property the DNA samples were. Ms Keller also submitted that while she did

¹⁴³⁷ Exhibit 243.3, Statement of Lara Keller, 22 November 2022, [46(e)].

¹⁴³⁸ Exhibit 243.2, Statement of Aaron Suthers, ATS-13, Email from A Suthers to the generic SPRcorro email account dated 28 September 2022, p6.

¹⁴³⁹ Exhibit 243.2, Statement of Aaron Suthers, ATS-13, Email from A Suthers to the generic SPRcorro email account dated 28 September 2022, p6.

¹⁴⁴⁰ Transcript, Day 5, 30 September 2022, p594.15-16.

¹⁴⁴¹ Transcript, Day 5, 30 September 2022, p601.12-37.

not seek scientific advice, the decision to pause testing was one of policy, not science, and she consulted with her superiors, all of whom supported the briefing note.¹⁴⁴²

1095. At 2:54pm, the Director General's office sought urgent advice from Mr Suthers on the briefing note Ms Keller had provided to the Director-General's Office. That night, Mr Suthers responded with a recommendation to reject the proposal contained in the FSS brief and to direct that the laboratory temporarily pause the testing of the samples as requested by the QPS. His advice warned that the decision to continue to analyse samples appeared to be in contravention of the QPS direction and was inconsistent with the QPS's property rights over samples.¹⁴⁴³
1096. The next morning, on 29 September 2022, Mr Suthers emailed Ms Keller and Ms Gregg to advise that their brief has formally been 'not approved' and a direction to implement the QPS request to pause was being constructed. Given the urgency of the need to pause, Mr Suthers told Ms Keller that she could rely on his email to begin the implementation of the pause immediately.
1097. On 30 September 2022, Mr Drummond signed Mr Suthers' brief recommending the pause and sent the signed memorandum to Ms Keller, who forwarded it to laboratory staff soon after.
1098. The Queensland Health and the laboratory response to the QPS request for a pause demonstrates that up to 2022, it does not have a management structure that ensures scientifically sound advice is provided in a timely way to external agencies or departments. Queensland Health submitted that this presumes that a management structure in and of itself will always ensure scientifically sound advice, however with any endeavour, the performance of such a structure is variable according to the persons who occupy it.¹⁴⁴⁴ They note Dr Kogios and Ms Baker said that the laboratory's organisational

¹⁴⁴² Ms Lara Keller's response to Counsel Assisting's Possible Adverse Findings, 30 November 2022, p30-31.

¹⁴⁴³ Exhibit 243.2, Statement of Aaron Suthers, AS-13, Email from A Suthers to the generic SPRcorro email account dated 28 September 2022 at 8:03 pm, p2.

¹⁴⁴⁴ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p28.

structure fell within the range of accepted practice.¹⁴⁴⁵ Dr Kogios and Ms Baker were commenting only on the laboratory's management structure, not that of Queensland Health. I consider it has been demonstrated that both management structures had not resulted in adequate and timely advice through the Options Paper, and decisions in 2022.

Lifting the pause

1099. On 5 October 2022, the Taskforce convened a meeting between FSS and QPS to discuss an interim solution while further validation studies were being completed. An interim solution was proposed that involved:

- a. DIFP samples would go to a 'review' list in the Forensic Register,
- b. Each day, samples would be reviewed by a reporting scientist,
- c. The reporting scientist would determine whether the sample is concentrated to 35µL or 15µL. If it is a full concentration (15µL), the scientist would be required to obtain QPS approval.

1100. Ms Gregg sent the proposed workflow to scientists in the laboratory the next day, 6 October 2022 for consultation.¹⁴⁴⁶ With agreement from the scientists, Ms Gregg forwarded the proposal to Mr Suthers, Senior Sergeant Foxover and Acting Superintendent McCarthy. Inspector Neville responded that afternoon, advising that QPS supported the interim proposal as a solution to lift the pause with some suggested improvements.¹⁴⁴⁷ Over the next 11 days QPS and QHFSS engaged in discussions about the workflows.

1101. On 17 October 2022, Ms Gregg emailed Inspector Neville the final workflow, which he agreed to.¹⁴⁴⁸ This agreed workflow was:

¹⁴⁴⁵ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, p28.

¹⁴⁴⁶ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-142, QPS pause – interim proposal for your feedback.

¹⁴⁴⁷ Exhibit 279, Statement of Helen Gregg, 26 October 2022, [35].

¹⁴⁴⁸ Exhibit 279, Statement of Helen Gregg, 26 October 2022, p14.51.

- a. DIFP Samples go to a 'review' list in Forensic Register,
- b. Each day, the samples on this review list are reviewed by a reporting scientist,
- c. A reporting scientist would review the list and determine (based on their expertise) if they would have the sample concentrated to 35ul or 15 µL,
- d. The reporting scientist would review the Forensic Register to determine if 'destructive techniques not authorised' has been ticked, and
 - i. If not ticked, proceed with microcon (full or 35)
 - ii. If ticked, contact QPS Forensic Services Group via 'request task' to Forensic Liaison Unit (type 'review) in the Forensic Register for case review.¹⁴⁴⁹

1102. A Teams meeting was held with staff on 18 October 2022, where staff indicated they were comfortable with the proposal. The Director-General was briefed on the agreed workflow and signed a memorandum on 19 October 2022 'lifting' the pause on processing, but leaving the determination of the interim procedure to FSS. Later that day, Ms Gregg sent the Director-General's memorandum to Inspector Neville.¹⁴⁵⁰

1103. The laboratory is still functioning under this process.

Process for changing workflows

1104. The decisions made on both 6 June and 19 August 2022 were in response to issues that had been the subject of discussion and disagreement inside the laboratory for years. Despite significant amounts of time available to validate and obtain data to address issues of the DIFP threshold and concentration discretion, scientist' concerns were actively ignored, dismissed or avoided in order to maintain the status quo.

¹⁴⁴⁹ Exhibit 279, Statement of Helen Gregg, 26 October 2022, HG-71, Emails between QPS and FSS dated 11-17 October 2022.

¹⁴⁵⁰ Exhibit 131, Statement of Lara Keller, 21 October 2022, LK-144, DG MEMO-from Shaun Drummond Director-General Queensland Health.

Rec 103. The laboratory should ensure that any process change in the laboratory be implemented only after validating the new process as fit for use in the laboratory and being of scientific best practice, and include:

- a. consultation with scientists of the laboratory, or
- b. specific consideration as to the impact of laboratory functions, equipment, quality of results and preparation of a workflow to accommodate the change.

1105. These decisions also highlight that it has been possible for a small number of management staff to monopolise decisions without input from staff with the appropriate scientific and technical knowledge of the laboratory, and without briefing to an appropriate level or with appropriate information about the scientific merit of the decisions being made.

1106. To avoid such difficulties, Queensland Health should create and implement a policy that outlines the appropriate level of decision-maker for a particular type or class of decision, to ensure that proposed changes made within the laboratory are briefed to the appropriate level. This policy should include that consultation, collaboration and contribution occur by at least the management team of the laboratory, the Executive Director, persons with oversight of the quality management and a working knowledge of the laboratory when providing advice to the Deputy Director-General, Director-General, or other person in line management of the Executive Director of QHFSS.

1107. Mr Drummond accepted in evidence that, in hindsight, he should have had access to the scientific risks and benefits of the options provided to him on 3 June 2022 before making his decision.¹⁴⁵¹ That scientific focus, if the advice relates to a technical process, is essential to good decision making in this context. The briefed materials should include consideration of the scientific risks and benefits of the proposal and any other options, and refer to any data or investigation which may underpin the decision.

¹⁴⁵¹ Transcript, Day 6, 4 October 2022, p731.38 - 732.15.

Rec 104. Queensland Health should create and implement a policy that outlines the appropriate level of decision-maker for a particular type or class of decision, to ensure that proposed changes made within the laboratory are briefed to the appropriate level. This policy should include that consultation, collaboration and contribution occur by at least the Management Team of the laboratory, the Executive Director, persons with oversight of the quality management and a working knowledge of the laboratory when providing advice to the Deputy Director-General, Director-General, or other person in line management of the managers of the laboratory. The policy should be reflected in the laboratory's change management standard operating procedure. If the advice relates to a technical process, the briefed materials should include consideration of the scientific risks and benefits of the proposal and any other options, and refer to any data or investigation which may underpin the decision.

5 TECHNICAL ISSUES AT THE LABORATORY AND THEIR RESOLUTION

5.1 The DNA IQ contamination event

1108. In mid-2008 the laboratory identified that contamination was occurring in the processing of samples, and that the problem was systemic. The contamination appeared to stem from the DNA IQ extraction method which was introduced in October 2007.
1109. A systemic contamination problem is very concerning for any laboratory, particularly one performing forensic DNA analysis. The laboratory took the issue seriously. Significant work was undertaken internally to determine the cause of the contamination and when that was unsuccessful, the laboratory engaged two independent experts to provide a report.
1110. The actions taken in response to a contamination event provide insight into the way in which the laboratory handles adverse events and systemic issues. The ability to identify, investigate and rectify problems is an essential aspect of an effective laboratory.
1111. The Commission procured Professor Linzi Wilson-Wilde OAM to consider whether the methods employed by the laboratory, both before and after the DNA IQ contamination issue arose, and the investigation undertaken by the laboratory were in accordance with best practice.
1112. It is to the laboratory's credit that the response to this issue was generally in accordance with best practice. The approach serves as a useful comparison to other issues that have arisen in the laboratory including about sperm microscopy and mixed profiles in bones.

The DNA IQ method

1113. The DNA IQ system is a method used to extract DNA from biological material. The purpose of DNA extraction kits is to break open human cells to obtain the DNA inside without also picking up contaminants or inhibitors.¹⁴⁵²
1114. The DNA IQ system comprises three steps:¹⁴⁵³
- a. *First*, lysis, which breaks down the cell membranes and proteins holding the DNA in the nucleus of a cell and releases it into a solution.
 - b. *Second*, washing, where the DNA is bound to magnetic beads and “washed” to remove substances that might inhibit DNA testing.
 - c. *Third*, elution, where a liquid is added to make the sample ready for processing.
1115. The DNA IQ method was first implemented in the laboratory in October 2007 as a fully automated process using the MultiPROBE II PLUS HT EX platform, known as the MP11 instrument.¹⁴⁵⁴ There was also a manual method that could be used as a backup if required.¹⁴⁵⁵
1116. In March 2008, the laboratory introduced a partly manual and partly automated process by which the lysis step was performed manually and the washing and elution steps were performed by the MP11 instrument.¹⁴⁵⁶

¹⁴⁵² Exhibit 129.4, Statement of Thomas Nurthen, 17 October 2022, [14].

¹⁴⁵³ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [2].

¹⁴⁵⁴ Exhibit 129.3, Statement of Allan McNevin, 13 October 2022, [263], ARM-104, Copy of Change Register - Minor Changes and emerging or novel practices as at 20 September 2022.

¹⁴⁵⁵ Exhibit 129.2, Statement of Justin Howes, 6 October 2022, [90].

¹⁴⁵⁶ Exhibit 129.3, Statement of Allan McNevin, 13 October 2022, [263], ARM-104, Copy of Change Register - Minor Changes and emerging or novel practices as at 20 September 2022.

The contamination

1117. On 11 February 2008, the first case of contamination of a sample following the introduction of the DNA IQ method was identified.¹⁴⁵⁷ This was reported in an OQI on 21 April 2008.¹⁴⁵⁸ Further reports of contamination were made in OQIs on 23 April 2008,¹⁴⁵⁹ 12 May 2008¹⁴⁶⁰ and 14 June 2008.¹⁴⁶¹
1118. The contamination was identified by the same DNA profile being present in at least two unconnected samples processed within the same batch using the MPII instrument.¹⁴⁶² In some batches it was seen in more than two unconnected samples.¹⁴⁶³
1119. That is a highly concerning type of contamination because, if not identified as contamination, it could result in a person being identified as having deposited DNA at a crime scene with which they had absolutely no connection.
1120. For example, in one case identified during the investigation into the contamination, a sexual assault complainant's profile from an oral SAIK swab was found on a sample from a swab from the right throttle of a motorbike in an unlawful use of a motor vehicle case. Those two samples had been in a batch together for extraction.¹⁴⁶⁴
1121. Dr Ingrid Moeller gave evidence about another instance. She was told by another reporter that a sexual assault complainant was questioned about a murder after the complainant's DNA, taken from her as part of the investigation into the crime against her, had been detected in a crime scene sample from a murder.¹⁴⁶⁵

¹⁴⁵⁷ Exhibit 129.2, Statement of Justin Howes, 6 October 2022, [91], JH-42, Analytical Issues Log, p457.

¹⁴⁵⁸ Exhibit 129.4, Statement of Thomas Nurthen, 17 October 2022, TN-04, OQI#19930, 21 April 2008.

¹⁴⁵⁹ Exhibit 129.28, OQI#19349, 23 April 2008.

¹⁴⁶⁰ Exhibit 129.29, OQI#19477, 12 May 2008.

¹⁴⁶¹ Exhibit 129.30, OQI#19767, 14 June 2008; Exhibit 31, OQI#19768, 14 June 2008.

¹⁴⁶² For example Exhibit 129.71, Extraction Batch Contamination – OQI#20422 Batch: CWIQEXT20080506_02.

¹⁴⁶³ For example Exhibit 129.78, Extraction Batch Contamination– OQI#21309 Batch: CWIQEXT20080531_01.

¹⁴⁶⁴ Exhibit 129.72, Extraction Batch Contamination – OQI#20437 Batch: CWIQEXT20080630_01.

¹⁴⁶⁵ Transcript, Day 10, 13 October 2022, p1289.37-47.

Investigation of the issue

1122. By July 2008, the Management Team determined that there was a systemic problem and an extraordinary Management Team meeting was held on 14 July 2008 to determine actions to investigate.¹⁴⁶⁶ These actions included urgently progressing an audit into the issue and interim changes to procedures designed to increase the number of controls and minimise the chance of further contamination.
1123. Following the extraordinary Management Team meeting, the Chief Scientist at the time, Vanessa Ientile, provided a memorandum to the entire laboratory notifying all staff of the contamination events and the interim measures that were to be implemented.¹⁴⁶⁷
1124. Audit 8227 was undertaken from 15 to 28 July 2008 and involved a review of nine extraction batches to attempt to determine the source of the contamination.¹⁴⁶⁸ The audit was unable to determine the source of contamination but did identify areas of improvement and made 28 recommendations to improve the DNA IQ extraction process.
1125. On 28 July 2008, a second extraordinary Management Team meeting was held. At that meeting a decision was made to cease processing with the automated DNA IQ method and the laboratory returned to manual processing.¹⁴⁶⁹
1126. That same day, Audit 8572 commenced.¹⁴⁷⁰ An Investigation Team of reporting scientists was established to review results obtained between 23 October 2007 and 28 July 2008, with a view to check the batches and identify any further contamination events by comparing DNA profiles between samples in the same batch.¹⁴⁷¹ Checklists were prepared to determine whether profiles passed quality control checks.¹⁴⁷²

¹⁴⁶⁶ Exhibit 129.64, DNA Analysis Management Team Minutes, 14 July 2008.

¹⁴⁶⁷ Exhibit 129.4, Statement of Thomas Nurthen, 17 October 2022, [39(h)], TN-14, Memorandum from Vanessa Ientile to DNA Laboratory, 14 July 2008.

¹⁴⁶⁸ Exhibit 129.10, Audit 8227 Process audit of the automated DNA IQ System (including Off-Deck Lysis), 2008.

¹⁴⁶⁹ Exhibit 129.3, Statement of Allan McNevin, 13 October 2022, [283].

¹⁴⁷⁰ Exhibit 129.33, Audit 8752 Audit of all extraction batches, 27 July 2008.

¹⁴⁷¹ Exhibit 129.3, Statement of Allan McNevin, 13 October 2022, [285].

¹⁴⁷² Exhibit 129.2, Statement of Justin Howes, 6 October 2022, [103].

1127. The review of the results involved 278 batches of extractions. In addition to the six batches that were initially identified as being affected by contamination, a further 10 batches were identified as having an adverse event associated with it, such as detecting a profile in the negative control.¹⁴⁷³ Each batch could have up to 96 samples and controls on it, so the issue could have potentially affected over 1000 samples.

1128. As part of the audit, 676 profiles that had been uploaded to NCIDD were withdrawn and reviewed. If the profile was not from a batch affected by contamination, the result was checked by a scientist and peer-reviewed by another scientist.¹⁴⁷⁴ Batches that were affected by the contamination were identified and, where there was sample remaining, further tests were performed. Where there was no sample remaining to perform a further test, the results of the sample affected by contamination were not relied upon.¹⁴⁷⁵

Actions taken following the internal investigation

1129. On 29 July 2008, Cathie Allen (then Acting Chief Scientist) briefed Greg Shaw (then director of QHFSS) about the issue. They advised Superintendent Michael Keller of the situation and Ms Allen briefed senior executives within Queensland Health.¹⁴⁷⁶

1130. On 31 July 2008, representatives of the laboratory and the QPS met and discussed the issue.¹⁴⁷⁷

1131. In or around October 2008, Mr Shaw engaged Dr Theo Sloots and Dr David Whiley, scientists from a virus research centre at Royal Brisbane Hospital, to perform a review of the extraction procedures at the laboratory.¹⁴⁷⁸ Drs Sloots and Whiley reported on 14 November 2008 that the most likely reason for the contamination was that the seals that covered each sample that was put into the MPII instrument were not preventing DNA

¹⁴⁷³ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, CA-96, Update of DNA Analysis Issues.

¹⁴⁷⁴ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, CA-96, Update of DNA Analysis Issues.

¹⁴⁷⁵ Exhibit 129.2, Statement of Justin Howes, 6 October 2022, JH-56, Advice from Crown Law.

¹⁴⁷⁶ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, [179].

¹⁴⁷⁷ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, [180].

¹⁴⁷⁸ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, [190].

from one tube entering the other tubes.¹⁴⁷⁹ They considered the laboratory's change to capped tubes had resolved the issue, but expressed concern that the issue may have been identified earlier if a validation had been done in relation to the change in process.

1132. On 4 December 2008, Ms Allen and Mr Shaw met with the Director of Public Prosecutions and two senior Crown Prosecutors to brief them about the issue. Mr Shaw followed the meeting with a letter to the ODPP on 9 January 2009.¹⁴⁸⁰

1133. Mr Shaw engaged Crown Law to provide legal advice. In December 2008, Crown Law forwarded advice they had obtained from the Solicitor General which advised that the laboratory's decision not to rely upon results of tests run during the relevant time where there had been an adverse result and no available sample to perform a second test was appropriate. In relation to tests where there was no adverse result or there was a sample available to perform a second test, the advice was that disclosure should be made when reporting results.¹⁴⁸¹ Following receipt of this advice, statements were re-issued for results from tests performed during the relevant time with the recommended disclosure.

1134. A follow-up audit was conducted by the laboratory in August 2009 to check the quality measures had been implemented successfully.¹⁴⁸² The auditors concluded that the implementation had been successful but made recommendations for process improvement, including changes to standard operating procedures, maintenance schedules and instruments which decapped the samples.¹⁴⁸³

¹⁴⁷⁹ Exhibit 129.15, Report of Drs Sloots and Whiley – Review of Operations, 14 November 2008.

¹⁴⁸⁰ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, [184], CA-101, Letter to ODPP, December 2008.

¹⁴⁸¹ Exhibit 129.1, Statement of Catherine Allen, 11 October 2022, [185], CA-102, Letter from Crown Law & Opinion from Solicitor General.

¹⁴⁸² Exhibit 129.24, Audit 9642 – DNA IQ method of extracting DNA from casework and reference samples audit, undated.

¹⁴⁸³ Exhibit 129.24, Audit 9642 – DNA IQ method of extracting DNA from casework and reference samples audit, undated.

1135. The manual method of DNA IQ was not re-implemented until 19 June 2009 and the automated process was not re-implemented until 20 August 2009. On 21 November 2016 the QIASymphony instruments were introduced, replacing the DNA IQ system.¹⁴⁸⁴

Laboratory processes before, during and after the contamination event

1136. Professor Wilson-Wilde considered that the use of the DNA IQ extraction methods and the implementation of those methods were not outside what would be considered good practice for a forensic DNA laboratory in 2008.

1137. However, based upon the report of Dr Sloots and Whiley, Professor Linzi Wilson-Wilde found that the application of the method in an automated protocol may not have been sufficiently validated when originally implemented.¹⁴⁸⁵ Professor Wilson-Wilde noted the laboratory's commentary in its project report stated that, unlike other laboratories, the laboratory did not validate the automated DNA IQ protocol which came pre-loaded with the MPII, but, instead, validated a manual protocol and then verified an automated protocol based on the validated manual method.¹⁴⁸⁶

1138. Professor Wilson-Wilde concluded that the verification was inadequate, rendering the laboratory's use of the automated DNA IQ method in 2008 inconsistent with best practice.¹⁴⁸⁷ *First*, a contamination check, which resulted in one batch being failed for the presence of an unidentified profile during the verification, was not fully investigated.¹⁴⁸⁸ *Second*, the volumes used for extraction were three times the amount used in the manufacturers protocol,¹⁴⁸⁹ and had not been sufficiently tested in the verification.¹⁴⁹⁰

¹⁴⁸⁴ Exhibit 129.3, Statement of Allan McNevin, 13 October 2022, [314]-[315].

¹⁴⁸⁵ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [23]-[24], referencing External Review of Operations Report – Drs Sloots and Whiley.

¹⁴⁸⁶ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [25], referencing Project 13, Report on the Verification of an Automated DNA IQ Protocol using the MultiPROBE II PLUS HT EX with Gripper Integration Platform.

¹⁴⁸⁷ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [26]-[32].

¹⁴⁸⁸ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [32].

¹⁴⁸⁹ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [26].

¹⁴⁹⁰ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [31].

These significantly higher volumes used in the initial automated method may have contributed to the occurrence of the contamination events.¹⁴⁹¹

1139. The partly automated and partly manual procedure was introduced in March 2008, but the relevant training manual was not updated until August 2008. Professor Wilson-Wilde considered that that delay fell below best practice because training manuals should be consistent with the laboratory's current methodology and practices to maintain scientific competency.¹⁴⁹² Many staff members commented on casefiles considered in Audit 8227 about issues with the automated extraction process. Professor Wilson-Wilde said this indicated that training was generally adequate and that the contamination was more likely linked to equipment and consumable related failures.¹⁴⁹³
1140. Professor Wilson-Wilde also assessed the laboratory's environmental monitoring protocols. Professor Wilson-Wilde said protocols should more clearly explain the deep clean procedure and records of their being undertaken should have been kept. She considered a monthly deep clean was appropriate.¹⁴⁹⁴
1141. Professor Wilson-Wilde found that most contamination events were identified in real time and appropriately recorded.¹⁴⁹⁵ Further, the investigation of the contamination issue was performed in accordance with best practice, including ceasing to use the process while the investigation continued and then re-introducing it after further validation.¹⁴⁹⁶
1142. However, Professor Wilson-Wilde commented that the report relating to Audit 9642 and the review of Drs Sloots and Whiley contained insufficient detail to allow her to comment

¹⁴⁹¹ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [30].

¹⁴⁹² Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [36].

¹⁴⁹³ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [42].

¹⁴⁹⁴ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [48].

¹⁴⁹⁵ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [41].

¹⁴⁹⁶ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [49].

on the appropriateness of those investigations.¹⁴⁹⁷ She noted that an audit report should contain sufficient information so that it could be replicated by another scientist.

1143. Despite this, it is clear from the records that considerable time and effort was devoted by scientists in the laboratory towards investigating the cause of the contamination and checking the relevant batches. Professor Wilson-Wilde considered that the research conducted into the root cause of the contamination was extremely thorough and it was evident that the cause was complex and multi sourced.¹⁴⁹⁸

1144. The investigation of this issue provides a useful foil for the sperm microscopy investigation conducted between 2016 and 2020. As will become apparent in the section on that issue, there is a significant difference in:

- a. the urgency with which these quality issues were addressed;
- b. the use of the OQI and audit procedure;
- c. the ceasing of the compromised process once the issue was identified; and
- d. the identification of all samples that had been affected by the compromised process and re-testing for those samples.

Reliability and accuracy of results

1145. Professor Wilson-Wilde found that the laboratory went through an appropriate process to determine which results were compromised and which results could be relied upon.¹⁴⁹⁹ She considered that, given the thoroughness of the work performed by the laboratory reviewing results, the results that were ultimately relied upon by the QPS and the courts could be considered reliable and accurate. Professor Wilson-Wilde did not find any significant failings that would indicate that the final results released were not reliable.¹⁵⁰⁰

¹⁴⁹⁷ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [57]-[59].

¹⁴⁹⁸ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [63].

¹⁴⁹⁹ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [69].

¹⁵⁰⁰ Exhibit 129.5, Expert report by Professor Linzi Wilson-Wilde OAM, 20 October 2022, [70]-[71].

5.2 MultiProbe II Instrument: 2012-2013

1146. Dr Bruce Budowle and Ms Johanna Veth were retained by the Commission to conduct a review of the DNA casefile relating to the Shandee Blackburn homicide (**Blackburn case**) and related validations and quality incidents. Their conclusions in relation to the case are contained in Chapter 6, DNA evidence in the Shandee Blackburn case.
1147. During their review, Dr Budowle and Ms Veth considered the quantitation data for some of the extraction positive controls which were processed in the same extraction batches as crime scene samples in the Blackburn case.¹⁵⁰¹ A positive control is a sample containing a known quantity of DNA to be profiled and is processed with extraction batches to confirm that the extraction worked. If a positive control has a low quantitation value or does not produce a DNA profile, it suggests that there has been some problem in the processing of the batch. The data showed that some of the positive controls had low quantitation results. Upon receiving the data, Ms Veth suspected there might have been an issue with the extraction of DNA from batches that were processed containing the Blackburn case samples.¹⁵⁰²
1148. Ms Veth explained that the data showed the positive control for some batches processed on one instrument consistently had lower quantitation results than the positive controls in batches that were processed by a different system. The difference in results caused Dr Budowle and Ms Veth to request further data (2012-2013) to assess whether what was observed in the Blackburn case samples was reflected over a longer period.¹⁵⁰³
1149. From the data received, Dr Budowle, Ms Veth and Dr Kirsty Wright identified an anomaly between the quantitation results for positive controls obtained from extractions completed on the MultiProbe® II instrument compared to the results obtained from batches processed on the Maxwell® instrument.¹⁵⁰⁴

¹⁵⁰¹ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [41].

¹⁵⁰² Transcript, Day 25, 24 November 2022, p3032.28-44.

¹⁵⁰³ Transcript, Day 25, 24 November 2022, p3032.28-44.

¹⁵⁰⁴ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [41].

1150. The Multiprobe® II and the Maxwell® are automated instruments that were used by the laboratory for DNA extraction from samples such as blood swabs, tapelifts, whole items and tissue.¹⁵⁰⁵ Each instrument requires some manual steps to be performed before samples are loaded on a plate for processing by the instrument.¹⁵⁰⁶
1151. This issue was identified during the later stages of the experts' engagement. Ms Veth stated that in the time available they were unable to determine what was causing the differences in results – and whether the issue related to the manual pre-processing step before use of the automated instrument, the combination of reagents used, a particular step in the process or the instruments themselves.¹⁵⁰⁷
1152. The data set showed that positive controls extracted from the MultiProbe® II instrument had much lower quantitation results than the positive controls extracted from the Maxwell® instrument. This suggests that DNA was not being recovered optimally using the MultiProbe® II extraction method.¹⁵⁰⁸ In comparison, trace samples processed using the Maxwell® instrument resulted in effective DNA recovery.¹⁵⁰⁹
1153. The sub-optimal performance of the MultiProbe® II extraction method would be particularly significant for samples that have a low DNA template to begin with.¹⁵¹⁰ If the small amount of DNA available in those samples was not extracted the sample may fall below the processing thresholds (for example “No DNA”) and not be tested further.
1154. Ms Veth stated this finding was significant for the Blackburn case as some samples which had not returned DNA profiles and were the subject of public scrutiny were extracted from batches using the MultiProbe® II instrument.¹⁵¹¹ These samples, which likely had a low DNA template to begin with, included samples from Ms Blackburn's fingernails, the

¹⁵⁰⁵ Exhibit 171, Statement of Catherine Allen, 16 September 2022, Exhibit CA-44, Instrument, equipment and software list – Forensic DNA Analysis 2022, p808.

¹⁵⁰⁶ Transcript, Day 25, 24 November 2022, p3037.45-3038.11.

¹⁵⁰⁷ Transcript, Day 25, 24 November 2022, p3038.20-29.

¹⁵⁰⁸ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [41].

¹⁵⁰⁹ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [42].

¹⁵¹⁰ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [44].

¹⁵¹¹ Transcript, Day 25, 24 November 2022, p3036.31-39.

vehicle that had been described as containing bloodstains and from a knife.¹⁵¹² A table in their report lists all the samples in the Blackburn case that were subject to extraction batches using the MultiProbe® II instrument.¹⁵¹³

1155. The discrepancy over the two year data set also has implications for samples from other cases that were processed and extracted in the same batches as the Blackburn case samples or generally processed using the MultiProbe® II instrument.¹⁵¹⁴ If the extraction of DNA in those batches was sub-optimal that may have affected the evidence able to be obtained by the laboratory and used by the QPS and courts.
1156. The laboratory did not identify this issue in 2012/2013. Dr Budowle explained that it could have been picked up had the laboratory been monitoring positive control quantitation data.¹⁵¹⁵ Ms Veth said that at the New Zealand ESR laboratory a report is prepared for each case which lists quantitation results for all controls so that anomalies can be detected.¹⁵¹⁶
1157. By failing to monitor quantitation data, the laboratory lost an opportunity to identify the difference in results between the MultiProbe® II and Maxwell® extraction methods.
1158. Dr Budowle, Ms Veth and Dr Wright strongly recommended the laboratory review the results from their extractions to determine if there was a problem with the method, or something specific to the way these particular extractions were conducted, resulting in poor DNA recovery.¹⁵¹⁷ They considered such an investigation would need to consider a number of factors including whether the method itself was sub-optimal; whether there

¹⁵¹² Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [44].

¹⁵¹³ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [43].

¹⁵¹⁴ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [44]; Transcript, Day 25, 24 November 2022, p3048.32-33.

¹⁵¹⁵ Transcript, Day 25, 24 November 2022, p3046.8-34.

¹⁵¹⁶ Transcript, Day 25, 24 November 2022, p3047.8-20.

¹⁵¹⁷ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [45]; Transcript, Day 25, 24 November 2022, p3048.22-3049.28.

was an issue with a particular reagent that affected a number of batches processed during an identified time period; or whether the issue be confined to a particular technician.¹⁵¹⁸

1159. Ms Veth agreed in her evidence the investigation should involve considering the quantitation data of positive controls over a longer period of time to see the potential scope or extent of the low performing quantitation results being derived.¹⁵¹⁹ Dr Budowle said once the scope of the problem had been identified, the laboratory could consider which specific cases might be reviewed or re-tested.¹⁵²⁰

Rec 105. The laboratory should conduct a retrospective review of positive control extraction batches processed by the MultiProbe® II instrument to determine if this extraction method was performing sub-optimally, and if so, the period of time in which a sub-optimal method was used and whether there is utility in re-testing or re-analysing any potentially affected samples.

5.3 Sperm microscopy

Geoffrey Wong, Jac Thong, Laura Reece, Susan Hedge

1160. The laboratory has, since at least 2008, used microscopy as one method of identifying spermatozoa in sexual assault casework samples said to potentially contain sperm.¹⁵²¹

1161. In or around 2008, Queensland Health changed the process so that microscopy slides were not made at the time of the examination of the complainant by a doctor by smearing the contents of the swabs onto the slides.¹⁵²² Instead, the doctor took a swab or sample of an item such as underpants and a slide was created at the laboratory using the “suspension method”. That involved steps to release DNA from the swab or item into a solution which was dropped onto a slide. If spermatozoa were seen on the slide, or the

¹⁵¹⁸ Exhibit 218, Expert report of Dr Bruce Budowle and Johanna Veth, 23 November 2022, [45].

¹⁵¹⁹ Transcript, Day 25, 24 November 2022, p3048.37-43.

¹⁵²⁰ Transcript, Day 25, 24 November 2022, p3049.35-3050.6.

¹⁵²¹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [34].

¹⁵²² Exhibit 210.105, Email from Cathie Allen re ‘teleconference with pathologists’, 7 June 2010; Exhibit 245.44, Emails between CFMU and JTC re ‘Need for Slides to be made from Swabs for Semen at Time of Sexual Assault Examination’, Various dates; Exhibit 212.22, Statement of Adam Griffin, 6 September 2022, [51]-[52].

sample tested positive to a presumptive test (AP+ or P30), the sample would undergo differential lysis to split the epithelial (skin cell) part of the sample from the sperm part of the sample. Another slide would be created at that stage. If there was no sperm on the slide, and no positive presumptive test, the sample might be tested using a general “cells” method or not tested further at all.

1162. The presence of sperm on the microscopy slides created during the original evidence recovery step was not the only indicator for a sample to progress through testing but it was one indicator. For that reason, the failure to see sperm on that slide could result in samples that actually did contain sperm not being tested and probative evidence in sexual assault casework being missed.
1163. In late 2015, the laboratory identified discrepancies in results obtained for samples that potentially contained spermatozoa. In some cases, there was a marked difference between the numbers of spermatozoa seen on the evidence recovery microscopy slides (often zero) and the subsequent numbers seen on the microscopy slides prepared after differential lysis.¹⁵²³
1164. The way this issue was investigated and resolved provides a useful example of how scientific and cultural issues in the laboratory interconnected and resulted in inadequate outcomes for the laboratory.

Initial concerns and immediate response

1165. In the months preceding March 2016, Reporting Scientist Jaqueline Wilson observed a number of examples of spermatozoa samples from sexual assault investigation swabs that had produced a single source male DNA profile even though the evidence recovery slide microscopy gave a grading of zero. There is a semi-quantitative scale for grading observed spermatozoa numbers in forensic DNA analysis during microscopy testing as follows:¹⁵²⁴

¹⁵²³ Exhibit 91.19, Final Report – Project #181, July 2020, p2.

¹⁵²⁴ Exhibit 91.19, Final Project #181 Report, July 2020, p2.

0	(0)	None seen
<+	(<1+)	Very hard to find (Use England Finder Graticule)
+	(1+)	Hard to find
++	(2+)	Easy to find
+++	(3+)	Very easy to find
++++	(4+)	Abundant

1166. Clint Cochrane, the expert engaged by the Commission to consider this issue, explained that the difference between 0 or <1+ and 2+ or 3+ is a very large difference in this context.
1167. Following an examination of the slides prepared during differential lysis, it was found the spermatozoa count was positive, and in some cases, graded as 2+ or above.¹⁵²⁵ Ms Wilson discussed these concerns verbally to her line manager, Amanda Reeves, on multiple occasions with reference to the results.¹⁵²⁶
1168. On 4 March 2016, Ms Wilson formally sent Ms Reeves and Justin Howes email correspondence citing an example where the evidence recovery microscopy slide was graded zero but a subsequent examination of the differential lysis slide showed a 3+ grading for spermatozoa. Ms Reeves said a further investigation was warranted.¹⁵²⁷
1169. There is no evidence that any action was taken despite the significance of the issue. The ramifications were that evidence that was crucial to the successful prosecution of a sexual offender may have been missed.
1170. On 6 May 2016, Mr Howes advised Ms Wilson and Ms Reeves that scientist Allan McNevin (then manager of the Evidence Recovery team) had not done anything to look into the issue because he had been on leave.¹⁵²⁸ There was no explanation why another staff member could not have begun an investigation. Another case was identified by scientist Matthew Hunt on 9 May 2016 in which spermatozoa were not seen at the point of

¹⁵²⁵ Exhibit 91.4, Statement of Jaqueline Wilson, 21 September 2022, [32]-[33].

¹⁵²⁶ Exhibit 91.4, Statement of Jaqueline Wilson, 21 September 2022, [34].

¹⁵²⁷ Exhibit 91.25, Email correspondence from Jacqueline Wilson to Amanda Reeves and Justin Howes, 4 March 2016.

¹⁵²⁸ Exhibit 91.27, Email correspondence from Justin Howes to Jacqueline Wilson and Amanda Reeves re 'followup sperm searching', 6 May 2016.

evidence recovery microscopy, but the sample was presumptively positive on both the AP and p30 tests and which resulted ultimately in a full male profile.¹⁵²⁹

1171. On 12 May 2016, Mr Howes wrote to Mr McNevin.¹⁵³⁰ In the email, Mr Howes said “the major overarching concerns of this issue are the fact that in certain circumstances we may not have sent samples for DNA profiling at all...and therefore have missed evidence” and that “occasionally we are asked in court specifically about the number of sperm seen in a sample – if we know that this number is unreliable, how happy will reporters be to quote numbers?”¹⁵³¹ Mr Howes’ explanation was appropriate, but, despite identifying the risk to the criminal justice system, no substantive action was taken.
1172. The sperm microscopy issue was raised at two Management Team meetings on 12 May 2016,¹⁵³² and 27 May 2016.¹⁵³³ During the latter meeting, it was decided that Mr McNevin would draw up a project plan containing a proposal to investigate the issue.
1173. On 2 June 2016, Mr McNevin put forward project proposal #181 for approval to look at the problem.¹⁵³⁴
1174. The proposal was discussed at a Management Team meeting on 9 June 2016.¹⁵³⁵ Ms Reeves said that there was inadequate urgency being afforded to the sperm microscopy issue. Mr McNevin reacted angrily when she pressed her concerns.¹⁵³⁶ After the meeting, Mr McNevin apologised to Ms Reeves for his reaction, however, the clash between them later became the focus of an external workplace investigation.

¹⁵²⁹ Exhibit 204.25, Email correspondence between Matthew Hunt and Justin Howes re ‘FW: Possible example of slide grading issue -...’, 9 May 2016.

¹⁵³⁰ Exhibit 91.34a, Email correspondence between Justin Howes and Allan McNevin re ‘FW: Diff lysis slide investigation’, 12 May 2016.

¹⁵³¹ Exhibit 91.34a, Email correspondence between Justin Howes and Allan McNevin re ‘FW: Diff lysis slide investigation’, 12 May 2016.

¹⁵³² Exhibit 204.15, Management Team Meeting Minutes, 12 May 2016.

¹⁵³³ Exhibit 204.16 Management Team Meeting Minutes, 27 May 2016.

¹⁵³⁴ Exhibit 91.12, Initial Request – Investigation into sensitivity of spermatozoa microscopy, 2 June 2019.

¹⁵³⁵ Exhibit 204.17, Management Team Meeting Minutes, 9 June 2016.

¹⁵³⁶ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [243].

1175. On 19 July 2016, Ms Rika emailed a group of scientists, including Mr Howes, raising the issue and suggesting that reporting scientist staff check “your diff lysis slide in any situations where the ER slide and your DNA results don’t quite tell the same story”.¹⁵³⁷ That same day, Ms Reeves emailed Mr Howes and said that she could not understand the lack of urgency being applied to the issue.¹⁵³⁸
1176. On 20 July 2016 Mr McNevin provided a draft plan for Project #181 to his team leader, Ms Brisotto.¹⁵³⁹
1177. On 27 July 2016 Adrian Pippia raised with Mr Howes another example which was graded <1+ for spermatozoa at evidence recovery slide microscopy but from which a strong single source male profile was obtained. The differential lysis slide microscopy was a 3+ spermatozoa grading.¹⁵⁴⁰
1178. The fact that examples continued to be raised showed there was a systemic issue. Mr Cochrane found that the laboratory’s workflow for sperm detection, testing and analysis were written in line with best practice, assuming the processes were working. But they were not. The creation of microscope slides in evidence recovery was underperforming, which led to instances where sperm were not seen in evidence recovery but were plentiful on the differential slide. The demonstrated underperformance meant that the method was not meeting international best practice.¹⁵⁴¹ This would have been the case in at least late 2015 and 2016.¹⁵⁴² Mr Cochrane concluded that the concerns expressed by reporting scientists about the sperm microscopy issue were well founded.¹⁵⁴³

¹⁵³⁷ Exhibit 91.29, Email correspondence from Kylie Rika to reporting scientists, 19 July 2016.

¹⁵³⁸ Exhibit 91.30, Email correspondence from Amanda Reeves to Justin Howes re ‘FW:’, 19 July 2016.

¹⁵³⁹ Exhibit 91.31, Email between Allan McNevin and Paula Brisotto re ‘RE: Project 181’, 20 July 2016; Exhibit 91.32, Project Plan – Proposal #181, undated.

¹⁵⁴⁰ Exhibit 91.33, Email correspondence from Adrian Pippia to Justin Howes, Amanda Reeves and Kylie Rika re ‘Microscopy Discrepancy’, 27 July 2016.

¹⁵⁴¹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [22].

¹⁵⁴² Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [12], [22].

¹⁵⁴³ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [12].

1179. On 28 July 2016, Ms Rika emailed Mr Howes, copying Ms Reeves, suggesting the reporting scientists could carry out their own project work and experiments to investigate the issue.¹⁵⁴⁴ Ms Reeves responded stating that over six months had passed and “...there is still no outcome and we are still exposed in terms of risk, as Adrian’s most recent example has illustrated”.¹⁵⁴⁵
1180. On 8 August 2016, the Management Team agreed to implement a “work-around”, as a risk mitigation strategy. The change of procedure meant that differential lysis would be performed and the differential lysis slide read for all samples.¹⁵⁴⁶
1181. Mr Cochrane in his report recognised the process implemented from 8 August 2016 “largely resolved the ER microscopy issue, ensuring that samples containing sperm progressed as required. Project #181 started after this decision was made”.¹⁵⁴⁷
1182. This work around was the obvious answer to the issue that was being raised. It was not implemented for more than 7 months after the issue was first raised. I consider that the laboratory did not act with sufficient urgency to address the issue and implement the workaround.
1183. When asked what timeframe would be expected for implementation of a work around, Mr Cochrane explained “It’s not only the timeframe. It’s the amount of times that it was flagged as a concern...throughout that period from three to six months, for instance, there were on multiple occasions emails also suggesting that the reporting biologists in particular were quite concerned about the matter and the consequence that some DNA

¹⁵⁴⁴ Exhibit 91.34, Email correspondence from Kylie Rika to Justin Howes and Amanda Reeves re ‘Proposal for consideration’, 28 July 2016.

¹⁵⁴⁵ Exhibit 91.34, Email correspondence from Amanda Reeves to Justin Howes and Kylie Rika re ‘RE: Proposal for consideration’, 28 July 2016.

¹⁵⁴⁶ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [184]-[185] and ARM-74, Email 2016-08-08 Change in process – Sperm micro negative samples.pdf.

¹⁵⁴⁷ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [28].

samples not be tested. So in that time frame, I would have expected probably three months as the outside limit...".¹⁵⁴⁸

1184. Mr Howes could not recall what was done or whether anything was looked into between March 2016 and August 2016 when the work around was implemented.¹⁵⁴⁹ Mr Howes was asked whether he regarded the time it had taken to implement a change in process was acceptable. He said, "I think it is...I think that is a long period of time, but I can't remember what else was going on at the time in 2016".¹⁵⁵⁰

1185. Mr McNevin, who was responsible for the project response did not recall the sperm microscopy issue "being raised as a particular urgent issue" with him.¹⁵⁵¹ He said "it wasn't obvious that it was a big problem or even a bit of a problem, because you do expect some sort of natural variation when you do laboratory processes".¹⁵⁵² Mr McNevin reasoned that the process had been in place for quite a long time and the issue was only just being raised and so he thought a structured, orderly approach was important. He did not see any need to make urgent changes.¹⁵⁵³ Mr McNevin agreed the workaround was an obvious step but the negative aspect of its implementation was "it was a bit more work for my team. It wasn't a huge impost, but it was still, you know, a double handling of exhibits that took extra time and resources".¹⁵⁵⁴

1186. Ms Rika attributed the delay in implementing the workaround to the incident that occurred in the management meeting on 9 June 2016 which made the sperm microscopy issue "contentious",¹⁵⁵⁵ and "a desire for wanting to collect data and do other studies to

¹⁵⁴⁸ Transcript, Day 12, 17 October 2022, p 1512.21-40; Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [26]-[28].

¹⁵⁴⁹ Transcript, Day 19, 26 October 2022, p2455.33-40.

¹⁵⁵⁰ Transcript, Day 19, 26 October 2022, p2455.42-47.

¹⁵⁵¹ Transcript, Day 12, 17 October 2022, p1532.38-42.

¹⁵⁵² Transcript, Day 12, 17 October 2022, p1536.47-1537.11.

¹⁵⁵³ Transcript, Day 12, 17 October 2022, p1532.44-1533.11.

¹⁵⁵⁴ Transcript, Day 12, 17 October 2022, p1535.1-2, 26-38.

¹⁵⁵⁵ Transcript, Day 10, 13 October 2022, p1365.44-1366.4.

show what I would consider interesting information, but not relevant for the urgency of the matter”.¹⁵⁵⁶

1187. When questioned about her concerns in relation to the sperm microscopy issue, Dr Moeller stated “...my major concern is scientists weren’t listened to...there was a significant delay in responding to scientists. Yes a workaround was eventually brought in, which is great, but then it still took many years to come up with a process and to fully investigate it properly. So there is always that delay – a disregard for scientists and then a delay to respond to issue”.¹⁵⁵⁷

1188. Ms Allen and Mr Howes were the senior laboratory leaders during this time. Ms Allen and Mr Howes did not act with sufficient urgency to identify the scope of the problem, and its systemic nature and implement the work around.

1189. Ms Brisotto, who was the Team Leader of Evidence Recovery and returned from leave in mid-July 2016, agreed that she did not take any steps to answer whether evidence might have been missed or for how long the problem had existed.¹⁵⁵⁸

Response to microscopy concerns

1190. Having resolved the issue prospectively by way of the workaround, there remained two issues for the laboratory: what was the root cause of the issue and whether there should be a retrospective review of cases that might have been affected.

1191. As to the former, the laboratory never identified the root cause of the discrepancy between the spermatozoa grading on the evidence recovery and differential lysis slides. Project #181 transitioned to dealing with a number of sensitivity issues and ancillary experiments rather than addressing the initial issue.

¹⁵⁵⁶ Transcript, Day 10, 13 October 2022, p1369.11-14.

¹⁵⁵⁷ Transcript, Day 10, 13 October 2022, p1294.8-27.

¹⁵⁵⁸ Transcript, Day 16, 21 October 2022, p2001.16-33.

1192. As to retrospective testing, Clint Cochrane concluded that the sperm microscopy issue “would have persisted as long as this method was unchanged” and the sub-optimal method was in practice since 2008.¹⁵⁵⁹ That left a significant number of cases potentially affected.
1193. The laboratory did complete a small analysis of 2014-2016 data in respect of 79 samples in which evidence recovery had recorded zero spermatozoa detected but a subsequent examination of the differential lysis slides occurred. The data presented seven instances in which the subsequent slides had a high density of sperm (2+ or above), a number approaching 10% of the data.¹⁵⁶⁰
1194. Further, an unfinished internal report named ‘Data Analysis of modified sexual assault process for zero spermatozoa detected at Evidence Recovery’, dated May 2017, reviewed 738 samples between 8 August 2016 and 28 March 2017.¹⁵⁶¹ The draft report, in summary, concluded that, of the 738 samples that underwent differential lysis and microscopy, 591 samples showed no spermatozoa both at evidence recovery microscopy and also in microscopy after differential lysis. The remaining 147 samples revealed sperm after differential lysis. Of those 147 samples, 71 samples would have been sent for differential lysis under the previous procedure in any event (because, for example, there had been a positive presumptive test); and 47 samples would have progressed through DNA testing using the routine ‘cells’ protocol. The remaining 29 samples would have undergone no further testing after failing at evidence recovery microscopy. However, of those 29 samples, 28 would not have received “new evidential DNA profiles” from the SAIK kit due to other SAIK results being unsuccessful or non-comparable to a reference

¹⁵⁵⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [34].

¹⁵⁶⁰ Exhibit 204.24, Spreadsheet – Diff Lysis Slide Micro v Original Micro, undated; Exhibit 91.14, Project Proposal #181 – Investigation into the sensitivity of spermatozoa microscopy, August 2016, p4; Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [5].

¹⁵⁶¹ Exhibit 84, Data Analysis of modified sexual assault process for zero spermatozoa detected at evidence recovery, May 2017; Exhibit 91.5, Statement of Matthew Hunt, 5 October 2022, MH-13, Data Analysis of modified assault process for zero spermatozoa detected at Evidence Recovery.

sample. The draft report concluded it was only in a single case that the wrong conclusion that the sample contained no spermatozoa would have been “critical”.

1195. The author of the draft report, Ms Brisotto, concluded:¹⁵⁶²

Therefore, although some individual samples may be negatively impacted as a consequence of the sensitivity of the examination slide process, overall this is considered to be an acceptable risk as it occurs relatively infrequently and from a case perspective the risk is mitigated by the established practices of multiple sample submissions, examination submission and interpretation strategies.

1196. However, Mr Cochrane said that for those 47 samples that would have progressed using the cells protocol, there was a risk that DNA from sperm in some samples would not have been detected when it was in fact present because the cells protocol is less effective than the differential lysis process. He also stated that the use of the routine cells protocol may have meant that the laboratory could not define the cellular component as being from semen, which may have evidentiary value in some cases.¹⁵⁶³

1197. Mr Cochrane also said that the basis for concluding that the sperm microscopy issue was not significant for the untested 28 samples was that they did not produce new DNA profiles ie. a link to a new person who had not been previously identified. That is, they gave rise to the same information as other samples already tested from the same SAIK or the DNA results from testing were unsuccessful.¹⁵⁶⁴

1198. That conclusion underplayed the significance of those samples. As Mr Cochrane agreed, some of those 28 could give extra information that was important in the case, such as corroborating an allegation that semen was located on particular parts of a body.¹⁵⁶⁵ Without understanding the case context of those 28 samples, which the data analysis

¹⁵⁶² Exhibit 84, Data Analysis of modified sexual assault process for zero spermatozoa detected at evidence recovery, May 2017; Exhibit 91.5, Statement of Matthew Hunt, 5 October 2022, MH-13, Data Analysis of modified assault process for zero spermatozoa detected at Evidence Recovery.

¹⁵⁶³ Transcript, Day 12, 17 October 2022, p1515.44-1516.7.

¹⁵⁶⁴ Transcript, Day 12, 17 October 2022, p1516.9-17.

¹⁵⁶⁵ Transcript, Day 12, 17 October 2022, p1516.19-1517.2.

report did not take into account, it was not possible to conclude that the sperm microscopy issue had not made a difference in those cases.

1199. Given those caveats, Mr Cochrane said that there was definitely one case that would have been heavily affected but there were potentially others depending on the particular case context.¹⁵⁶⁶ The way in which the data analysis was conducted does not reflect the true scope of the evidentiary value that might have been missed. The actual scope of evidence in the case and the criticality of DNA evidence for that case remains unknown.
1200. Extrapolating that data, if the sub-optimal method could have made a difference for 30 samples in each 8 month period, in the 8 years between the suspension method being introduced and the workaround in 2016, approximately 360 samples may have been missed.¹⁵⁶⁷
1201. Ms Allen, Mr Howes and Ms Brisotto accepted that further consideration of retrospective cases was warranted. Ms Brisotto could not explain why she had not satisfied herself as to whether there needed to be retesting for samples between 2010 to 2016.¹⁵⁶⁸
1202. Mr Howes said he couldn't remember discussing a retrospective review of semen samples over the six-year period to see whether there were problems with earlier evidence recovery.¹⁵⁶⁹ This is consistent with the evidence from other scientists within the laboratory.¹⁵⁷⁰ He accepted it was part of the Management Team's responsibility to ensure that a retrospective review occurred to ensure that the consequences of the problem were evaluated.¹⁵⁷¹
1203. Ms Allen accepted that she understood that the potential consequence of the issue Ms Reeves raised was that for the period when this sub-optimal process was in place, there

¹⁵⁶⁶ Transcript, Day 12, 17 October 2022, p1516.45-1517.10.

¹⁵⁶⁷ Transcript, Day 12, 17 October 2022, p1486.4-42.

¹⁵⁶⁸ Transcript, Day 16, 21 October 2022, p2002.18-22.

¹⁵⁶⁹ Transcript, Day 19, 26 October 2022, p2456.9-13.

¹⁵⁷⁰ Exhibit 91.6, Statement of Chelsea Savage, 26 September 2022, [93]; Exhibit 91.5, Statement of Matthew Hunt, 5 October 2022, [80]; Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [242].

¹⁵⁷¹ Transcript, Day 19, 26 October 2022, p2456.15-25.

might have been samples that contained spermatozoa that the laboratory did not identify and therefore did not test properly. Ms Allen accepted that these were samples relating to some of the most serious offences, like sexual assault or rape.¹⁵⁷² She did not think a case review was done for those samples that had been processed between 2010 through to August 2016.¹⁵⁷³

1204. It was unsatisfactory for the laboratory not to conduct a retrospective review of cases after having seen that there was a systemic issue which was potentially missing evidence in sexual assault casework. The laboratory had taken such an approach in response to the DNA IQ contamination issue in 2008 to 2009 and it should have done the same for this issue.

1205. The laboratory now has the opportunity to conduct retrospective testing of samples that have not been spent through testing and have been stored.¹⁵⁷⁴ Mr Cochrane suggested consideration of re-testing of internal sexual assault investigation kit samples where:

- a. no other evidentiary results were identified from other internal samples;
- b. no further testing was performed; and
- c. the case has avenues for progression (ie. not finalised).

1206. He considered that cases that fall into the proposed categories should be limited and identifiable to allow retrospective testing to be completed. Mr Cochrane said that if such cases are difficult to identify, Queensland Health will need to make a policy decision surrounding prioritising “cold cases” for further forensic DNA testing and Y-STR may be fruitful in this regard.¹⁵⁷⁵

¹⁵⁷² Transcript, Day 22, 31 October 2022, p2705.21-32.

¹⁵⁷³ Transcript, Day 22, 31 October 2022, p2706.2-8.

¹⁵⁷⁴ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [37].

¹⁵⁷⁵ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [38].

1207. I have already made recommendations about review of other categories of cases, and included this category in Section 2.5, Sexual assault casework. The review of this category of cases should be approached in the same way.

Project #181

1208. Project #181 was proposed to investigate if the sensitivity of spermatozoa microscopy processes at the laboratory could be improved.¹⁵⁷⁶ The project lasted over four years, and changed its scientific focus on a number of occasions before a final report was finalised in July 2020.

1209. On 2 June 2016, an initial request was made proposing an investigation into sensitivity of spermatozoa microscopy. The proposal was raised to respond to scientists' concerns about the sperm microscopy issue. The proposal specifically referred to "examples where nil or <1+ spermatozoa were observed during item examination and 3+ and 4+ spermatozoa were observed on differential lysis slide microscopy." The investigation was to address whether the current suspension method and whether slides made from overly diluted material were causing the discrepancy.¹⁵⁷⁷

1210. Over time, however, Project #181 strayed from its initial purpose of responding to the sperm microscopy issue raised by scientists within the laboratory and the description posed in the initial request. After the completion of Part 2, the project deviated from investigating the root cause of the issue to other ancillary experiments. The project ended up including seven parts of experimental testing and included investigating the sensitivity of the microscopy method, the detection levels of the presumptive tests deployed, trialling an alternative evidence recovery microscopy method, varying and optimising suspension volumes and incubation conditions, optimising AP presumptive test performance and trialling the modified protocol.¹⁵⁷⁸

¹⁵⁷⁶ Exhibit 91.19, Final Project #181 Report, July 2020.

¹⁵⁷⁷ Exhibit 91.12, Initial Request – Investigation into sensitivity of spermatozoa microscopy, 2 June 2019.

¹⁵⁷⁸ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [11].

1211. The project changed from trying to identify the possible cause of the sperm microscopy issue, to attempting to improve the evidence recovery slide procedure, to investigating exclusive reliance on the differential slides for sperm microscopy while preserving the ability to perform semen presumptive testing.¹⁵⁷⁹

1212. During her evidence on 13 October 2022, Ms Rika was asked about the concerns she held in relation to how the sperm microscopy issue was dealt with. She said:¹⁵⁸⁰

...there seemed to be a desire to do other investigations that may be interesting but not really relevant to the urgency of the matter...there was a lot of time spent, I guess, trying to collect data to show where an issue might be, as opposed to just, 'let's get in and try and fix the ER slide-making process', because that seems to be the issue. When you're seeing 1+ sperm on the ER slide, but in the extraction process see 3 or 4+ sperm, it's kind of quite obvious.

1213. Ms Rika considered that the length of time that the whole project took was too long from a scientific perspective.¹⁵⁸¹

1214. Reporting Scientist Matthew Hunt, who was involved in latter stages of the project, believed the project failed in not identifying the root cause of the issue.¹⁵⁸² He also explained the initial experimental results did not provide clarity and it took several stages of project work looking at different aspects of the problem before being able to focus on the final objective.¹⁵⁸³

1215. Mr McNevin, who was involved throughout the project, said he was not confident that there was a clear problem with spermatozoa microscopy.¹⁵⁸⁴ He acknowledged the initial data mining and experimental results from stage one of the project showed some discrepancies had "not [been] easily explainable".¹⁵⁸⁵ Mr McNevin attributed the lengthy delays to complete stages of the project to the laboratory's culture.¹⁵⁸⁶ Ultimately, Mr

¹⁵⁷⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [10].

¹⁵⁸⁰ Transcript, Day 10, 13 October 2022, p1363.26-42.

¹⁵⁸¹ Transcript, Day 10, 13 October 2022, p1369.46-1370.2.

¹⁵⁸² Exhibit 91.5, Statement of Matthew Hunt, 5 October 2022, [64].

¹⁵⁸³ Exhibit 91.5, Statement of Matthew Hunt, 5 October 2022, [82].

¹⁵⁸⁴ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [222].

¹⁵⁸⁵ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [222].

¹⁵⁸⁶ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [246].

McNevin declared “the cultural issues...resulted in delays in projects, reductions in productivity, and clouded conversations regarding projects and processes in general throughout the period covered by Project #181”.¹⁵⁸⁷

1216. Whilst there is evidence that cultural issues within the laboratory may have inhibited the project’s progress, there were also resourcing and priority decisions that had a similar effect. For example, in March 2018, Mr McNevin wrote to Mr Howes and Emma Caunt that the priority of time should be given to validation of the new 3500 instrument rather than Project #181.¹⁵⁸⁸

1217. Mr Howes agreed at no stage did scientists from the laboratory identify or evaluate what was causing the inability to identify sperm on the evidence recovery slides.¹⁵⁸⁹ He also could not recall anybody finding the root cause of the issue.¹⁵⁹⁰

1218. Ms Allen did not think a specific project was undertaken to go back and determine whether there was a consistent, regular problem with identifying sperm on the evidence recovery slide for that more than six year period of concern.¹⁵⁹¹ She agreed in her evidence that undertaking such a review would have been a “good step” to determine whether the issue was aberrant or systematic.¹⁵⁹²

1219. Ms Brisotto submitted her involvement in Project #181 was, essentially, confined to reviewing and endorsing the further experiments proposed, being involved in the Management Team discussions and voting on changes to project’s direction which would be incorporated in the further project proposals.¹⁵⁹³ It was further submitted that Ms Brisotto’s data analysis overlapped with the ongoing work of Project #181 and because

¹⁵⁸⁷ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [251].

¹⁵⁸⁸ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [259]-[260] and ARM-103, Email 2018-03-22 RE Project #181 experiment 2 results are in.pdf.

¹⁵⁸⁹ Transcript, Day 20, 27 October 2022, p2463.10-13.

¹⁵⁹⁰ Transcript, Day 20, 27 October 2022, p2463.31-32.

¹⁵⁹¹ Transcript, Day 22, 31 October 2022, p2706.19-26.

¹⁵⁹² Transcript, Day 22, 31 October 2022, p2706.40-2707.3.

¹⁵⁹³ Submissions on behalf of Paula Brisotto, 30 November 2022, [50]; Exhibit 114, Statement of Paula Brisotto, 18 October 2022, [51].

the project expanded in terms of scope and scale she considered that would be the most appropriate body of work to continue to assess the relevant workflows and make recommendations to the Management Team.¹⁵⁹⁴

1220. Ms Brisotto was the Team Leader of Evidence Recovery and Quality, a team to which the sperm microscopy issue directly relates. She should have proactively sought the expeditious resolution of Project #181.
1221. It was generally submitted on behalf of Ms Allen and Mr Howes that an attempt to blame them for faults of the decision-making of the “management team” is unfair and fails to take into account the laboratory’s operations.¹⁵⁹⁵ This would encapsulate each stage of Project #181 signed off on by the Management Team. I consider they had a greater responsibility than others because of their senior roles in the Management Team.
1222. I am of the opinion that Ms Allen, Mr Howes and Ms Brisotto should have appreciated the seriousness of the sperm microscopy issue being raised by scientists, its systemic nature, the need for urgent action and the need for a retrospective review of cases.
1223. There were significant cultural issues fomenting at the laboratory during the project, including most prominently issues concerning Ms Reeves. In respect of Ms Allen, her reluctance to act urgently on this issue or to review past cases appears to me to be driven by poor judgment clouded by antipathy toward Amanda Reeves and others, demonstrated by her approach to the ESR report (dealt with below) and the confidential bin incident (dealt with in Chapter 7, Laboratory culture).
1224. Mr Cochrane concluded that while he was not sure Project #181 adequately explained the observed discrepancies on slides, at least the aim of improving sperm recovery for microscopy was achieved.¹⁵⁹⁶

¹⁵⁹⁴ Submissions on behalf of Paula Brisotto, 30 November 2022, [55].

¹⁵⁹⁵ Submissions on behalf of Cathie Allen and Justin Howes, 28 November 2022, [127].

¹⁵⁹⁶ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [31].

1225. In his report, Mr Cochrane was critical of the project’s planning and duration. He concluded the project took a long time and resulted in the work-around being in place for four years causing unnecessary duplication of testing.¹⁵⁹⁷ He said there were significant delays progressing the different parts of the project.¹⁵⁹⁸ The project would have benefited from better planning, dedicated commitment of resources and staff being allocated to project work full-time for the prompt delivery of work.¹⁵⁹⁹

External Review by ESR

1226. Ms Allen was on leave when Ms Reeves and Mr McNevin clashed over the sperm microscopy issue. Relations between them were still frozen when Ms Allen returned from leave in September 2016. It was then decided that an external workplace investigator (Livingstone’s) should examine the broken professional relationship between Ms Reeves and Mr McNevin and how it affected workplace functioning. In a briefing note seeking approval for this engagement,¹⁶⁰⁰ Ms Allen acknowledged that the discord had increased tension and decreased open communication within the Management Team. Team members were “hesitant to provide scientific feedback on projects due to the uncomfortable atmosphere”.¹⁶⁰¹

1227. By the time that Ms Allen was thinking about engaging an external workplace consultant, the scientific concerns which sparked the conflict between Ms Reeves and Mr McNevin had already prompted the inquiry into the sensitivity of sperm microscopy (under Project #181) and, separately, the change of workflow to require all spermatozoa samples processed after August 2016 to undergo differential lysis extraction. None of these responses addressed the possibility that spermatozoa samples (beyond those brought to Ms Reeves’ attention) might have been missed for evidentiary value when the original

¹⁵⁹⁷ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [18], [29].

¹⁵⁹⁸ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [29].

¹⁵⁹⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [18].

¹⁶⁰⁰ Exhibit 91.37, Brief for Approval, dated 21 October 2016.

¹⁶⁰¹ Exhibit 91.37, Brief for Approval, dated 21 October 2016.

workflow was in place between 2010 and August 2016. To this date, no systematic review of spermatozoa samples has been conducted to investigate this possibility.

1228. Ms Reeves accepted the change of workflow mitigated the risk that spermatozoa samples submitted after August 2016 might be missed for evidentiary value. However, she believed this risk had not been fully understood since no “investigation/root cause analysis and risk assessment” had occurred.¹⁶⁰² In his evidence to the Commission, Mr Cochrane said that a historical review of potentially affected samples would have formed part of his response if the same issue had arisen under his management.¹⁶⁰³
1229. Ms Reeves considered the laboratory’s overall response to the issue was inadequate.¹⁶⁰⁴ She detailed her scientific concerns in a statement that she gave to the external workplace investigation shortly before she took extended leave at the end of November 2016. I agree with her view.
1230. In her evidence before the Commission, Ms Allen acknowledged that it would have been “a good step to take” to review spermatozoa samples processed between 2010 and August 2016 as a response to Ms Reeves’ concerns.¹⁶⁰⁵ Ms Allen said that it did not occur to her to do so at the time.
1231. The spectre of a public interest disclosure provoked a different response. In December 2016, Ms Allen and her manager, Executive Director Paul Csoban, learned that Ms Reeves might make a public interest disclosure about the scientific issue she had raised. They knew that Ms Reeves wanted action to determine the extent of the observed anomaly of spermatozoa not being detected in samples.¹⁶⁰⁶ They knew that other staff had encountered this issue.¹⁶⁰⁷ As Ms Allen said in her evidence, she was concerned that the

¹⁶⁰² Exhibit 91.44, Livingstones Report – External Investigation into DNA Analysis Team, 17 February 2017.

¹⁶⁰³ Transcript, Day 12, 17 October 2022, p1518.17-1519.11.

¹⁶⁰⁴ Exhibit 91.44, Livingstones Report – External Investigation into DNA Analysis Team, 17 February 2017.

¹⁶⁰⁵ Transcript, Day 22, 31 October 2022, p2707.7-2707.9.

¹⁶⁰⁶ Transcript, Day 15, 20 October 2022, p1813.21; Transcript, Day 22, 31 October 2022, p2705.19, 2710.15.

¹⁶⁰⁷ Transcript, Day 22, 31 October 2022, p2704.34; Exhibit 100, Letter from Amanda Reeves to Paul Csoban, 5 February 2017.

laboratory would be “viewed in a negative light” if Ms Reeves’ scientific opinions became public.¹⁶⁰⁸

1232. The risk of reputational harm to the laboratory directed Mr Csoban’s and Ms Allen’s response to the perceived threat of a public interest disclosure.
1233. In consultation with Jade Franklin, the human resources manager, Ms Allen and Mr Csoban conceived the idea of a review being undertaken by the Institute of Environmental Science and Research Ltd (ESR) of New Zealand. In a briefing note dated 20 December 2016 Ms Allen mentioned Mr Csoban’s intention to contact ESR “to undertake an external review” of the scientific concerns raised by Ms Reeves.¹⁶⁰⁹ On 16 January 2017, Mr Franklin told Ms Allen that he considered that ESR should be provided with all of Ms Reeves’ material so that the entirety of her scientific concerns could be considered.¹⁶¹⁰ This was, obviously, correct.
1234. Ms Allen understood that the issue arose because of anomalous results produced by applying standard operating procedures but ESR was asked to focus only on written procedures, even though no complaint had been made about their validity.
1235. On 1 February 2017, Ms Allen provided draft terms of reference to Mr Csoban. Five days later, ESR received a largely unchanged version of that document along with the documentation to be reviewed.¹⁶¹¹ The stated “objective” of the review was “to examine the processing of sexual assault investigation kits in the Forensic DNA Analysis laboratory to ascertain its validity as an acceptable scientific process.” To achieve that objective, ESR were to review written procedures concerned with examining spermatozoa samples. The workflow change adopted in August 2016 was not disclosed to ESR. The documents provided did include a “small report” about an investigation into a false positive result

¹⁶⁰⁸ Transcript, Day 22, 31 October 2022, p2711.7-2711.8.

¹⁶⁰⁹ Exhibit 173, Statement of Catherine Allen, 11 October 2016, CA-27, Bundle of documents for RTI3960 (Brief for Approval), p620.

¹⁶¹⁰ Transcript, Day 22, 31 October 2022, p2712.10-22; Exhibit 179, Cathie Allen Diary Note, 10 January 2017.

¹⁶¹¹ Exhibit 103, Scientific Review, 31 January 2017.

with a negative control from a presumptive screening test for semen on an occasion in November 2016.¹⁶¹² It had no bearing on the scientific issue that had been brought to the Management Team’s attention by Ms Reeves and others. The rapid response to generate this report contrasts starkly with the passivity shown by the laboratory in responding to the anomalous sperm microscopy results—the real issue.

1236. In addition to drafting the terms of reference, Ms Allen selected the documents that ESR were to review. A glaring omission in the supplied information was any mention of the incidence of false negative results. When drafting the terms of reference, Ms Allen had at her disposal the information from Ms Reeves about this issue and the corrective actions she had thought were needed.¹⁶¹³ Ms Allen had data summarising “initial findings” from a May 2016 investigation into a set of spermatozoa samples that was prompted by the issue highlighted by Ms Reeves.¹⁶¹⁴ Ms Allen knew that the Management Team regarded the issue of the sensitivity of sperm microscopy at evidence recovery to be sufficiently important to justify deploying time and resources to Project 181.
1237. Ms Allen withheld all that information from ESR. Nothing was disclosed to ESR that could have suggested it was possible for the relevant standard operating procedures adopted in Queensland to produce false, spermatozoa negative results or that the laboratory was performing the procedure defectively. Contrary to Ms Allen and Mr Csoban’s assurances that the review would address Ms Reeves’ concerns arising from such results, Mr Cochrane’s appraisal of the terms of reference is that they did not task ESR to assess the issue at all.¹⁶¹⁵ So much is obvious from the contemporaneous documents.
1238. As would have been expected, the report furnished by ESR confirmed that “the protocols and methods used at Queensland Health for the examination of SAIKs and other items

¹⁶¹² Exhibit 104, AP Paper – False Positive Investigation, 11 November 2016.

¹⁶¹³ Exhibit 204.41, Email from Paul Csoban to Cathie Allen re ‘Amanda’, 16 December 2016; Exhibit 204.41, Email from Cathie Allen to Paul Csoban re ‘Summary’, 16 December 2016.

¹⁶¹⁴ Exhibit 173, Statement of Catherine Allen, 11 October 2016, CA-20, Email to HY with background (with attachments) – 12.12.2016, p419.

¹⁶¹⁵ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [54].

relating to alleged sexual assaults ... are fit for purpose and in line with best practice for this type of examination.”¹⁶¹⁶ The report suggested some procedural improvements of a minor nature. The report did not explain, resolve or address in any way the false negative results that scientists had brought to Ms Reeves’ attention.

1239. Before the Commission, Ms Allen agreed that the findings and conclusions in the report failed to answer the problem highlighted by Ms Reeves.¹⁶¹⁷ Mr Csoban and Ms Allen both denied any deliberate impropriety in their procurement of the review by ESR.
1240. Mr Csoban insisted his “intention was always to review the SOP to make sure it was best practice and gave the best possible results”.¹⁶¹⁸ His understanding of the issue was that it arose from a defect in SOPs and so ESR had to concentrate on examining SOPs to determine their validity.¹⁶¹⁹ Having no prior experience in forensic DNA, his understanding came from conversations with Ms Allen and Mr Howes.¹⁶²⁰ Mr Howes denied any involvement in procuring the ESR review¹⁶²¹ and no evidence has been placed before the Commission to suggest he was involved.¹⁶²²
1241. Ms Allen maintained that the ESR review was intended to be a genuine response to Ms Reeves’ concerns. Her “perspective” was that an “end to end” desktop review of procedures “would highlight where we had any deficiencies which may also be around the false negatives”.¹⁶²³ She claimed that she did not inform ESR about the workflow change because she wanted to know if deficiencies had affected the process as it existed “before the risk mitigation step had been put in”.¹⁶²⁴ She said that she omitted

¹⁶¹⁶ Exhibit 91.22, ESR Report (Scientific Review, Forensic DNA Analysis, Forensic and Scientific Services), undated.

¹⁶¹⁷ Transcript, Day 22, 31 October 2022, p2723.39-2723.44.

¹⁶¹⁸ Transcript, Day 15, 20 October 2022, p1829.10-12.

¹⁶¹⁹ Transcript, Day 15, 20 October 2022, p1832.33-43.

¹⁶²⁰ Exhibit 38, Statement of Paul Csoban, 15 September 2022, [9]; Transcript, Day 15, 20 October 2022, p1829.45-47.

¹⁶²¹ Exhibit 148, Statement of Justin Howes, 6 October 2022, [74]-[80].

¹⁶²² Mr Howes states that he only became aware of the ESR review when he received a copy of the final report from Ms Allen on 4 January 2018 (See Exhibit 148, Statement of Justin Howes, 6 October 2022, [74]).

¹⁶²³ Transcript, Day 22, 31 October 2022, p2717.6-10.

¹⁶²⁴ Transcript, Day 22, 31 October 2022, p2718.6-9.

information about the false negative results from ESR’s purview because she did not wish to “bias them to look in a particular direction”.¹⁶²⁵

1242. Ms Allen’s claim to impartiality is inconsistent with her deliberate inclusion in the ESR brief of information about a false positive result. This information conveyed the anodyne conclusion that “there was no impact on the testing of any exhibits as a result of the events and investigations” which followed an isolated event unrelated to the process of sperm microscopy.¹⁶²⁶ Apart from being irrelevant to the potential systemic microscopy issue raised by Ms Reeves, it was also irrelevant to understand whether any applicable standard operating procedure was problematic. Ms Allen appeared to appreciate the incongruity of including this information because within the body of the draft terms of reference, Ms Allen had asked Mr Csoban whether the “small report” about the false positive result was to be reviewed.¹⁶²⁷

1243. The reason Ms Allen gave for putting forward this information was that Ms Reeves had provided it to Mr Csoban at a meeting.¹⁶²⁸ Indeed, when approving the final terms of reference prepared by Ms Allen, Mr Csoban stated, “And we should include the paper that was handed to me to ensure full transparency”.¹⁶²⁹ However, this is seen to be a disingenuous pretence on Ms Allen’s part by the fact that Ms Allen deliberately omitted information furnished by Ms Reeves that actually pertained to her scientific concern and could have revealed a systemic problem. Ms Allen did not give a reason to the Commission that logically explained this omission.

1244. Ms Allen’s exclusion of information about multiple historical instances of false negative results, while including information about one isolated false positive result from an irrelevant process, falsifies her claim that she wanted ESR to conduct a holistic, impartial review of laboratory processes to address Ms Reeves’ concerns. On the contrary, it shows

¹⁶²⁵ Transcript, Day 22, 31 October 2022, p2716.12-16.

¹⁶²⁶ Exhibit 104, AP Paper – False Positive Investigation, 11 November 2016.

¹⁶²⁷ Exhibit 204.46, Email from Cathie Allen to Paul Csoban re ‘ToR for Scientific Review’, 1 February 2017.

¹⁶²⁸ Transcript, Day 22, 31 October 2022, p2715.43-45.

¹⁶²⁹ Exhibit 91.38, Email from Paul Csoban to Cathie Allen re ‘RE: Updated ToR’, 2 February 2017.

that Ms Allen intended to misdirect the review that ESR was to undertake. Ms Allen deliberately procured a review from ESR that did not address the gravamen of Ms Reeves' scientific concerns.

1245. It is not a coincidence that the procurement of the ESR review took place at a time when management were in the process of excluding Ms Reeves from the laboratory.

1246. On 1 February 2017, Ms Allen learned that Ms Reeves wanted to return from leave to her original position as a senior reporting scientist.¹⁶³⁰ A week earlier, Ms Allen objected to a proposal for Ms Reeves to work on cases which did not involve sexual assault samples.¹⁶³¹ In a letter dated 3 February 2017, when the terms of reference to ESR were still being considered, Mr Csoban proposed to Ms Reeves that she work in a temporary role outside of the laboratory while a "scientific review" was pending. He assured her that he had "engaged an external expert" to consider her scientific concerns.¹⁶³² In a draft briefing note prepared for Mr Csoban on 7 February 2017,¹⁶³³ Ms Allen reiterated her opposition to Ms Reeves' returning to work as a reporting scientist. Ms Allen cited the risk that Ms Reeves might cause reputational harm if she was to give testimony consistent with her scientific concerns about the examination of spermatozoa samples. Of course, if that was her opinion as an expert witness, she was duty bound to give the evidence. The recommendation proposed was that Ms Reeves should undertake "alternate duties" until the external workplace investigation and the ESR review were finalised.

1247. In early March 2017, Ms Reeves returned from leave. She was compelled by a direction from the Chief Executive Officer to work in an alternate role outside the organisational structure and the location of the laboratory.¹⁶³⁴ She was directed to work in a windowless

¹⁶³⁰ Exhibit 173, Statement of Catherine Allen, 11 October 2016, CA-28, Bundle of documents for RTI3161 (Email from Paul Csoban to Cathie Allen, p1260.

¹⁶³¹ Exhibit 173, Statement of Catherine Allen, 11 October 2016, CA-40, Email from Paul Csoban to Cathie Allen and Jade Franklin – 25.01.2017, p1922.

¹⁶³² Exhibit 99, Letter from Paul Csoban to Amanda Reeves, 3 February 2017.

¹⁶³³ Exhibit 173, Statement of Catherine Allen, 11 October 2016, CA-28, Bundle of documents for RTI3161 (Director-General Brief for Noting), p1510.

¹⁶³⁴ Exhibit 204.49, Letter from Gary Uhlmann to Amanda Reeves, 10 February 2017.

room and given work to do that did not adequately reflect her real skills. It was a deliberate humiliation.

1248. After the final ESR report was delivered, an e-mail exchange between Mr Franklin, Ms Allen and Mr Csoban on 28 March 2017 lays bare the improper purpose for the review to support Ms Reeves' exclusion from the laboratory.

1249. Mr Franklin queried Mr Csoban whether the ESR report needed to be "tightened up". He asked, "Is it a problem that the report does not comment on the fact that Ms Reeves is wrong in her thinking? In terms that 'false negative' issue Ms Reeves discusses is not an issue at all."

1250. Mr Csoban forwarded the query to Ms Allen without elaboration. Ms Allen told the Commission that the purpose of the ESR review was not to "disparage" Ms Reeves.¹⁶³⁵ I reject that answer as untrue. Her evasive response to Mr Franklin's query failed to challenge or contradict the implicit assumption that the ESR report was meant to put Ms Reeves' scientific concern to rest. That Mr Franklin saw fit to raise this query at all demonstrates that Ms Reeves' employment situation was the operative factor behind the ESR review being procured.

1251. On 7 April 2017, Mr Csoban met with Ms Reeves to discuss her employment situation. The significant topic for discussion was whether she would accept "the outcomes of both the Livingstone's Review and ESR Scientific Review".¹⁶³⁶ Mr Csoban presented the outcomes verbally but did not provide a copy of the reports to her. If he had, it would undoubtedly have been apparent to Ms Reeves that the ESR report did not address her scientific concerns.

1252. I have considered Mr Csoban's responsibility for Ms Reeves' unfair treatment. He accepted in his evidence that he regarded Ms Reeves as a "divisive" figure. In his

¹⁶³⁵ Transcript, Day 22, 31 October 2022, p2722.26.

¹⁶³⁶ Exhibit 204.57, E-mail from Paul Csoban to Gary Uhlmann re 'Amanda Reeves meeting and Crown Law document', 7 April 2017.

submissions, Mr Csoban pointed out that Ms Reeves was only one of 400 members of staff that he supervised and so he relied heavily upon what Ms Allen told him.¹⁶³⁷ He has submitted that he was not aware that the ESR report failed to address Ms Reeves' real concerns.¹⁶³⁸ It may be that he ought to have appreciated that that was so, but I do not find that he knew. I accept that, in his position, he was entitled to rely upon Ms Allen. He was not to know that his reliance on Ms Allen was misplaced, and that Ms Allen was using him to sideline Ms Reeves.

1253. Ms Allen has submitted that she was inexperienced in legal matters.¹⁶³⁹ She has submitted that she was called upon to undertake the unfamiliar task of preparing the terms of reference for ESR, and neither Mr Csoban nor Mr Franklin had alerted her to any deficiency.¹⁶⁴⁰

1254. To the extent that Ms Allen's claimed inexperience and naivety could explain why she commissioned an investigation by ESR that would not determine the real issue,¹⁶⁴¹ I reject her explanation. It is beside the point that Ms Allen had not drafted terms of reference before. Her prior training and experience lay exclusively in the field of forensic DNA analysis. She had been the managing scientist of the laboratory for almost a decade. She had leadership responsibility for every change of scientific process within the laboratory in that time. Mr Csoban and Mr Franklin rightly deferred to her scientific expertise. The purported aim of the ESR review was straightforward—to resolve the possibility that standard operating procedures as written and as actually practised could fail to detect spermatozoa, that being the core of Ms Reeves' concerns. It was either through pure incompetence or deliberate design that Ms Allen prepared terms of reference which produced an external review that furnished a confirmatory opinion without touching the issue at all. The progression of events culminating in the ESR review supports the latter conclusion.

¹⁶³⁷ Submissions on behalf of Paul Csoban, 25 November 2022, [3.3].

¹⁶³⁸ Submissions on behalf of Paul Csoban, 25 November 2022, [2.3]-[2.4].

¹⁶³⁹ Submissions on behalf of Cathie Allen, 28 November 2022, [107].

¹⁶⁴⁰ Submissions on behalf of Cathie Allen, 28 November 2022, [109].

¹⁶⁴¹ Submissions on behalf of Cathie Allen, 28 November 2022, [108].

Analysis of sperm samples after Project #181

1255. The final report for Project #181 confirmed that initial investigations were inconclusive as to the cause of the notable differences between the sensitivity of the evidence recovery microscopy and differential lysis microscopy. The exaggerated differences that had been observed in the laboratory were unable to be replicated.¹⁶⁴²
1256. Despite the above limitation, experimental data confirmed that the sensitivity of the evidence recovery microscopy technique was consistently less sensitive compared to its differential lysis counterpart.
1257. The final report recommended the implementation of a new workflow devised for the examination of all samples submitted for semen testing, taking into account all stages of Project #181.¹⁶⁴³ The workflow progressed all potential semen samples directly to differential lysis prior to microscopy, while retaining the ability to conduct presumptive tests as required. The new workflow did not involve the creation of a slide at the evidence recovery stage at all.
1258. Mr Cochrane said that the amended sperm microscopy method did allow for the reliable identification of spermatozoa. However, Mr Cochrane was critical of the proposed workflow for several reasons. First, differential extraction is an inefficient testing technique.¹⁶⁴⁴ Second, the laboratory's excessive upfront submission of suspected spermatozoa samples for differential extraction may affect the ability to obtain DNA profile/s using alternative technology such as Y-STR.¹⁶⁴⁵ Third, testing all potential semen samples upfront with a differential extraction protocol is not best practice for sexual assault cases where sperm is not detected.¹⁶⁴⁶ Fourth, performing sperm microscopy at

¹⁶⁴² Exhibit 91.19, Project #181 – Final Report, July 2020, p57.

¹⁶⁴³ Exhibit 91.19, Project #181 – Final Report, July 2020, p59.

¹⁶⁴⁴ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [43].

¹⁶⁴⁵ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [44].

¹⁶⁴⁶ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [46].

the differential lysis stage impedes 'time since intercourse' assessments which whilst rare, may be of evidentiary value in some cases.¹⁶⁴⁷

1259. The Y-STR method targets male DNA on the Y-chromosome causing the female DNA within the sample to be made redundant. Significantly, the technology can target trace amounts of male DNA in SAIK samples where semen has not been detected (ie. through presumptive testing).¹⁶⁴⁸
1260. By 2020, Mr Cochrane determined that laboratory best practice required the laboratory being able to utilise Y-STR testing in sexual assault investigations.¹⁶⁴⁹ This contrasts with the proposed workflow recommended by Project #181 which did not contemplate Y-STR technology. The project failed to consider or validate alternative technology that could improve the accuracy and reliability of the laboratory's testing methods in respect of sexual assault samples.
1261. As a yardstick, Mr Cochrane confirmed in his oral evidence that the New South Wales laboratory in which he works has been using Y-STR technology since 2009.¹⁶⁵⁰ I find that Y-STR testing capabilities are fundamental to the contemporary operation of a forensic laboratory undertaking sexual assault case work.
1262. The senior leaders of the laboratory, Ms Allen, Mr Howes and Ms Brisotto failed to appreciate that scientific best practice had evolved during the life of Project #181 and so the project should be directed toward Y-STR processing, not to optimising presumptive tests and differential lysis extraction.
1263. These findings support several recommendations I made in relation to Y-STR testing. See Section 2.5, Sexual Assault Casework.

¹⁶⁴⁷ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [58].

¹⁶⁴⁸ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [44].

¹⁶⁴⁹ Exhibit 91.9, Expert report of Clint Cochrane, 10 October 2022, [46], [56].

¹⁶⁵⁰ Transcript, Day 12, 17 October 2022, p1520.10-44.

5.4 Bone and teeth sample processing (2020 – 2022)

1264. The laboratory processes bone and teeth samples relating to three types of cases, being:
- a. coronial case samples— where the coroner seeks to establish DNA identification through the testing of unknown skeletal remains;
 - b. litigated case samples – where remains are tested that relate to a case going through the criminal justice system; and
 - c. DVI case samples – received as part of a Disaster Victim Identification (DVI) event where multiple persons are deceased as a result of a disaster event.
1265. The processing of bone samples is a highly specialised field. It requires skill and expertise outside the standard scientific knowledge required for the processing of crime scene and reference samples.¹⁶⁵¹ It also involves a wider range of stakeholders, including the coroner, missing persons investigators, the mortuary and forensic pathologists and odontologists.¹⁶⁵²
1266. The general process undertaken by the laboratory to test bone samples begins with the receipt of a bone specimen from the mortuary. A scientist then de-fleshes the bone, removes its edges and chisels into it to obtain bone fragments from the centre of the bone. Those fragments are crushed into a bone powder, using a bone crusher vial and liquid nitrogen, and separated into four aliquots for DNA extraction.¹⁶⁵³
1267. Dr Kogios and Ms Baker stated that any changes to bone processing practices, including cleaning regimes, must be properly assessed through a validation study prior to

¹⁶⁵¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [101]; Transcript, Day 8, 11 October 2022, p1033.34-1034.26.

¹⁶⁵² Exhibit 64, Statement of Angelina Keller, 6 October 2022, [59]; Transcript, Day 8, 11 October 2022, p1071.6-37.

¹⁶⁵³ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [62].

implementation. This is particularly important given the unique equipment used in bone casework and the challenges of cleaning bone powder residue.¹⁶⁵⁴

Mixed profiles

1268. As a matter of biology, a scientist would not expect a bone sample to contain more than one person's DNA.¹⁶⁵⁵ Since November 2020, scientists at the laboratory have seen an increase in mixed profiles obtained from bone samples.¹⁶⁵⁶ This had previously been a rare occurrence.¹⁶⁵⁷ An experienced bone scientist from the laboratory, Ms Angelina Keller, and Ms Baker both considered the increased identification of mixed DNA profiles in bone samples indicates a significant problem.¹⁶⁵⁸ A mixed profile from a bone sample is anomalous because a bone is inherently a single source of DNA.

1269. In some cases where mixed DNA profiles have been obtained, it has been possible to defer to single source results from other samples from the bone or identify a major DNA contributor from the mixture and use this for comparison. However, this has not been the case for all mixed DNA profiles identified.¹⁶⁵⁹

1270. In the circumstances, I conclude that the increased presence of mixed profiles indicates that the processing of bone samples at the laboratory is not currently returning reliable results. I note that an OQI (#56724) was raised on 17 June 2022, but has not yet resulted in any experimental or investigatory work within the laboratory.

Rec 106. The laboratory must retrospectively review bone and teeth samples processed by the laboratory since 1 July 2019 where it was not possible to obtain a single

¹⁶⁵⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [102].

¹⁶⁵⁵ Transcript, Day 8, 11 October 2022, p1034.43-1035.4.

¹⁶⁵⁶ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [47]-[51]; Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-19, Spreadsheet of bone sample results between 2019-2022.

¹⁶⁵⁷ Transcript, Day 8, 11 October 2022, p1043.30-38.

¹⁶⁵⁸ Transcript, Day 8, 11 October 2022, p1035.23-35; Transcript, Day 24, 2 November 2022, p2905.24-28.

¹⁶⁵⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [100(f)].

source DNA profile for comparison from the case and facilitate the re-testing of samples at an external accredited laboratory.

Cleaning of bone equipment

1271. Bone sampling requires specific equipment including chisels, hammers, Perspex chisel blocks, Dremel bits, hand and electric saws, that because of their composition are prone to pitting, damage or rusting. Pitting and rusting provide significant risks to DNA analysis because DNA from previous samples may be trapped in the damage to the metal and contaminate the next sample for which the equipment is used.¹⁶⁶⁰ The equipment differs to other equipment used across the laboratory.¹⁶⁶¹
1272. On 5 July 2019, Mr McNevin (the manager of the Evidence Recovery team) directed a change in bone processing equipment cleaning protocol through the minor change management log from the use of the cleaning agent Tergazyme to:
- a. cleaning of the bone crushing equipment using the dishwasher; and
 - b. using bleach and/or Trigen followed by 70% ethanol (as appropriate) to clean the remaining equipment.¹⁶⁶²
1273. The change followed concerns raised by Mr Michael Goodrich, a senior laboratory assistant, about the storage and disposal of Tergazyme.¹⁶⁶³
1274. Mr McNevin gave evidence that he consulted Project #148 for the cleaning process to be implemented for crusher vials (which was considered an appropriate validation by Dr Taylor) and Project #153 (Verification of Cleaning Reagents for use in Forensic DNA Analysis) for the remaining equipment, although could not recall if he read the reports at

¹⁶⁶⁰ Transcript, Day 8, 11 October 2022, p1058.30-36.

¹⁶⁶¹ Transcript, Day 12, 17 October 2022, 1542.6-7.

¹⁶⁶² Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-22, Extract of the change management log regarding change in bone processing

¹⁶⁶³ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [59].

the time.¹⁶⁶⁴ He also consulted Ms Brisotto and Dr Scott.¹⁶⁶⁵ Mr McNevin then wrote to the Management Team and sought their approval for the change, which they provided.¹⁶⁶⁶

1275. The extent of Ms Brisotto's consideration of the change was limited. She did not consult Project #148 or #153 which were said to be the basis of Mr McNevin's reasoning. She was unaware why Tergazyme was used initially.¹⁶⁶⁷ No other Management Team members provided any substantive review or consideration.

1276. Project #148 had been completed in May 2015 and studied the optimisation of the cleaning protocol for bone crusher vials.¹⁶⁶⁸ The validation applied only to bone crusher vials. It found that the Miele dishwasher was the best cleaning method for vials, followed by Tergazyme as a viable backup.¹⁶⁶⁹ Trigene Advance was not considered suitable.¹⁶⁷⁰

1277. Conversely, Project #153 verified the use of bleach and/or Trigene Advance, followed by 70% ethanol, to clean biological material¹⁶⁷¹ for general laboratory cleaning. It tested blood deposited on petri dishes in April 2015. The project did not consider the application of cleaning protocols on the specialised equipment used in bone casework.¹⁶⁷² The reliance on this project to support the change to cleaning of bone equipment was inappropriate between:

¹⁶⁶⁴ Transcript, Day 13, 18 October 2022, p1597.22-37.

¹⁶⁶⁵ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [59]-[61]; Transcript, Day 13, 18 October 2022, p1579.45-1580.10.

¹⁶⁶⁶ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [61].

¹⁶⁶⁷ Transcript, Day 16, 21 October 2022, p2007.1-2008.39.

¹⁶⁶⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-21, Project #148 – to optimize the cleaning protocol for bone crusher vials.

¹⁶⁶⁹ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-21, Project #148 – to optimize the cleaning protocol for bone crusher vials, p19.

¹⁶⁷⁰ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-21, Project #148 – to optimize the cleaning protocol for bone crusher vials, p18.

¹⁶⁷¹ Blood and saliva.

¹⁶⁷² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [100(c)].

- c. first, bone powder residue differs in substance to biological material and liquids; and
 - d. second, bone processing requires a unique set of equipment, most of which is not disposable and is made of metal that is prone to pitting and rusting.
1278. Project #153 identified specifically the risk of bleach causing pitting and corrosion.¹⁶⁷³
1279. Ms Brisotto conceded that Project #153 provides little, if any, information on an appropriate substance to use for cleaning bone equipment¹⁶⁷⁴ but disagreed that there was any issue with the process that was undertaken for changing the cleaning protocol.¹⁶⁷⁵ She accepted that no consideration was given to the possible differences between bone sampling equipment and other steel or metal implements used elsewhere in the laboratory, including the grade of steel.¹⁶⁷⁶
1280. Ms Angelina Keller is a reporting scientist with over 20 years experience in bone processing, with scientific competency in bone sampling as well as bone reporting. She was not consulted about the cleaning change.¹⁶⁷⁷ She gave evidence that in May 2022 she observed pitting and rusting on chisels used for bone case work.¹⁶⁷⁸ Ms Keller also confirmed that the use of bleach on its own or mixed with Trigene causes rusting on the equipment used in bone sampling.¹⁶⁷⁹
1281. Rusting and pitting of metal equipment was identified in Project #153 as a risk of using bleach as a cleaning agent. Ms Brisotto said she was aware of rusting and pitting in chisels but considered that was adequately dealt with by replacing equipment when observed.¹⁶⁸⁰ Mr McNevin was unaware of any rusting concerns prior to the

¹⁶⁷³ Exhibit 93, Project #153 – Verification of Cleaning Reagents for use in Forensic DNA Analysis, 22 June 2015, p1.

¹⁶⁷⁴ Transcript, Day 16, 21 October 2022, p2011.31-34.

¹⁶⁷⁵ Transcript, Day 16, 21 October 2022, p2015.4-26.

¹⁶⁷⁶ Transcript, Day 16, 21 October 2022, p2056.33-2057.23.

¹⁶⁷⁷ Transcript, Day 13, 18 October 2022, p1582.5-7.

¹⁶⁷⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [71].

¹⁶⁷⁹ Transcript, Day 8, 11 October 2022, p1089.11-19.

¹⁶⁸⁰ Transcript, Day 16, 21 October 2022, p2056.4-8.

Commission;¹⁶⁸¹ he had ceased being the Senior Scientist for Evidence Recovery in November 2021.

1282. Dr Kogios and Ms Baker found that the reliance on the Project #153 validation to support the July 2019 change to cleaning processes was “not ideal”.¹⁶⁸² The laboratory’s process change is also inconsistent with Dr Kogios and Ms Baker’s finding that any changes to practice should be properly assessed via a validation study prior to implementation.¹⁶⁸³

1283. The change in cleaning procedure to use bleach and/or Trigene followed by 70% ethanol on bone equipment (excluding crusher vials) and its current use, in the absence of a specific validation or verification study for bone equipment and bone residue, was and is inconsistent with best practice. Queensland Health accepted this finding is open on the evidence.¹⁶⁸⁴

1284. Mr McNevin submitted that in implementing the change, he was responding to a legitimate workplace health and safety concern, appropriately used the resources that were available to him at the time and appropriately consulted management.¹⁶⁸⁵ While the workplace health and safety concern may have been a legitimate one, it is the change process undertaken with which I am concerned. I have no issue with the validity of Project #148 as validating a cleaning method for bone vial crushers. Its findings should have alerted the laboratory to the unique nature of bone processing equipment and the need for individualised validations. While I accept that Project #148 and 153 cannot be directly compared given their experimental designs,¹⁶⁸⁶ this does not negate the inaptness of Project #153 as a validation for bone sampling tools. Queensland Health conceded that

¹⁶⁸¹ Transcript, Day 12, 17 October 2022, p1547.38-47.

¹⁶⁸² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [102], [105]; Transcript, Day 24, 2 November 2022, p2902.37-2903.28.

¹⁶⁸³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [102].

¹⁶⁸⁴ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH70].

¹⁶⁸⁵ Submissions on behalf of Allan McNevin, 25 November 2022, [3.2].

¹⁶⁸⁶ Submissions on behalf of Allan McNevin, 25 November 2022, [3.15].

reliance on Project #153 was misplaced.¹⁶⁸⁷ I accept that Mr McNevin, as then-manager of the Evidence Recovery Team, would have felt constrained in attempting to balance scientific, operational and managerial considerations.¹⁶⁸⁸ He did not think it was necessary to conduct a specific validation for the tools for various reasons.¹⁶⁸⁹ These considerations, however, do not justify deviation from best scientific practice. I accept that Mr McNevin was not made aware of rusting equipment¹⁶⁹⁰ or that bone samples could be obtaining mixed profiles,¹⁶⁹¹ and as such would not have been aware of the potential issues the change may have been causing.

1285. Ms Brisotto submitted that she should not be criticised for failing to initiate a validation project as the change was “not a move to a new process, but rather a standard process utilised in the laboratory for equipment”.¹⁶⁹² I do not accept that. The laboratory previously used the cleaning agent Tergazyme. That was changed to bleach/Trigene and ethanol which, notwithstanding its use on other items, had not been used on bone processing equipment. The use of bleach/Trigene and ethanol on bone equipment is a use of the method outside of its validated parameters.¹⁶⁹³ In any event, Queensland Health accepted that the use of the procedure without a specific validation or verification was and is inconsistent with best practice.¹⁶⁹⁴

1286. Mr McNevin did not complete a validation before proposing a change in cleaning process.¹⁶⁹⁵ This fact, in itself, is inconsistent with best scientific practice. However, Mr McNevin received the approval of the Management Team to make the change.¹⁶⁹⁶ Ms

¹⁶⁸⁷ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH71].

¹⁶⁸⁸ Submissions on behalf of Allan McNevin, 25 November 2022, [3.18].

¹⁶⁸⁹ Submissions on behalf of Allan McNevin, 25 November 2022, [3.18].

¹⁶⁹⁰ Submission on behalf of Allan McNevin, 25 November 2022, [3.13].

¹⁶⁹¹ Submissions on behalf of Allan McNevin, 25 November 2022, [3.19(b)].

¹⁶⁹² Submissions on behalf of Paula Brisotto, 30 November 2022, [70].

¹⁶⁹³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [105].

¹⁶⁹⁴ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH70].

¹⁶⁹⁵ Transcript, Day 12, 17 October 2022, p1541.46-1542.1.

¹⁶⁹⁶ Submissions on behalf of Allan McNevin, 25 November 2022, [3.20].

Brisotto, as Team Leader of Evidence Recovery, and the Management Team, did not adequately consider the change so as to ensure that a validation was conducted before implementation. This was in circumstances in which the unique nature of the bone sampling tools warranted a specific validation, notwithstanding the experimental design challenges that would be faced.¹⁶⁹⁷ The significance of this failure and the prevalence of obtaining mixed profiles is such that bone work must cease until a cleaning procedure has been appropriately validated.

1287. Ms Gregg has identified that a difference of opinion between scientists in the laboratory exists as to whether it can be conclusively said that first, bone samples are obtaining mixed profiles and second, that the bone cleaning protocol could be a cause of any contamination. Dr Kogios and Ms Baker confirmed that there have been mixtures in bones identified.¹⁶⁹⁸ In regard to the second contention, Ms Gregg referred to Dr Kogios and Ms Baker's statement that mixtures of DNA in bone samples should "be a red flag to go back and check those processes and any changes that have happened downstream of those".¹⁶⁹⁹ This includes changes to cleaning processes. That change may be contributing to contamination in bone sample processing. It may not be. That fact cannot be conclusively determined without a thorough investigation. I understand an OQI has commenced and is progressing as a matter of priority.¹⁷⁰⁰ Irrespective of whether the cleaning regime change is found to be the cause of contamination, it should be "properly assessed via a validation study prior to implementation". This is particularly important given the unique equipment used for bone work.¹⁷⁰¹ Best practice demands this.

1288. In any event, Ms Gregg confirmed that the laboratory intends to carry out a validation of the bone equipment cleaning protocol because it is "good science".¹⁷⁰² This is an

¹⁶⁹⁷ Submissions on behalf of Allan McNevin, 25 November 2022, [3.18(d)].

¹⁶⁹⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [100(f)]; Transcript, Day 24, 2 November 2022, p2905.18-47.

¹⁶⁹⁹ Exhibit 280, Statement of Helen Gregg, 1 December 2022, [31].

¹⁷⁰⁰ Exhibit 280, Statement of Helen Gregg, 1 December 2022, [15]-[16].

¹⁷⁰¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [102].

¹⁷⁰² Exhibit 280, Statement of Helen Gregg, 1 December 2022, [17].

appropriate decision, but understates the importance of such a validation (or verification) in circumstances where mixed profiles have been obtained from inherently single-source samples. The difficulties regarding bone sample processing have not always existed at the laboratory. They must be investigated and corrected.

1289. In addition to the cleaning protocol validation, Dr Kogios and Ms Baker recommended that external staff who deal with bone samples regularly (such as mortuary staff) be added to the laboratory's elimination database.¹⁷⁰³ This will assist in investigating any past or future contamination which may contribute to obtaining a mixed profile. I accept this recommendation.

Rec 107. The laboratory must cease all bone casework until a validation study into the appropriate cleaning process of bone sampling equipment is undertaken to determine a suitable procedure. This validation should be conducted as a matter of priority.

Rec 108. The laboratory should engage with external staff who deal with bone samples regularly, including mortuary staff, and facilitate the addition of such staff to the laboratory's elimination database in order to effectively discover any past or future contamination.

Change to extraction method

1290. In April 2018, the laboratory validated and implemented a change to bone and teeth extraction methods from organic extraction (which included the use of phenol chloroform) to QIAGEN pre-lysis followed by QIASymphony extraction (which involves mechanical instrument-based extraction).¹⁷⁰⁴ Following issues with the experimental design of the validation identified by a reporting scientist (which paused its use),¹⁷⁰⁵ a

¹⁷⁰³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [101].

¹⁷⁰⁴ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-24, Project Report #192 Validation of QIASymphony SP for Bone Extraction.

¹⁷⁰⁵ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [76]-[80].

supplementary study was conducted¹⁷⁰⁶ and in March 2020 the extraction method was re-implemented.

1291. Ms Keller gave evidence that the QIASymphony extraction method works adequately for ‘fresh’ bone and teeth samples that are rich in DNA. However, Ms Keller observed quantitation result differences between samples from older, compromised bones which suggested some unreliability (for example samples from the same bone femur returning quants of 0.04 ng/μL and 0.00015 ng/μL). Based on her observation, Ms Keller opined that the QIASymphony extraction method cannot be considered optimal for compromised bone and teeth samples.¹⁷⁰⁷ This concern was raised by Ms Keller and Ms Wilson with Mr Howes by email in April 2018, who attributed the difference in quantitation results to “sample variation”.¹⁷⁰⁸ Counsel for Mr Howes suggested that Mr Howes’ view, as a matter of science, was that the validation of the method was to be trusted.¹⁷⁰⁹ However, Mr Howes’ evidence was that he could not recall the complaint.¹⁷¹⁰

1292. Mr Howes did not investigate the concerns raised by Ms Keller and Ms Wilson in 2018 about the change to the bone extraction process and the differing quantitation results being obtained.

1293. A post-implementation audit was conducted after the commencement of the QIASymphony method but it did not consider effectiveness or reliability of results.¹⁷¹¹

1294. When asked about the change in bone extraction protocol, Mr McNevin gave evidence of Project #123 conducted in 2013 where organic extraction outperformed instrument-

¹⁷⁰⁶ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-26, Project Report #192 Validation of QIASymphony SP for Bone Extraction.

¹⁷⁰⁷ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [88]; Transcript, Day 8, 11 October 2022, p1061.29-1062.12.

¹⁷⁰⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [77].

¹⁷⁰⁹ Transcript, Day 8, 11 October 2022, p1105.8-1106.1.

¹⁷¹⁰ Transcript, Day 19, 26 October 2022, p2451.14-2452.15.

¹⁷¹¹ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, ARM-35, Audit 25980 QIASymphony – bone-teeth extraction – post implementation.

based extraction.¹⁷¹² Despite this, in around 2014 Mr McNevin discussed modernising bone extraction and moving away from phenol-chloroform organic extraction with Mr Ryan.¹⁷¹³ Project #192 was then launched, which validated the use of the QIASymphony for bone extraction.

1295. While the experts engaged by the Commission found that the current extraction method has been properly validated, concerns have been raised about its ability to optimally process old or compromised samples.¹⁷¹⁴ Relevantly, Dr Kogios and Ms Baker have recommended that the laboratory review extraction procedures to determine the optimal process. Once this has been established, it must be validated specifically for bone samples. I accept this recommendation.

1296. Ms Keller gave evidence that she was not consulted about the change of extraction method or the change in cleaning protocol and was of the opinion that the rationale for the decision was not sufficiently or transparently explained to her.¹⁷¹⁵ This is a failure by the laboratory's management to undertake transparent and collaborative decision making. When viewing these various incidents as a whole, I find that the laboratory's management allowed a culture to exist where the most experienced bone scientist in the laboratory was not consulted about changes to bone processing procedures. This is not conducive of best scientific decision-making.

Rec 109. The laboratory must conduct a project to determine the optimal method for DNA extraction from bone samples and validate and implement that method for use in bone case work.

Rec 110. In addressing the recommendations within this section, the laboratory should engage with external service providers who have expertise in bone processing

¹⁷¹² Noting that validation considered the Maxwell instruments for extraction rather than the QIASymphony instruments. Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [63]; Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, ARM-30, Verification report #123 Maxwell 16 DNA extraction of bone.

¹⁷¹³ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [65].

¹⁷¹⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [107].

¹⁷¹⁵ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [96], [109].

for guidance on best practice bone sampling methods and protocols that maximise the recovery of DNA profiles from bone samples.

Access to the mortuary

1297. Historically, scientists working with bone case work attended the mortuary to assist pathologists with bone, tooth and tissue selection suitable for DNA recovery. In March 2021, Ms Allen issued a formal direction stating that the elimination of Forensic DNA Analysis staff from entering the mortuary had been approved by her as the preferred control for diseases and psychological risks, as part of a risk assessment.¹⁷¹⁶ The document is dated 27 November 2020 and was approved by Ms Gregg.
1298. The direction followed a risk assessment undertaken between mortuary staff, Forensic DNA Analysis and Health Support Queensland¹⁷¹⁷ regarding DNA staff entering the mortuary. Mr Damien Cass, Mortuary Manager, preferred that the number of staff accessing the mortuary be limited but noted “to ensure continued access ... a clear purpose for the work conducted would be required”.¹⁷¹⁸ Complete elimination of Forensic DNA staff was not a necessary outcome of the risk assessment. There is no evidence that this was the preferred control method of the Mortuary Manager nor was it said to be required by Health Support Queensland.
1299. In May 2021, Ms Angelina Keller spoke to then-Executive Director John Doherty and his advisor Alison Slade about her concerns regarding prohibition on access to the mortuary and was advised by Mr Doherty that he would discuss the issue with management.¹⁷¹⁹ No meaningful consideration or resolution was ever offered by management to Ms Keller

¹⁷¹⁶ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [98]; Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-31, Email chain between Allen, Rika and Keller regarding direction from management advising that scientists are not to attend the mortuary.

¹⁷¹⁷ HSQ is the entity responsible for workplace health and safety across Queensland Health.

¹⁷¹⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-31, Email chain between Allen, Rika and Keller regarding direction from management advising that scientists are not to attend the mortuary.

¹⁷¹⁹ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [100]; Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-32, Email chain between Keller and Doherty and handwritten file note by Keller about the meeting.

regarding her concerns. This is a failure of the Management Team. Mr Doherty gave evidence that the confidential nature of Ms Keller's complaints may have acted as a barrier to effective action, as action could not be taken on such a specific concern without identifying the source of that concern.¹⁷²⁰ I disagree with this logic. In my view, a further review of the mortuary access policy could, and should, have been undertaken to assess the benefits to DNA recovery versus the psychological risk, following Ms Keller's concerns. Queensland Health submitted, in response to the Commission's proposition of the laboratory's failure to engage with bone scientists, that Ms Keller was emailed the risk assessment correspondence about attendance.¹⁷²¹ Emailing correspondence summarising a decision that has already been made is not the same as consulting someone about a decision.

1300. Ms Angelina Keller gave evidence that assisting pathologists with sample selection at the mortuary maximises the chance of obtaining a useable DNA profile as quickly as possible.¹⁷²² This element of her evidence was not challenged. Ms Allen's evidence suggested limited knowledge of bone processes; for example she did not know that mixed profiles were being obtained by the unit.¹⁷²³

1301. I accept the validity of the workplace health and safety concerns and the desire from the Mortuary Manager to limit the numbers of people entering the mortuary.¹⁷²⁴ This does not, however, necessarily warrant a complete elimination. The evidence before me indicates that the laboratory suggested just that. By preventing scientists from assisting forensic pathologists with sample selection in person, when appropriate (and in circumstances where telephone or photographic assistance is insufficient), the laboratory

¹⁷²⁰ Transcript, Day 14, 19 October 2022, p1784.27-1785.3.

¹⁷²¹ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH75].

¹⁷²² Exhibit 64, Statement of Angelina Keller, 6 October 2022, [99].

¹⁷²³ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [92].

¹⁷²⁴ Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH73].

is compromising its ability to obtain a usable DNA profile in the most timely and efficient manner.

Rec 111. The laboratory should review its internal policy regarding access by laboratory staff to the mortuary, in conjunction with mortuary staff, and consider the appropriate balance between managing the risks identified by the mortuary and the scientific benefits of bone scientists assisting pathologists with sample selection.

Attendance to Coronial ID meetings

1302. Coronial ID meetings are conducted weekly and, historically, attended by two reporting scientists from the laboratory, a specialised staff member from the Scientific Services Liaison Unit, forensic pathologists, QPS officers from the Coronial Support Unit, forensic odontologists and bereavement counsellors. The meetings are conducted to distribute information between relevant stakeholders, with the end goal of minimising delays in the identification of remains.¹⁷²⁵
1303. In June 2019, the laboratory directed that reporting scientists were no longer permitted to attend Coronial ID meetings. Instead, a member of the Evidence Recovery team attends.¹⁷²⁶ Mr Howes provided a summary of the direction by email to Ms Angelina Keller and Ms Wilson which stated he had been “given a direction to work towards aligning tasks and roles appropriately within Forensic DNA”.¹⁷²⁷
1304. Ms Angelina Keller raised immediate concerns in 2019 with her Team Leader Mr Howes about the removal of reporting scientists from Coronial ID meetings.¹⁷²⁸ In 2022, she raised the issue again with FSS Executive Director Lara Keller.¹⁷²⁹ No meaningful

¹⁷²⁵ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [94].

¹⁷²⁶ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [95].

¹⁷²⁷ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-29, Email chain between Howes and Keller about coronial meetings.

¹⁷²⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-29, Email chain between Howes and Keller about coronial meetings; Exhibit 64, Statement of Angelina Keller, 6 October 2022, [95].

¹⁷²⁹ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-30, Email from Angelina Keller to Lara Keller about coronial meetings; Exhibit 64, Statement of Angelina Keller, 6 October 2022, [97].

consideration was given to Ms Angelina Keller's concerns. Further, she was not consulted about the decision to change the process or how it might affect bone case work. This is a failure of the laboratory's management and decision-making processes.

1305. Ms Angelina Keller is the laboratory's most experienced bone scientist.¹⁷³⁰ She gave evidence that not attending the meetings detrimentally affects how she can conduct her tasks.¹⁷³¹ She was not challenged on this.

1306. The purpose of the meetings is to share information between all stakeholders about the identification of remains in a coronial case. I find it necessary that a scientist with competence in bone work and an oversight of bone casework attends on behalf of the DNA Analysis Unit. Queensland Health submitted that Ms Lloyd, the team leader of Evidence Recovery, attends or delegates attendance in circumstances where Ms Lloyd has relevant experience with bones.¹⁷³² This appears satisfactory, but the laboratory should take care to ensure that information is adequately conveyed to all bone casework scientists.

1307. The removal of reporting scientists working with bone samples from Coronial ID meetings may not be conducive to an effective, overall case management approach to bone case work. The laboratory should reconsider its approach, with consultation with experienced bone work scientists.

Rec 112. The laboratory should review its standard operating procedures and any relevant guidelines to ensure scientists with bone case work are able to engage with the necessary stakeholders in order to manage the case in a holistic way and deliver results to external stakeholders as promptly as possible.

¹⁷³⁰ Transcript, Day 8, 11 October 2022, p1073.23.

¹⁷³¹ Transcript, Day 8, 11 October 2022, p1072.25-46.

¹⁷³² Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH74].

Scientist specialisation

1308. Due to its specialisation, highly skilled and experienced scientists are required for optimal bone processing. These scientists must be actively engaged in any procedural changes relevant to their work.¹⁷³³
1309. Ms Angelina Keller gave evidence that she has been removed from involvement in the evidence recovery of bone and teeth samples and mortuary enquiries have been redirected from her, and from other scientists with bone expertise, to the manager of the Evidence Recovery team.¹⁷³⁴ She was not consulted about this change or the recent changes to bone equipment cleaning and extraction methods.
1310. Mr McNevin had a supervisory role in the management of bone processing as part of his position as Senior Scientist of the Evidence Recovery team in 2014 to 2021. He gave evidence that, in his view, the sampling of bones was no different in principle to any other exhibit and was therefore a task for the Evidence Recovery Team.¹⁷³⁵ He also suggested that staff outside of the Evidence Recovery Team need not be involved in the sampling of bones, given that no other sampling of exhibit types required staff outside of the team.¹⁷³⁶ I disagree with this reasoning given the specialisation of bone sampling, and my recommendation is to re-introduce case management by reporting scientists into the laboratory.
1311. Mr McNevin and Queensland Health gave evidence indicating that scientists competent with bone casework have continued to be involved in bone sampling, which is borne out by the bone sampling roster.¹⁷³⁷ I acknowledge this evidence. The same cannot, however, be said for their involvement in bone process changes.

¹⁷³³ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [101]; Transcript, Day 24, 2 November 2022, p2903.8-18.

¹⁷³⁴ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [109].

¹⁷³⁵ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [45].

¹⁷³⁶ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, [30].

¹⁷³⁷ Exhibit 91.3, Statement of Allan McNevin, 13 October 2022, ARM-28, Copy of Bone sampling log as at 16-09-2022; Appendix A, Response on behalf of Queensland Health to possible adverse findings, 25 November 2022, [QH75].

1312. The laboratory has failed to engage with its scientists competent and experienced in bone sampling when implementing procedural changes, in circumstances where it is scientifically sound practice to do so. I accept the recommendation of Dr Kogios and Ms Baker that such engagement should occur.¹⁷³⁸

Rec 113. The laboratory should implement a policy into its project and change management standard operating procedures that requires scientists with competency in bone sampling and reporting be consulted when changes to bone processing are considered.

¹⁷³⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [101].

6. DNA EVIDENCE IN THE CASE OF SHANDEE BLACKBURN

6.1. The approach of the Commission

1313. It is an extraordinary aspect of the work of this Commission that the murder of a young woman on the streets of Mackay in 2013 has played such a pivotal role in the exposure of the failings of the state-run DNA laboratory.
1314. While the story of Ms Blackburn's murder begins with her walking home through the darkened streets of Mackay, the story of the forensic investigation commences a few hours later, when scenes of crime and then scientific officers of the QPS attended the place where she was attacked, and the hospital and mortuary. Those officers investigated throughout the course of the day and for a number of weeks thereafter.
1315. The majority of samples in this case were taken from three areas: from Ms Blackburn herself; from the scene of the murder; and from the car of the suspect. A number of knives were located during the course of the investigation but none could be established as the murder weapon.
1316. In her review of the material available to her prior to the commencement of this Commission, Dr Wright was concerned about samples which fall broadly into five categories. They are samples or swabs of blood from the scene of the murder; samples of the bloodstained shirt that Ms Blackburn was wearing when she was attacked; swabs of trace DNA located on Ms Blackburn's trousers; samples taken following presumptive screening for blood in the car of the suspect; and samples from a t-shirt found near the scene.
1317. Just as I have sought to assess the reliability and accuracy of the DNA testing at the laboratory more generally, I have also sought to investigate and understand the testing undertaken in Ms Blackburn's matter.

1318. To do this, I commissioned experts Ms Johanna Veth and Dr Bruce Budowle to examine the DNA testing undertaken in this case, and Dr Wright's concerns as expressed in the report she provided to me.¹⁷³⁹ This approach is of course entirely in keeping with the scientific tradition of peer review.
1319. Ms Veth, Dr Budowle and Dr Wright were given a large amount of evidence to review. This included the forensic case file, a collection of documents compiled by the laboratory consisting of information including (but not limited to) actions taken by QPS officers when taking samples, details of the samples themselves, processes undertaken by the laboratory in testing the samples, and the reported results. Further documentation, about laboratory issues and processes, was provided throughout the process, at the requests of the experts.
1320. With the benefit of Ms Veth and Dr Budowle's report,¹⁷⁴⁰ and following an opportunity to consult with them Dr Wright provided an addendum report.¹⁷⁴¹
1321. As a result of this process Ms Veth, Dr Budowle and Dr Wright were able to reach significant agreement as to which issues may have had a bearing on the results. Some exceptions do remain, but in my view they are best seen as differences of emphasis rather than substance.

6.2. The expert evidence

1322. In this chapter, I consider the issues that Ms Veth, Dr Budowle and Dr Wright identified may have affected the results in the Blackburn investigation.
1323. Those issues may be considered in the context of the findings made by Ms Veth and Dr Budowle about the functioning of the laboratory in early 2013. They found that the

¹⁷³⁹ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022.

¹⁷⁴⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn Case, 23 November 2022.

¹⁷⁴¹ Exhibit 221, Dr Kirsty Wright, Addendum Report: Review of Blackburn DNA Analysis, 18 November 2022.

following issues were not dealt with by the laboratory in a way which demonstrated a focus on quality assurance:

- a. Ongoing contamination from different sources (capillary electrophoresis (CE) carryover, drop-in and gross contamination events);
- b. Apparent discrepancies in DNA recovery between the MultiProbe® II and Maxwell extraction platforms;
- c. An incorrect injection time on a CE instrument going undetected for several months;
- d. Failures in the investigation of and documentation of OQI 34043, an investigation into the root cause for a defective reagent;
- e. Issues with the implementation of a new reagent;
- f. Procedures following the detection of the defective reagent; and
- g. Inadequate disclosure of quality incidents that had affected the outcome of DNA profiling

1324. I accept this evidence, which is not disputed by Queensland Health.

1325. Ms Veth and Dr Budowle also found that the laboratory failed to maintain a proper case file in the Blackburn case. Documentation was missing, including:

- a. Detailed information as to what samples were affected by quality incidents and any decision-making as to rework and reporting of results
- b. Batch and batch quality information such as the performance of positive and negative controls
- c. Quantitation results and quality flags for case samples and extraction controls.

1326. I accept that the absence of this information prevented a full review of the matter. Again, this is not disputed by Queensland Health.

Rec 114. The laboratory should review the Standard Operating Procedures for case management in order to ensure the following documentation is included in case files:

- a. Detailed information as to what samples were affected by quality incidents and any decision-making as to rework and reporting of results
- b. Batch and batch quality information such as the performance of positive and negative controls
- c. Quantitation results and quality flags for case samples and extraction controls

1327. In addition to these findings, based on the expert evidence of Ms Veth and Dr Budowle, I find that the model of case work employed by the laboratory at the time of the Blackburn case, involving the reporting of results as soon as they became available, led to a lack of oversight of the case overall. Again, this is accepted by Queensland Health. I have dealt with the issue with the model of case work elsewhere in the report.

1328. Before I turn to the detail of the Blackburn case it is important to note that while Ms Veth, Dr Budowle, and Dr Wright paint a picture of a laboratory under pressure, experiencing a number of quality issues simultaneously and with heightened emphasis on turnaround times, there is no evidence before me of deliberate wrongdoing or concealment on the part of the laboratory in this case.¹⁷⁴²

STRmix v.1.05 and PowerPlex 21 – a major change in 2012

1329. Ms Blackburn's case was one of the first to come through the laboratory after the implementation of a major change in DNA processing which occurred in late 2012. In order to understand her case fully it is necessary to consider that change and how it was handled by the laboratory.

¹⁷⁴² Transcript, Day 25, 24 November 2022, p3018.8-19.

1330. In 2012, the Australian and New Zealand Police Advisory Agency (ANZPAA) wanted Australian forensic laboratories to adopt new technologies that would significantly improve their analytical capability.¹⁷⁴³ First, ANZPAA wanted laboratories to use a more sensitive DNA profiling kit that would yield usable DNA profiles even from very small amounts of DNA. One such kit was called PowerPlex 21 (PP21). Second, ANZPAA wanted laboratories to use a software tool called STRmix v.1.05 to interpret DNA profiles. The computational capabilities of this software enabled scientists to interpret results that were too complex for manual interpretation alone. ANZPAA wanted forensic laboratories in Australia to adopt the new technologies by the end of 2012.
1331. As already observed, the adoption of any new scientific process requires a sound validation of the process by the laboratory to ensure reliability of results. Validating one of PP21 or STRmix v.1.05 would have imposed a significant challenge upon any laboratory.¹⁷⁴⁴ The complexity of validating STRmix was compounded by the absence of published validation guidelines for STRmix.¹⁷⁴⁵
1332. The need to simultaneously validate a new DNA profiling kit and STRmix v.1.05 placed an enormous burden upon forensic laboratories in Australia.¹⁷⁴⁶ Only the Queensland laboratory managed to validate and implement both within the timeframe expected by ANZPAA. Both technologies were in use by December 2012. The laboratories from other jurisdictions obtained extensions of time to complete the necessary validation work.¹⁷⁴⁷

¹⁷⁴³ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [47].

¹⁷⁴⁴ Transcript, Day 25, 24 November 2022, p3067.7-29.

¹⁷⁴⁵ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [54].

¹⁷⁴⁶ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [48].

¹⁷⁴⁷ Exhibit 217, Email from Cathie Allen to David Neville re 'Update', 1 March 2013.

PowerPlex 21

1333. Though the experiments to validate PP21 were designed according to best practice, Ms Veth and Dr Budowle found that the laboratory's evaluation of the experimental data fell short. As a result, the implementation of PP21 was flawed.
1334. The greater sensitivity of PP21 allows interpretable DNA profiles to be obtained from very small amounts of DNA. The challenge remains for laboratories to accurately interpret the profiling data that results. When the amount of DNA reduces, stochastic effects in the profiling data increase, which in turn complicates the task of interpreting the data for information indicative of real DNA contribution.¹⁷⁴⁸
1335. The Queensland laboratory performed validation experiments to gauge an acceptable minimum amount of DNA in samples from which PP21 could reliably yield interpretable DNA profiles. The documentation charting this process reflected that the laboratory was preoccupied with avoiding a well-known stochastic phenomenon known as "allele drop out".¹⁷⁴⁹ Ms Veth and Dr Budowle considered the laboratory was unduly concerned by this risk as contemporary methods of DNA profiling interpretation could adequately manage the risk.¹⁷⁵⁰
1336. The laboratory decided that a sample must contain at least 132 picograms of DNA before it would be profiled using PP21. Samples with less than the threshold amount of DNA would not be routinely processed, despite complete DNA profiles having been obtained from samples containing smaller amounts of DNA than that during validation studies.¹⁷⁵¹

¹⁷⁴⁸ Transcript, Day 25, 24 November 2022, p3061.36.

¹⁷⁴⁹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [18].

¹⁷⁵⁰ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [19].

¹⁷⁵¹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [24].

The laboratory considered the risk of allele drop out was “greatly increased” in the profiles obtained from samples with less than 132 picograms of DNA.¹⁷⁵²

1337. This threshold, and the conclusions drawn to justify it, defied the laboratory’s own experimental data. The data demonstrated “no substantial allele drop out” in DNA profiles obtained from samples containing as little as 25 picograms of DNA.¹⁷⁵³ Ms Veth and Dr Budowle found that the experimental data supported the overall conclusion that “interpretable DNA profile results were obtainable from DNA samples containing significantly less DNA than [132 picograms]”.¹⁷⁵⁴

1338. A proper evaluation of the laboratory’s validation data for PP21 would have warranted a processing threshold far below 132 picograms. Dr Budowle posited that the laboratory was biased against the results produced by its validation studies because it maintained an unshaken assumption that to profile samples with less than 132 picograms of DNA would result in greater stochastic effects.¹⁷⁵⁵ Dr Budowle explained that exaggerated stochastic effects “didn’t mean that all samples that were below that level [of 100 to 150 picograms] couldn’t be interpreted, it just meant that a good portion of them were more difficult.”¹⁷⁵⁶

1339. The ramification was the potential loss of evidence. Dr Budowle observed that by fixing an unnecessarily conservative threshold, the laboratory abandoned obtaining “viable data”, either inculpatory or exculpatory, which its own validation studies had shown were likely obtainable.¹⁷⁵⁷

1340. The substandard implementation of PP21 was exacerbated by the failure to undertake a timely review of the threshold.

¹⁷⁵² Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [24].

¹⁷⁵³ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [22].

¹⁷⁵⁴ Transcript, Day 25, 24 November 2022, p3061.12.

¹⁷⁵⁵ Transcript, Day 25, 24 November 2022, p3062.1-22.

¹⁷⁵⁶ Transcript, Day 25, 24 November 2022, p3061.44-47.

¹⁷⁵⁷ Transcript, Day 25, 24 November 2022, p3062.35.

1341. During the validation process, it had been appropriately recommended that the threshold be reviewed after six months of implementation. It took almost three years for this to occur. In the meantime, issues associated with the implementation of PP21 were identified and addressed in a piecemeal fashion.¹⁷⁵⁸ Such issues included those which may have diminished the quality of results obtained from samples submitted during the investigation into the murder of Ms Blackburn.
1342. Ms Veth and Dr Budowle opined that workload demands and resourcing pressures might have delayed the laboratory's review of its implementation of PP21. Nevertheless, they considered the three-year delay posed "a substantial risk".¹⁷⁵⁹ The risk was the possibility of missing "errors that can occur or missing important factors that can improve their process".¹⁷⁶⁰ A comprehensive and timely review could have avoided this risk.¹⁷⁶¹ It could have enabled errors, such as those which may have affected the Blackburn case, to be detected earlier.¹⁷⁶²
1343. Consistent with this evidence, I find that the setting of the 132 picogram threshold by the laboratory was premature and not supported by the data. This created a great risk of not detecting potentially probative, exculpatory or otherwise informative profiling results. Queensland Health accepts that this finding is open.
1344. I further find that the laboratory failed to conduct a review until three years after the implementation of PP21 and STRmix, despite the decision of the management team to do so within six months. This failure prevented laboratory improvement and created a substantial risk of failure to identify weaknesses and take corrective actions where necessary. Queensland Health accepts that this finding is open.

¹⁷⁵⁸ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [36], [41].

¹⁷⁵⁹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [34].

¹⁷⁶⁰ Transcript, Day 25, 24 November 2022, p3071.32.

¹⁷⁶¹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [41].

¹⁷⁶² Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [41].

STRmix v.1.05

1345. Ms Veth and Dr Budowle found that the laboratory's validation of STRmix v.1.05 was "in general ... competently undertaken and demonstrated a good understanding of the software".¹⁷⁶³ The software parameters were largely set within appropriate bounds.¹⁷⁶⁴ However, Ms Veth and Dr Budowle identified two failures of implementation that hampered the efficacy of the STRmix platform as deployed by the laboratory.
1346. First, the laboratory failed to review the parameters it had set to enable the software to account for a stochastic phenomenon called "drop-in".
1347. Drop-in occurs randomly when small fragments of DNA in the laboratory environment infiltrate samples during the profiling procedure.¹⁷⁶⁵ STRmix v.1.05 had the computational power to generate statistical modelling to reliably distinguish drop-in from real DNA contribution in profiling data.¹⁷⁶⁶ But the efficacy of this important functionality relies on the laboratory setting proper parameters, collectively referred to as a "drop-in cap", which the software uses to perform calculations. The parameters would initially be derived from data obtained through the validation process. After implementation, it is imperative for the laboratory to continuously assess drop-in data to ensure its drop-in parameters correspond with the actual frequency of drop-in.¹⁷⁶⁷
1348. Ms Veth and Dr Budowle found that the Queensland laboratory failed to adjust its drop-in settings after implementing the STRmix platform. After implementation, the laboratory encountered drop-in "more frequently than determined by the initial PP21 validation

¹⁷⁶³ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [62].

¹⁷⁶⁴ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [65]-[74].

¹⁷⁶⁵ Exhibit 219, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [75].

¹⁷⁶⁶ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [76]-[78].

¹⁷⁶⁷ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [76]-[78].

data”.¹⁷⁶⁸ The intensity of drop-in also exceeded what its drop-in cap would accommodate.¹⁷⁶⁹ Moreover, one of the capillary electrophoresis instruments used during the validation process had been incorrectly configured,¹⁷⁷⁰ and drop-in was still detected when the validation study was repeated with the instrument correctly set.¹⁷⁷¹ Such problems should have alerted the laboratory to the need to review its drop-in cap and ensure it was reliably estimating the probability of drop-in.¹⁷⁷²

1349. There was no such consideration, not even when the laboratory validated a new version of STRmix in 2014.¹⁷⁷³ Instead of showing impetus to review its drop-in cap, it was said at a management team meeting on 5 March 2014 that the laboratory’s drop-in parameter “provides an effective case management strategy for accounting for the possible presence of additional peaks”.¹⁷⁷⁴ The better strategy, in Ms Veth’s opinion, “is one that reduces drop-in events to begin with.”¹⁷⁷⁵

1350. This failure of implementation of STRmix v.1.05 created the risk that interpretations of profiling data using the software might falsely characterise drop-in as real contributions of DNA, particularly for low DNA samples vulnerable to stochastic effects.¹⁷⁷⁶

1351. The second failure of implementation weakened the laboratory’s capacity to interpret complex DNA profiles.

¹⁷⁶⁸ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [85].

¹⁷⁶⁹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [85].

¹⁷⁷⁰ The incorrect setting was associated with the time duration in which DNA material was injected into the machine. This issue became the subject of OQI #34817, which is discussed in detail later in this Chapter.

¹⁷⁷¹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [84].

¹⁷⁷² Transcript, Day 25, 24 November 2022, p3070.46.

¹⁷⁷³ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [87].

¹⁷⁷⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [168].

¹⁷⁷⁵ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [168].

¹⁷⁷⁶ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [88].

1352. STRmix is “designed to manage the variability caused by stochastic effects in low level DNA profiles”.¹⁷⁷⁷ It enhances the analytical capability of a laboratory to obtain meaningful profiling results from samples containing a mixture of small amounts of DNA from multiple persons. The laboratory’s own validation data demonstrated STRmix v.1.05 had the potential to reliably interpret major and minor contributions of DNA from mixed samples containing as little as 60 picograms of total DNA.¹⁷⁷⁸
1353. However, having decided that samples with less than 132 picograms of DNA would not be routinely profiled, the laboratory stopped the validation process from fully exploring the ability of STRmix v.1.05 to interpret data from mixtures of small amounts of DNA from multiple sources.¹⁷⁷⁹ The laboratory also decided that, for any amount of DNA, it would not engage in interpreting four-person mixtures, even though its validation data demonstrated STRmix v.1.05 could do so.¹⁷⁸⁰
1354. Thus, the laboratory implemented STRmix v.1.05 in a way that hamstrung the key analytical advantage it offered in the interpretation of complex mixed DNA profiles. Combined with the excessively low PP21 processing threshold, the laboratory was at risk of failing to detect “informative profiling results” probative of guilt or innocence.¹⁷⁸¹
1355. The adoption of PP21 and STRmix was supposed to expand the laboratory’s analytical capability. However, as Ms Veth and Dr Budowle have identified, there were material failures in the implementation of these technologies. This resulted in failures which contributed to a risk that the laboratory was failing to detect probative evidence and obtain the best possible results.

¹⁷⁷⁷ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [97].

¹⁷⁷⁸ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [97].

¹⁷⁷⁹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [96]-[97].

¹⁷⁸⁰ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [90]-[91].

¹⁷⁸¹ Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [100].

1356. Ms Veth and Dr Budowle considered the failures were avoidable had the laboratory not rushed to implement both technologies by the end of 2012.¹⁷⁸² In his evidence before the Commission, Dr Budowle opined that the laboratory may have failed to recognise “the depth of the challenges” and, consequently, “failed themselves in properly understanding it and implementing it and training their people”.¹⁷⁸³

Use of defective Proteinase K

1357. Apart from the systemic problems created by the implementation of PP21 and the STRmix v.1.05, Dr Wright identified another quality issue that had the potential to affect the quality of results in the Blackburn case and other cases.

1358. On 20 March 2013, the laboratory was extracting DNA from investigation samples obtained by the police. Staff noticed a batch of reference DNA samples had produced very low quantitation values after extraction. This indicated poor recovery of DNA from these samples which were expected to yield large amounts of DNA had the extraction process proceeded correctly.

1359. After a repeat of the extraction process failed to improve results, laboratory staff detected the same anomaly in several other batches of samples. The positive control samples in these batches yielded amounts of DNA that were 30 to 100 times below the expected range.¹⁷⁸⁴ Like reference samples, positive controls should yield strong quantification values after extraction since the samples are known to contain a strong contribution of DNA.

1360. The samples with unexpectedly low DNA yields were from batches processed on the “Maxwell” DNA extraction platform. The issue was detectable as early as 18 March 2013

¹⁷⁸² Exhibit 219, Johanna Veth and Dr Bruce Budowle, Review of Powerplex 21 and STRmix V1.05 validations, 20 November 2022, [103]-[104].

¹⁷⁸³ Transcript, Day 25, 24 November 2022, p3069.7-29.

¹⁷⁸⁴ Exhibit 253.1, OQI 34043 “Positive Extraction Controls with low DNA yields”, 22 March 2013.

when the first of the batches with anomalous results was processed.¹⁷⁸⁵ Once the issue became known, the laboratory appropriately suspended further use of the Maxwell platform pending a quality investigation.

1361. Mr McNevin was leading the Analytical team responsible for DNA extraction processes at the laboratory. He directed a quality investigation to determine the root cause.
1362. Before the Maxwell platform can extract DNA from samples, a scientist must prepare the required reagents. One reagent, called “Proteinase K”, breaks cell walls to release DNA molecules from within. To work optimally, the Proteinase K must be prepared in a solution with a pH range of 7 to 8. The performance of this reagent is critical to the success of the DNA extraction process.¹⁷⁸⁶
1363. The aliquots of Proteinase K used to extract the samples with unexpectedly low DNA yields came from the same batch. This batch was prepared from stock supplied by one manufacturer. Laboratory staff discovered that the aliquots of Proteinase K remaining in this batch had a pH of 14, significantly above the functional limit. The laboratory concluded that the recovery of DNA in the samples with unexpectedly low DNA yields must have been impeded by the defective Proteinase K.¹⁷⁸⁷
1364. The laboratory identified 186 casework samples and 26 reference samples which were affected by the Proteinase K issue.¹⁷⁸⁸ However, the remaining aliquots of defective Proteinase K were not properly quarantined. They were inadvertently used in early April 2013 to extract another 77 casework samples and another batch of reference

¹⁷⁸⁵ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [106].

¹⁷⁸⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [114].

¹⁷⁸⁷ Exhibit 253.1, OQI 34043 “Positive Extraction Controls with low DNA yields”, 22 March 2013.

¹⁷⁸⁸ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [101].

samples.¹⁷⁸⁹ All samples affected by the Proteinase K issue were eventually re-extracted where possible. Seven such samples could not be reprocessed.¹⁷⁹⁰

1365. The cause for the high pH level of the defective Proteinase K remains inconclusive to this day.

1366. Email correspondence in April 2013 suggested the aliquots of defective Proteinase K were prepared from expired stock. The laboratory did not check the expiry date of the stock upon receipt. It then did not store the prepared aliquots of defective Proteinase K at a temperature consistent with the manufacturer's specification. However, the manufacturer considered these errors were unlikely to cause the high pH seen in the defective Proteinase K.¹⁷⁹¹ Ms Veth also reached the view that the expiry of the Proteinase K was not a cause since other batches of Proteinase K prepared from the same stock had performed adequately.¹⁷⁹²

1367. The laboratory's quality investigation led to the discovery of a malfunction in the industrial dishwasher used to clean glassware equipment. In the investigation report, Mr McNevin hypothesised that this malfunction might have left caustic cleaning detergent residue on a measuring cylinder used to prepare aliquots of defective Proteinase K.¹⁷⁹³ The report noted the dishwasher was repaired. However, nothing in the contemporaneous documents elucidates the nature of the malfunction, the extent of the problem, nor any evidence to support the theory that the malfunctioning dishwasher caused the incorrect pH of the defective Proteinase K. Though the dishwasher malfunction was advanced as a possible cause, the laboratory did not seek to investigate

¹⁷⁸⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [102].

¹⁷⁹⁰ Exhibit 129.3, Statement of Allan McNevin, 10 October 2022, [37]-[38].

¹⁷⁹¹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [99].

¹⁷⁹² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [109].

¹⁷⁹³ Exhibit 253.1, OQI 34043 "Positive Extraction Controls with low DNA yields", 22 March 2013.

any downstream effects of the malfunction.¹⁷⁹⁴ Dr Budowle emphasised to the Commission that “the documentation and the review wasn’t sufficient to point to the dishwasher as a culprit”.¹⁷⁹⁵

1368. Ms Veth and Dr Budowle considered the likelier explanation was that someone simply failed to correctly prepare the aliquots of defective Proteinase K.¹⁷⁹⁶ However, shortcomings in the laboratory’s quality investigation stopped Ms Veth or Dr Budowle from drawing this conclusion with certainty. Ms Veth considered an essential aspect of the quality investigation should have been to examine differences between how, when and by whom aliquots of defective and non-defective Proteinase K were prepared and stored.¹⁷⁹⁷ It did not appear on the face of contemporaneous records that the laboratory gave any attention to this aspect. As Ms Veth explained to the Commission, the quality investigation seemed to lack “some pretty standard troubleshooting”.¹⁷⁹⁸
1369. Though it could not conclusively determine the root cause, the laboratory implemented procedural checks and balances to ensure suboptimal reagents would not be used in future DNA extractions.
1370. Ms Veth noted that quality control measures of this kind were “standard practice for forensic DNA laboratories internationally” since at least 1 July 2009.¹⁷⁹⁹ She opined that it was “highly unusual” the laboratory did not already have such quality control measures in 2013.¹⁸⁰⁰

¹⁷⁹⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [100].

¹⁷⁹⁵ Transcript, Day 25, 24 November 2022, p3022.35.

¹⁷⁹⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [111]; Transcript, Day 25, 24 November 2022, p3022.36-38.

¹⁷⁹⁷ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [111]; Transcript, Day 25, 24 November 2022, p3022.36-38.

¹⁷⁹⁸ Transcript, Day 25, 24 November 2022, p3022.14.

¹⁷⁹⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [113].

¹⁸⁰⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [113].

1371. In a statement to the Commission Mr McNevin confirmed that the Proteinase K issue did affect four reference samples from the investigation into Ms Blackburn's murder.¹⁸⁰¹ Each of these samples was subsequently reprocessed.
1372. Ms Veth and Dr Budowle found no evidence that defective Proteinase K affected crime scene samples in the Blackburn case.¹⁸⁰²
1373. In her report, Dr Wright said that she could not exclude the possibility that the Proteinase K issue may have weakened profiling results obtained for certain crime scene and reference DNA samples from the Blackburn case.¹⁸⁰³
1374. Before the Commission, Dr Wright agreed with Ms Veth and Dr Budowle that there was no evidence from which it could be concluded that defective Proteinase K or a faulty dishwasher had affected results obtained for samples from the Blackburn case.¹⁸⁰⁴ However, Dr Wright told the Commission that whilst she agreed that there was no evidence which demonstrated definitively that these issues had affected the Blackburn samples, she retained some residual concern due to the number of samples which had performed poorly.¹⁸⁰⁵ Dr Wright was concerned that the laboratory's deficient quality investigation left unresolved questions as to whether the reliability of the DNA evidence had been affected by poor performance of processes.¹⁸⁰⁶
1375. I am satisfied that there is no evidence that defective Proteinase K or a faulty dishwasher affected the results obtained for samples from the Blackburn case.

¹⁸⁰¹ Exhibit 129.3, Statement of Allan McNevin, 10 October 2022, [35]-[36].

¹⁸⁰² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [117].

¹⁸⁰³ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p20.

¹⁸⁰⁴ Transcript, Day 25, 24 November 2022, p3022.11-47.

¹⁸⁰⁵ Transcript, Day 25, 24 November 2022, p3021.19.

¹⁸⁰⁶ Transcript, Day 25, 24 November 2022, p3021.3-9.

Incorrect injection time

1376. The variety of quality control challenges confronting the laboratory in 2013 extended to the two Genetic Analyzers that the laboratory used to analyse DNA material extracted from samples.
1377. The Genetic Analyzers were referred to as A and B. Each has capillaries into which DNA material from a sample is injected. By a process called capillary electrophoresis, the machine analyses the DNA material in the capillaries to generate peaks on a graph, known as an electropherogram. Subject to stochastic phenomena which may affect the interpretation, the peaks indicate the presence of STRs at different loci.¹⁸⁰⁷ The information presented in the electropherogram is understood as the DNA profile for that sample.
1378. On 8 July 2013, laboratory staff were looking into a quality issue detected in the results produced by both Genetic Analyzers. When examining that issue, they found a critical setting on Genetic Analyzer B was set incorrectly. This setting concerned the duration in which DNA material would be injected into the capillaries of the machine, thereby determining how much DNA material would be analysed. Instead of five seconds of injection time, the machine was set to inject DNA material for three seconds. Genetic Analyzer B was consequently not analysing DNA material at the level needed to produce optimal results. The electropherograms so generated by Genetic Analyzer B did not reliably represent the true strength and presence of DNA contribution in a sample.
1379. Stronger DNA profiling results were predictably generated after Genetic Analyzer B was operated with the correct injection time.

¹⁸⁰⁷ STRs, or Short Tandem Repeats, are the repetitive patterns of genetic markers that are dispersed along the human DNA strand. Each location of the DNA strand at which STRs are examined is a “locus”, the plural of which is “loci”.

1380. Ms Veth considered that, upon learning of the issue, the laboratory responded quickly and appropriately.¹⁸⁰⁸ In her report, Dr Wright expressed concern that the contemporaneous investigation report left unanswered questions about the full impact of the issue.¹⁸⁰⁹
1381. The laboratory halted the use of Genetic Analyzer B while an investigation took place to determine the extent to which the issue affected results. It identified affected casework samples to be reprocessed in what Ms Veth noted would have been “a massive undertaking”.¹⁸¹⁰
1382. Ms Veth found that the laboratory “took appropriate action” to reprocess “approximately” 41 affected casework samples from the Blackburn case.¹⁸¹¹ The final result was unchanged for all but some samples. At least one sample yielded a full DNA profile instead of the partial profile generated at first instance. Several samples yielded additional “low level peaks” of a kind that were thought to possibly indicate DNA from another contributor.¹⁸¹²
1383. However, as Ms Veth and Dr Wright¹⁸¹³ both encountered in their respective reviews of the case, the documentation maintained on the case file did not transparently communicate what remedial work was done. There was no document listing the affected samples, what further action was taken and the outcome obtained. The electropherograms generated by Genetic Analyzer B on the incorrect injection setting had been removed from the case file. The incorrect injection issue could have affected the interpretations of profiling results. Yet the witness statements and intelligence reports

¹⁸⁰⁸ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [130].

¹⁸⁰⁹ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p30.

¹⁸¹⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [130].

¹⁸¹¹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [132].

¹⁸¹² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [133].

¹⁸¹³ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p29.

failed to disclose the issue. Ms Veth found this omission “troubling”.¹⁸¹⁴ Dr Wright expressed a similar concern.¹⁸¹⁵

1384. The laboratory discovered that Genetic Analyzer B had never been operated with the correct injection time. This meant that the experimental data produced by the machine for the validation of PP21 and STRmix v.1.05 could not be relied upon with confidence. The laboratory revisited the aspects of the validations which were sensitive to the injection time of Genetic Analyzer B.¹⁸¹⁶

1385. Dr Wright was concerned that the incorrect injection issue could have led the laboratory to fix an inappropriately low Limit of Reporting (LOR).¹⁸¹⁷ The Genetic Analyzer is so sensitive that the electropherogram it produces can pick up the noise and interference it generates incidentally when in operation. This noise would be visible as small peaks in the electropherogram. The LOR marks the threshold below which STRmix assumes low level peaks reflect this baseline noise.¹⁸¹⁸ How a LOR is determined depends on the individual laboratory.¹⁸¹⁹ The Queensland laboratory determined its LOR using a dataset that included data generated by Genetic Analyzer B on the incorrect injection setting. Dr Wright opined that incorporating such data in the calculation of the LOR could have yielded a lower threshold than was justified by the actual sensitivity of the machines.¹⁸²⁰ If the LOR is unjustifiably low, the STRmix platform will incorporate, rather than exclude, instrument noise in how DNA contributions are interpreted.¹⁸²¹ This in turn can impair the accuracy of profiling results, particularly for low DNA samples.

¹⁸¹⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [133].

¹⁸¹⁵ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p29.

¹⁸¹⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [124]-[125].

¹⁸¹⁷ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p30-32.

¹⁸¹⁸ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [137].

¹⁸¹⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [142].

¹⁸²⁰ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p31.

¹⁸²¹ Exhibit 220, Dr Kirsty Wright, Review of Blackburn DNA Analysis, November 2022, p32.

1386. Ms Veth and Dr Budowle considered the incorrect injection setting on Genetic Analyzer B was unlikely to have unduly influenced the laboratory's LOR. Injection time variations do not significantly change instrument noise. Furthermore, the laboratory evaluated the data generated by both Genetic Analyzers in a way that mitigated any distortion that the incorrect injection setting of the B machine could have upon the overall determination of the LOR.¹⁸²²
1387. Though she was not critical of the LOR calculated by the laboratory,¹⁸²³ Ms Veth was "deeply" concerned that no one checked Genetic Analyzer B's injection parameters during the validation of PP21 nor during the months after PP21 was implemented.¹⁸²⁴ Injection time is "easily accessible" information within the software used to operate the instrument.¹⁸²⁵
1388. Ms Veth was also concerned by the laboratory's failure to review its drop-in cap after it corrected the injection time in Genetic Analyzer B. As has been explained, the drop-in cap mitigates the risk of unintended DNA fragments being interpreted as true DNA contribution in a profiling result obtained from a sample. The laboratory's drop-in cap was determined with experimental data from the validations of PP21 and STRmix v.1.05, which included data from Genetic Analyzer B run on the incorrect injection time setting. Upon revising that data after detecting the issue, the laboratory did not think to incorporate the revised data into its parameters for the STRmix platform to calculate drop-in.¹⁸²⁶

¹⁸²² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [148], [150].

¹⁸²³ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [152].

¹⁸²⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [129].

¹⁸²⁵ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [129].

¹⁸²⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [153].

1389. The realisation of the incorrect injection setting on Genetic Analyzer B was one factor in a constellation that should have prompted the laboratory to review and reconsider its drop-in cap much sooner than it did. The high incidence of drop-in, as already mentioned, was another factor.
1390. A further factor was the laboratory's struggle in controlling "carryover" that was frequently appearing in both Genetic Analyzers. The phenomenon occurs when a small amount of DNA material remains in a capillary of the machine after analysis. The remnant can 'carry over' into the next injection of DNA material. It appears as low peaks in the electropherogram which may be indistinguishable from peaks resulting from other stochastic phenomena such as drop-in.
1391. Carryover is a resolvable issue. Despite this, correspondence reveals that the laboratory was experiencing carryover in March 2012, and continued to do so "well into 2013 and possibly beyond".¹⁸²⁷ Ms Veth considered the laboratory's ongoing struggle to resolve the issue to be "quite extraordinary"¹⁸²⁸ and was suggestive of "a malfunctioning CE [capillary electrophoresis] instrument".¹⁸²⁹ The laboratory included carryover peaks when calculating its drop-in cap for STRmix v.1.05. Ms Veth opined this was inappropriate since carryover and drop-in are "entirely different phenomena" and "STRmix drop-in parameters are not designed to mitigate the presence of carryover peaks in casework results."¹⁸³⁰
1392. As outlined above, the laboratory's failure to properly calibrate its drop-in cap increased the risk of unreliable profiling interpretations. This risk was heightened by the laboratory's problematic policy of reporting low likelihood ratios in DNA profiling results.

¹⁸²⁷ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [155], [169], [172].

¹⁸²⁸ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [172].

¹⁸²⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [64].

¹⁸³⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [157].

1393. In his evidence before the Commission, Dr Budowle distilled the laboratory's failures down to the lack of a quality management approach that focused the laboratory upon the need for timely and routine review of processes. Routine assessment of processes allows one to observe their implementation in "the real world" and "learn new things" that would not be apparent from validation studies alone.¹⁸³¹

Reporting of DNA profiles with low likelihood ratios

1394. One of the samples obtained from Ms Blackburn's bloodstained clothing returned a complex profiling result. Sample L45 was a tapelift from behind the left upper leg area of her black pants. It yielded an electropherogram that the STRmix platform, given the scientific parameters provided by the laboratory, interpreted as reflecting a mixture of DNA from two people. 96% of the total DNA was assumed to be from Ms Blackburn.¹⁸³² 4% of the remainder was from a second contributor.¹⁸³³ The amount of DNA comprising this 4% was very slight. It could not be ascertained whether it was male or female DNA.¹⁸³⁴

1395. The laboratory determined the minor contribution was suitable to compare with the DNA profiles of 76 persons who provided reference DNA samples to the investigation. From this comparison, the laboratory identified three men and two women as the potential second contributor of DNA and reported the findings accordingly.¹⁸³⁵ Depending on the person identified, it was calculated to be 2 to 13 times more likely that they were the contributor than if they were not.¹⁸³⁶ One man, whose identification would assume significance in the trial of the accused, was determined to have a likelihood ratio of 13.

¹⁸³¹ Transcript, Day 25, 24 November 2022, p3072.9-16.

¹⁸³² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [52].

¹⁸³³ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [52].

¹⁸³⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [51].

¹⁸³⁵ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [53]. (It should be noted that the accused man was not one of the identified potential contributors.)

¹⁸³⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [53].

By contrast, it was calculated to be greater than 100 billion times more likely that Ms Blackburn contributed DNA to sample L45 than that she did not.

1396. Ms Veth and Dr Budowle considered the level of DNA from the assumed second contributor was so weak that one cannot confidently assume any such DNA originated from one additional person only.¹⁸³⁷ More fundamentally, the low peaks on the electropherogram, interpreted as marking a second genuine contribution of DNA, could well have been stochastic signals from “drop-in or carryover or some other artefact”.¹⁸³⁸ Dr Wright agreed that a likelihood ratio should not have been calculated for this sample because she considered the low peaks in the electropherogram were the result of drop-in.¹⁸³⁹
1397. The likelihood ratios reported for sample L45 were so low that it was “entirely possible” for none of the five identified persons to have been a source of any DNA in the sample.¹⁸⁴⁰ The closer a likelihood ratio converges to one, the more “uninformative or neutral” it becomes as evidence of whether or not a person contributed DNA to the sample.¹⁸⁴¹ A low likelihood ratio reflects the “weakness or insufficiency” of the profiling result being interpreted.¹⁸⁴²
1398. The low likelihood ratios reported for various samples in the Blackburn case had even less cogency because of the large number of reference DNA samples used for comparison. Using the example of sample L45, Ms Veth explained that “by comparing the low-level component from this mixed DNA profile to so many reference DNA profiles, it is *expected*

¹⁸³⁷ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [51].

¹⁸³⁸ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [51].

¹⁸³⁹ Transcript, Day 25, 24 November 2022, p3066.46-47.

¹⁸⁴⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [55].

¹⁸⁴¹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [49].

¹⁸⁴² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [61].

that there would be matches that have occurred entirely by chance” (emphasis added).¹⁸⁴³

1399. None of the above matters of context were explained in the intelligence reports and witness statements provided for use by lay people in the investigation and criminal justice processes.¹⁸⁴⁴

1400. Beyond sample L45, Ms Veth and Dr Budowle observed other samples in the Blackburn case with similar limitations in profiling information which should have rendered the results from those samples unsuitable for comparison.¹⁸⁴⁵

Deficiencies in the laboratory’s approach to reporting low likelihood ratios

1401. The reporting of the profiling result for sample L45 is emblematic of inherent deficiencies in the laboratory’s approach to reporting low likelihood ratios in profiling results.

1402. After implementing PP21 and STRmix v.1.05, the laboratory chose to report likelihood ratios in profiling results which were not of assistance from an evidentiary point of view.¹⁸⁴⁶ Why the laboratory adopted the course it did is not clear.¹⁸⁴⁷ Dr Budowle observed a “disconnect” between the laboratory’s wrongful imposition of a 132-picogram processing threshold and their decision to report likelihood ratios for samples even where the contribution concerned fell below that threshold.¹⁸⁴⁸

¹⁸⁴³ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [54].

¹⁸⁴⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [56].

¹⁸⁴⁵ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [67].

¹⁸⁴⁶ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [59].

¹⁸⁴⁷ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [59].

¹⁸⁴⁸ Transcript, Day 25, 24 November 2022, p3068.14-18.

1403. The way in which low likelihood ratios should be reported remains the subject of debate.¹⁸⁴⁹ The guidance to laboratories in Australia is that “likelihood ratios appropriately express the strength of the evidence and should be reported no matter how low or high the numerical value”.¹⁸⁵⁰ Dr Budowle also considers that “you should report what you get”.¹⁸⁵¹
1404. Ms Veth and Dr Budowle stressed that it is critically important to the success of any reporting process that quality control is robust and the communication to a lay audience is meaningful and clear.
1405. Before a statistical evaluation to determine a likelihood ratio, there must be reasonable confidence that what is being evaluated is actually “DNA inherent to the sample rather than from other sources such as carryover”.¹⁸⁵² In December 2012, the laboratory implemented a standard operating procedure for interpretation and statistical analysis of DNA profiles. It did not include guidelines to ensure “the quality of the profiling results for the different components of the mixed DNA profile” was a factor in deciding suitability for comparison.¹⁸⁵³ As outlined above, the laboratory was beset by ongoing quality issues arising from its validation and implementation of PP21, the STRmix platform and its Genetic Analyzers. Ms Veth queried why the laboratory did not reassess its policy of reporting low likelihood ratios in the face of such problems.¹⁸⁵⁴
1406. If a profiling result possesses sufficient characteristics to warrant a statistical evaluation, the communication of any low likelihood ratio should convey “exactly how meaningful that result is or what that result actually means or the limitations ... of the profiling result

¹⁸⁴⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [59].

¹⁸⁵⁰ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [59].

¹⁸⁵¹ Transcript, Day 25, 24 November 2022, p3068.29.

¹⁸⁵² Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [59].

¹⁸⁵³ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [63].

¹⁸⁵⁴ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [64].

that you've based that likelihood ratio on."¹⁸⁵⁵ Dr Wright consistently opined that inadequate communication poses the danger that "incorrect weight can be mistakenly placed on that evidence" by the intended audience.¹⁸⁵⁶ This would have obvious ramifications for the proper detection, investigation and prosecution of crimes.

Quantitation thresholds

1407. Ms Veth drew my attention to the issue of testing thresholds which were apparently in place at the time the Blackburn samples were processed by the laboratory in early to mid 2013.¹⁸⁵⁷ This conclusion was drawn from the documentation available to her at the time, namely the Standard Operating Procedure which was implemented in December 2012 to coincide with the implementation of PP21 and STRmix. On the face of this document, it appeared that as of December 2012, P1 samples with a quantitation of between 0.00241ng/μL and 0.01ng/μL were not being processed further by the laboratory, and were instead being reported as 'DNA insufficient for further processing'.
1408. The Commission made further enquiries about the process and workflow in place as of February 2013, and was assisted by a statement from Ms Paula Brisotto.¹⁸⁵⁸ Relevantly, while a 'DIFP' threshold was briefly in place for P1 and P2 samples in late 2012 and into early 2013, the following changes to process were made:
1409. On 19 December 2012 the threshold referred to above was reduced from 0.01ng/μL to 0.088ng/μL, by way of an entry on the minor change register.
1410. On 18 February 2013, it was recorded in minutes of an Analytical Team meeting that samples with a quant value of between LOD >0.00214 and 0.0088ng/μL were to be micro-connected to 35μL for priority 1 and 2 samples, with priority 3 samples added to CM list and reported as "DNA Insufficient for further processing".

¹⁸⁵⁵ Transcript, Day 25, 24 November 2022, p3065.37-41.

¹⁸⁵⁶ Transcript, Day 25, 24 November 2022, p3067.2-3.

¹⁸⁵⁷ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [77] - [88]

¹⁸⁵⁸ Exhibit 292, Statement of Paula Brisotto, 6 December 2022.

1411. In light of this evidence, I accept that at the time the samples in Ms Blackburn's case were being processed by the laboratory, there was no 'DIFP' threshold in place.

Potential for sample degradation

1412. Ms Veth gave evidence that environmental degradation was another possible cause of poor results for some samples. She used the example of sample S14, a sample of concern for Dr Wright. Sample S14 was taken from a blood stain on the road at the murder scene. When it was tested for DNA, it returned a result that no DNA was detected.¹⁸⁵⁹ These facts have elicited general concern about how a sample of blood could return no DNA.

1413. However, the Commission was able to obtain records which established that sample S14 was not immediately taken from the crime scene when the scene was established in the early hours of the morning. Sample S14 was taken more than 12 hours later in the evening, at approximately 8 or 9pm, after a warm Mackay summer's day. Ms Veth gave evidence that a number of factors may have contributed to the inability to obtain a DNA profile from sample S14. One of these was the possibility that the DNA may have degraded because it was exposed to heat and sunlight throughout the day.¹⁸⁶⁰

1414. Dr Wright accepted that the result for sample S14 was unreliable as it returned no DNA, but leant away from environmental degradation as an explanation due to her experience processing other samples from regional Queensland that still resulted in DNA profiles.¹⁸⁶¹

Swab materials and wetting agents

1415. Ms Veth and Dr Budowle were asked to consider whether the method used by QPS to take certain samples may have impeded DNA recovery.

¹⁸⁵⁹ Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [129].

¹⁸⁶⁰ Transcript, Day 25, 24 November 2022, p3005.39-43.

¹⁸⁶¹ Transcript, Day 25, 24 November 2022, p3007.46-3008.10.

1416. In 2013, certain samples were taken from hard surfaces by swabbing that surface. Prior to swabbing, a wetting agent would first be administered. The wetting agent used at the time was 70% ethanol.
1417. The suitability of this method is discussed in more detail in section 3.2, but is relevant to the Blackburn matter. Sample S14 was observed to be dried blood taken from a gutter and would have been swabbed in this way.
1418. Ms Veth told me she understands that swabs using significant ethanol have poorer recovery of bloodstaining, and swabs using 70% ethanol have poorer recovery of DNA generally.¹⁸⁶² In her view, the method of swabbing may have been another factor affecting results, including the result of no DNA being found in sample S14.¹⁸⁶³ Dr Budowle noted that this method is not the standard method used in crime scene collection.¹⁸⁶⁴
1419. Dr Wright did not consider the swabbing method to be a major concern, based on the fact that other blood samples did not have the same issues as sample S14.¹⁸⁶⁵ She noted that some other, ultimately unrelated, droplets of blood which were tested at around the same time, did result in DNA profiles.¹⁸⁶⁶ This may suggest that the method of collection was not the issue.
1420. Ms Veth accepted that it would be difficult to tell whether the method of collection was a primary factor in the poor DNA results, but that it was still a possible factor that could not be ignored.¹⁸⁶⁷

¹⁸⁶² Transcript, Day 25, 24 November 2022, p3006.38-47.

¹⁸⁶³ Transcript, Day 25, 24 November 2022, p3006.38-47.

¹⁸⁶⁴ Transcript, Day 25, 24 November 2022, p3007.5-9.

¹⁸⁶⁵ Transcript, Day 25, 24 November 2022, p3006.37-46.

¹⁸⁶⁶ Transcript, Day 25, 24 November 2022, p3007.37-44.

¹⁸⁶⁷ Transcript, Day 25, 24 November 2022, p3009.32-43.

Mislabelling of samples

1421. Many of the samples of concern have been those located in the car of John Peros, identified by a scientific officer as blood, and which ultimately did not yield any DNA evidence. There has been, understandably, significant concern expressed at the idea that blood stains can return a result of no DNA detected.
1422. However, this is not the full picture. With the benefit of the lengthy case file and expert knowledge, Ms Veth and Dr Budowle identified that these samples were not visibly blood, and may not have been blood at all.¹⁸⁶⁸
1423. Before the samples were identified and taken, the Scenes of Crime Officer applied a presumptive test for blood, then took swabs, then applied another presumptive test. Luminol and Combur tests are the presumptive tests aimed to identify the possible presence of blood.
1424. With some of the samples the Combur test came back as negative with a very slow reaction. In four samples the luminol tests came back positive, followed by negative Combur tests. These samples were then recorded as 'blood swabs' in that officer's statement.
1425. Ms Veth and Dr Budowle note that positive reactions to presumptive tests can occur due to the presence of a number of substances other than blood, and therefore cannot prove the presence of blood. Dr Wright agreed that even two positive presumptive tests does not confirm that a sample contains blood.¹⁸⁶⁹ All three scientists agreed that given this, and the fact that the results revealed no DNA, it is not possible to say whether or not blood was present¹⁸⁷⁰.

¹⁸⁶⁸ Transcript, Day 25, 24 November 2022, p3058.42-47.

¹⁸⁶⁹ Transcript, Day 25, 24 November 2022, pp3053.47-3054.3.

¹⁸⁷⁰ Transcript, Day 25, 24 November 2022, p3057.15-16, p3058.42.47

1426. However, QPS officers labelled the samples as “blood” and communicated this information to the laboratory through the Forensic Register and later in statements provided for court. Dr Budowle noted that in this case, early test results were communicated by the laboratory to QPS, and “this process of responding quickly contributes to a process where ... you wouldn’t be informed about all the aspects of the case as you’re analysing it.”¹⁸⁷¹
1427. QPS have submitted to me that criticism for this issue cannot be attributed to QPS processes. They submit that their Scientific Officers do not purport to conclusively identify sample material, and merely provide descriptions to assist the laboratory. In the Blackburn case the Scientific Officer’s notes and witness statement did include the presumptive test results and the fact that the stains were “non-visible”. QPS also submit that the laboratory can request further information if required.¹⁸⁷²
1428. I disagree. It is illusory to suggest that the laboratory should have contacted the QPS to confirm whether a sample labelled “blood” was in fact “non-visible blood”, and therefore possibly not blood at all. The fact that additional information was provided in the officer’s statement does not make the characterisation of the samples less misleading. In my view the better approach is to simply record the actual information obtained by the presumptive testing.

Rec 115. QPS scientific and scenes of crime officers conducting forensic examinations of crime scenes should not record samples as ‘blood’ if the only indicator is a positive presumptive test. Guidelines for collection of samples should be amended accordingly.

Multiprobe issues

1429. As I cover more comprehensively in Section 5.2, Ms Veth and Dr Budowle, in the course of reviewing the Blackburn matter, identified that there may have been an issue with a

¹⁸⁷¹ Transcript, Day 25, 24 November 2022, p3017.23-26.

¹⁸⁷² Submissions on behalf of the Queensland Police Service, 2 December 2022, p20-21.

particular extraction method, using the MultiProbe® II instrument. Ultimately, it appears that positive controls in batches extracted using the MultiProbe® II instrument were routinely displaying lower levels of DNA than would be expected, and indeed lower levels when compared to the other extraction method, using the Maxwell® instrument.¹⁸⁷³

1430. Ms Veth found that almost all of the samples of concern from the Blackburn case were in batches extracted using the MultiProbe® II instrument.¹⁸⁷⁴ These samples include those from Ms Blackburn's shirt, the samples of bloodstains from the road at the scene and the samples from the car.¹⁸⁷⁵

1431. Ms Veth, Dr Budowle, and Dr Wright are all of the view that this may well have negatively affected the amounts of DNA extracted from these samples. If the MultiProbe® II instrument was underperforming, the opportunity to obtain probative results may have been lost, particularly for low DNA samples that would demand maximum extraction efficiency to obtain a profiling result.¹⁸⁷⁶ They believe the issue warrants further investigation on a broader scale, which I have already recommended occur.

Methods of sampling fabric

1432. I also heard evidence about the way in which fabric samples were collected from Ms Blackburn's shirt.

1433. Ms Blackburn's shirt was sampled using two methods, one by cutting a fabric sample out of the shirt, and the other by taking a tapelift from the shirt.¹⁸⁷⁷

1434. Ms Veth told the Commission that when fabric samples are taken by cutting a portion of a larger piece of fabric, that the dye in the fabric can sometimes act as an inhibitor, which means it can lessen the amount of DNA found in the sample, or the quality of any profile

¹⁸⁷³ Transcript, Day 25, 24 November 2022, p3032.33-44.

¹⁸⁷⁴ Transcript, Day 25, 24 November 2022, p3034.38-47.

¹⁸⁷⁵ Transcript, Day 25, 24 November 2022, p3036.38-39

¹⁸⁷⁶ Transcript, Day 25, 24 November 2022, p3035.42 – p3037.29; Exhibit 218, Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 23 November 2022, [45].

¹⁸⁷⁷ Transcript, Day 25, 24 November 2022, p3013.33-47.

obtained.¹⁸⁷⁸ If a sample is taken through a tapelift, there is not a risk of the dye inhibiting the DNA in the same way.¹⁸⁷⁹

1435. Ms Blackburn's shirt was black, and samples which were cut out of the fabric performed worse than those which were taken by the tapelift method. Because of this, Ms Veth and Dr Budowle hypothesised that the dye in the fabric may have possibly inhibited the amount of DNA in some fabric samples, which may have contributed to lower profiles.¹⁸⁸⁰ Dr Wright accepted that it is not possible, currently, to identify whether or not the dye in the shirt was an inhibitor.¹⁸⁸¹
1436. To determine whether this was indeed a factor, Dr Budowle noted that further testing could be carried out.¹⁸⁸²
1437. Ms Veth and Dr Budowle also identified that some of the fabric samples may have yielded lower DNA than expected because they were taken from the point of incision, or where the knife went through the shirt. Part of the purpose of obtaining these samples was to see whether any DNA from Ms Blackburn's killer was left behind, but Dr Budowle gave evidence that the point of incision would contain a significant amount of the victim's own blood, which might saturate the shirt, and may lead to no usable results.¹⁸⁸³

6.3. Conclusion

1438. The balance of the expert evidence before me in this case supports a conclusion that there are a number of issues which may have contributed to the unexpectedly poor performance of some samples in the Blackburn case. I understand from the experts that while further testing and investigation of particular issues are warranted, it is likely that

¹⁸⁷⁸ Transcript, Day 25, 24 November 2022, p3013.33-47.

¹⁸⁷⁹ Transcript, Day 25, 24 November 2022, p3013.41-44.

¹⁸⁸⁰ Transcript, Day 25, 24 November 2022, p3013.33-47; Transcript, Day 25, 24 November 2022, p3014.40-43.

¹⁸⁸¹ Transcript, Day 25, 24 November 2022, p3019.22-32.

¹⁸⁸² Transcript, Day 25, 24 November 2022, pp3014.43-3015.4.

¹⁸⁸³ Transcript, Day 25, 24 November 2022, p3015.20-28.

much will remain uncertain, given the passage of time and the complexity of the contributing factors.

1439. This is a sombre finding to make in a case of such deep tragedy and loss. While the Blackburn case has demonstrated that the laboratory was not functioning well as early as 2012, providing context for later developments, this can be of little comfort to the family of the young woman whose death it concerns. The uncertainty surrounding the evidence in this case and the attendant anguish of the Blackburn family has served as a constant reminder of the deeply human element at the heart of the work of the Commission. While much is said about the criminal justice system in the chapters both preceding and following this one, it can never be forgotten that at the very heart of that system is the people and the community it serves.
1440. It can be hoped that the profound reframing of how DNA evidence is processed, analysed, reported on and understood in our criminal justice system may in time be seen as an enduring legacy of all of those who have raised their voices to bring these issues to light. I have heard them.

7. LABORATORY CULTURE

7.1 The impact of culture on science

1441. In their review of the laboratory Dr Kogios and Ms Baker observed that:

Negative culture is not conducive to best practice science, insofar as it inhibits free discussion and continual improvement. Conversely, people and science flourish in a collaborative, supportive, environment grounded in trust and respect.¹⁸⁸⁴

1442. During their time at the laboratory Dr Kogios and Ms Baker observed what they described as a “strained culture, the existence of factions and differences of opinion regarding what constitutes best science practice.”¹⁸⁸⁵ They observed instances where they believed this had negatively impacted the science.¹⁸⁸⁶

1443. There is ample evidence to suggest that the culture at the laboratory has not, for many years, facilitated best scientific practice. Cultural issues have had a negative impact on the scientific processes used and the results obtained. The culture of the laboratory therefore directly engages the Terms of Reference of this Commission, as I explore the reasons for any failure in the work and results of the laboratory.

1444. It is important to note that it has not been my purpose to conduct a full audit of the laboratory as a workplace. It is outside the scope of the Commission to explore culture or workplace culture in a general sense. The purpose of examining the culture is to determine how it has affected the work of the laboratory in providing accurate DNA results.

¹⁸⁸⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [5].

¹⁸⁸⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [193].

¹⁸⁸⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [197].

7.2 Culture of inquiry – the ability to raise scientific concerns

1445. The ability for concerns to be raised and addressed is crucial to the functioning of a scientific laboratory. The Director-General of Queensland Health, Mr Shaun Drummond, gave evidence to the Commission that clinical science evolves and so conflict can occur when traditional practice comes up against contemporary practice.¹⁸⁸⁷ Dr Kogios and Ms Baker opine in their report that a healthy workplace culture supports best science by encouraging innovation.¹⁸⁸⁸ If scientific concerns cannot be raised effectively, then the ability of the laboratory to keep pace with scientific progress and innovation is hindered.

1446. There is extensive evidence before the Commission that laboratory management have not appropriately managed or considered scientific concerns, and that scientists have been ignored or deterred from raising issues. In addition to the matters I detailed in Chapter 4, I heard from many scientists who raised a variety of issues over a number of years but whose concerns were never properly addressed. I heard that they were often ignored or dismissed by senior management, and ultimately felt dissuaded from raising issues. Consistent with this evidence, Dr Kogios and Ms Baker stated they were told of:

[...] barriers to raising quality issues, concerns about the length of time taken to resolve quality issues and concerns regarding a lack of commitment to quality on the part of some members of the DNA Analysis Unit.¹⁸⁸⁹

1447. There were a variety of ways in which scientists tried to raise their concerns, such as speaking to their direct managers, team leaders, Human Resources, successive Executive Directors and through staff feedback surveys.

1448. One scientist, Rhys Parry, gave the following reasons for approaching the Commission:

Because for me, it's the last-ditch effort to have someone listen. I've tried to alert internally. We've had departmental inquiries come through and I've tried to talk to them about it. I've fed back, through departmental feedback that we get every

¹⁸⁸⁷ Transcript, Day 6, 4 October 2022, pp761.46-762.8.

¹⁸⁸⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [199].

¹⁸⁸⁹ Exhibit 187, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [208].

year, these problems that need to be looked at. Never got a response. No one's ever listened.¹⁸⁹⁰

Experience of scientists who gave evidence to the Commission

1449. In Chapter 4 I have written about the feedback which was given by scientists in relation to Project #184 and how such feedback was ignored and the usual laboratory process circumvented by the creation of the Options Paper in early 2018. The scientists who gave evidence before me during the public hearings spoke of a number of other instances in which they were ignored or professionally excluded by senior management of the laboratory.

1450. Dr Moeller and Ms Quartermain told me that they raised concerns about the decision made by Queensland Health on 6 June, where samples within the DIFP threshold were further processed through automatic amplification. Their evidence, and that of the response they received, is set out in Section 4.3.4. In short they were ignored and rebuffed. It is now quite clear that they were justified in their concerns.

1451. In 2016, Amanda Reeves encountered antagonism and ostracism when she agitated her concerns about the spermatozoa microscopy process. The issue and the laboratory's response are described in detail in Section 5.3. The episode exemplified the divisive atmosphere which permeated the workplace. It appears to have entrenched what Dr Kogios and Ms Baker observed to be "a strained culture" and "existence of factions".¹⁸⁹¹

1452. In Section 5.4 I have considered and made findings about the evidence of Ms Angelina Keller in relation to her concerns about bone casework and the removal of access to the mortuary for reporting scientists. In addition to these matters, Ms Keller told me that in April 2018 she raised concerns about a change to bone extraction which had arisen from Project #192 Validation of QIASymphony SP for Bone Extraction. She had noticed, while

¹⁸⁹⁰ Transcript Day 9, 12 October 2022, p1166.24-31.

¹⁸⁹¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QH FSS DNA Analysis Unit, 28 October 2022, [193].

working on a coronial case, that bone aliquots processed with the new method had a lower quantitation than with the old method.

1453. On 18 April 2022 Ms Keller spoke to Mr Howes about the problem, and Mr Howes dismissed her concerns.¹⁸⁹² Ms Keller then spoke to Ms Rika¹⁸⁹³ who emailed Mr Howes, highlighting the discrepancy in quantitation values, and expressing worry that the new process may not be the best option for some samples.¹⁸⁹⁴
1454. On 19 April 2018 Ms Keller then spoke to Mr Parry,¹⁸⁹⁵ who identified issues with the design of Project #192. He spoke to Paula Brisotto about this,¹⁸⁹⁶ and was invited by Ms Brisotto to create a project proposal for a supplementary report which would investigate his concerns.¹⁸⁹⁷
1455. On 24 April 2018 the laboratory reverted to the previous extraction method pending further work on Project #192.¹⁸⁹⁸
1456. On 30 April 2018 Mr Parry provided a project proposal dated 27 April 2018 to Ms Brisotto.¹⁸⁹⁹ It was not approved, but on 12 March 2019, Senior Scientist (Analytical) Luke Ryan also created a project proposal for a supplementary report on repeatability and reproducibility which was subsequently signed off on by the Management Team on 5 April 2019.¹⁹⁰⁰ A final supplementary report was then signed by the Management Team in March 2020.¹⁹⁰¹

¹⁸⁹² Exhibit 64, Statement of Angelina Keller, 6 October 2022, [77].

¹⁸⁹³ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [78].

¹⁸⁹⁴ Exhibit 64, Statement of Angelina Keller, 6 October 2022, AK-25, Email from Kylie Rika to Justin Howes, re 'Project 192'.

¹⁸⁹⁵ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [79].

¹⁸⁹⁶ Transcript, Day 9, 12 October 2022, p1179.3-9.

¹⁸⁹⁷ Transcript, Day 9, 12 October 2022, p1179.34-43.

¹⁸⁹⁸ Exhibit 64, Statement of Angelina Keller, 6 October 2022, [80].

¹⁸⁹⁹ Transcript, Day 9, 12 October 2022, 1178.34-1179.9; Exhibit 69, Email from Rhys Parry to Paula Brisotto, re 'Supplemental Experimental Design – Validation of QIASymphony SP For Bone Extraction.docx', 30 April 2018.

¹⁹⁰⁰ Exhibit 71, Project Proposal #192 Validation of QIASymphony SP for bone extraction – Supplementary Repeatability and Reproducibility, Version 2.0, 5 April 2019.

¹⁹⁰¹ Exhibit 89.20, Project Report #192 – Validation of QIASymphony SP for Bone Extraction – Supplementary Repeatability and Reproducibility, March 2020.

1457. Notwithstanding the fact that Mr Parry had an opportunity to provide feedback in April 2018, it appears nothing came of his feedback until almost a year later when Mr Ryan created another proposal similar to that of Mr Parry, which did not include or reference Mr Parry.¹⁹⁰² Mr Parry gave evidence that he did not recall Mr Ryan's proposal, and did not think he was given access to it.¹⁹⁰³ While I have been provided with some additional information about what occurred between Mr Parry's proposal and that put forward Mr Ryan,¹⁹⁰⁴ there is no evidence before me to explain why Mr Parry was not involved in the project. Mr Parry told me, and I accept, that this is evidence of his professional exclusion within the laboratory.¹⁹⁰⁵
1458. Senior Scientist Kylie Rika and Reporting Scientists Emma Caunt and Rhys Parry told me that they had, over time and with varying degrees of success, raised a number of concerns about validations of laboratory methods.
1459. Mr Parry told me that he has been worried for several years that he might be asked in court whether he was confident in the quality and validation processes of the lab. He was worried because he would have to say that he was not.¹⁹⁰⁶ He has discussed his concerns about validations with Ms Brisotto and Mr Howes but felt he had limited success in creating change.¹⁹⁰⁷
1460. On 8 March 2018 he emailed Mr Howes about his concerns with the validation for Project #152 Quant Trio, detailing eleven issues with the validation, and the possible risks and financial costs associated with the validation.¹⁹⁰⁸ Although Mr Parry accepted the risks were low level,¹⁹⁰⁹ they included the potential for the rejection of DNA evidence by a

¹⁹⁰² Transcript, Day 9, 12 October 2022, p1198.11-39.

¹⁹⁰³ Transcript, Day 9, 12 October 2022, p1198.41-46.

¹⁹⁰⁴ Submissions on behalf of Paula Brisotto, 30 November 2022, [24]-[29].

¹⁹⁰⁵ Transcript, Day 9, 12 October 2022, p1199.22-26.

¹⁹⁰⁶ Transcript, Day 9, 12 October 2022, pp1165.27-1166.19.

¹⁹⁰⁷ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [62].

¹⁹⁰⁸ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [62]-[65]; Exhibit 67, Statement of Rhys Parry, 28 September 2022, RP-04, Email from Rhys Parry to Justin Howes re'Quant Trio validation'; RP-05, Attachment to email from Rhys Parry to Justin Howes 'Quant Trio Issues Report.doc'.

¹⁹⁰⁹ Transcript, Day 9, 12 October 2022, pp1165.45-1166.1.

court, having to rework large numbers of samples, and losing the respect of the scientific and broader community.¹⁹¹⁰ Mr Howes did not respond.¹⁹¹¹ No further work was undertaken on the validation report. His fears have now materialised catastrophically.

1461. Ms Rika and Ms Caunt also raised concerns about the validation of Project #199 Verification of the ProFlex 96 Well PCR System. In Section 2.3 I outline the issues with this validation, which were identified by Dr Duncan Taylor in his report. I also note that the laboratory, however, had been notified that there were issues with the validation much earlier. Ms Rika had raised a concern only two days after ProFlex was implemented in 2012¹⁹¹² – but the laboratory ignored this.
1462. A common theme across all these complaints is that there is no formal process for staff to raise scientific concerns. Nor is there any procedure for management or Queensland Health to deal with the complaints.
1463. There are some avenues available for complaints, but these are not fit for purpose and do not work to ensure scientific integrity of the laboratory. The lack of processes, specifically aimed at scientific complaints, has meant that many issues have been addressed inadequately, or have gone unaddressed entirely, with the consequence that scientific best practice has been compromised. This report is full of examples.
1464. Many scientists attempted to raise concerns within the laboratory. When action was taken, it was often not timely or it was not communicated back to the person who made the complaint.

¹⁹¹⁰ Exhibit 67, Statement of Rhys Parry, 28 September 2022, RP-05, Attachment to email from Rhys Parry to Justin Howes re 'Quant Trio Issues Report.doc'.

¹⁹¹¹ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [99].

¹⁹¹² Exhibit 78, Statement of Kylie Rika, 6 October 2022, KR-04, Email chain between Kylie Rika, Justin Howes, Paula Brisotto, Luke Ryan re 'RE: Project Proposal #199 – Verification of Proflex for PP21'.

1465. Mr Howes was one person who received a number of complaints. His role as Team Leader of the Forensic Reporting and Intelligence Team is a HP6 classification and one of his duties is to maintain a high standard of quality in the laboratory.¹⁹¹³

1466. There is significant evidence that Mr Howes' response, when specifically alerted to scientific issues, was characterised by either inaction or inadequacy. In 2018 Ms Reeves and Ms Rika provided feedback about Project #184 which Mr Howes never addressed. In 2018 Mr Parry extensively outlined issues and risks with the Quant Trio validation and Mr Howes did not respond. In 2019 Ms Angelina Keller expressed concern about her removal from coronial identification meetings and he did not take action. In 2019 Ms Quartermain copied Mr Howes into an email containing her concerns about DIFP and he did not respond.¹⁹¹⁴ She raised DIFP with him again in 2020 and 2021 and he dismissed her concerns on both occasions.¹⁹¹⁵

1467. As a result of such dismissals Ms Quartermain told me:

It makes me feel like - I've been here for 17 years. I like my job. I enjoy what I do. I want to do what I am doing to the best of my ability, and when I have people who stop me from being able to do that it becomes a problem for me because then I feel like I'm not doing the best that I can do in my job, I'm not being allowed to do the best that I can do in my job.¹⁹¹⁶

1468. Mr Howes gave evidence that he had been negatively affected by other issues within the laboratory and that this had affected some decisions he had made. He said that he was under stress in 2018 and had been facing a number of challenges, including the issues with spermatozoa microscopy that had been raised by Ms Reeves.¹⁹¹⁷ When he received comments on Project #184 from Ms Reeves and Ms Rika, he was taken aback and felt it was criticism that was not solely for a scientific purpose.¹⁹¹⁸ He accepted that the

¹⁹¹³ Exhibit 145, Statement of Justin Howes, 16 August 2022, JH-2, Forensic Reporting and Intelligence Team – Duty Statements.

¹⁹¹⁴ Exhibit 61, Email from Alicia Quartermain, re 'DNA Insufficient for further processing', 7 March 2019.

¹⁹¹⁵ Exhibit 59, Statement of Alicia Quartermain, 21 September 2022, [94]-[100].

¹⁹¹⁶ Transcript, Day 7, 10 October 2022, pp909.46-910.5

¹⁹¹⁷ Transcript, Day 18, 25 October 2022, pp2317.6-2318.24.

¹⁹¹⁸ Transcript, Day 18, 25 October 2022, p2318.23-35.

workplace stressors he experienced had clouded his clear decision-making ability, which he did not realise at the time.¹⁹¹⁹ I accept that this was a truthful explanation.

1469. Many scientists also struggled raising concerns because they were fearful of Ms Allen. For example, Dr Moeller raised concerns about DIFP with Ms Lara Keller. She told Ms Keller that she was fearful of Ms Allen, who would punish people. This was why Dr Moeller had to go above Ms Allen, to someone who did not have the requisite scientific knowledge and who lacked the capacity to properly appreciate her concerns.
1470. Some scientists also tried to speak to Queensland Health Human Resources staff about their scientific concerns. In 2018 and 2019 Ms Therese O'Connor was in the position of Human Resources Business Partner for Health Support Queensland, supporting Forensic and Scientific Services.¹⁹²⁰ The role of a Human Resources Business Partner is to provide advice and support in relation to human resources issues, including advising employers and assisting employees.¹⁹²¹
1471. Ms O'Connor, however, did not just hear about human resources issues. Some scientists, including Ms Rika, Ms Caunt, Ms Keller and Ms Quartermain spoke to her about scientific issues.¹⁹²² They approached her confidentially as they were fearful of Ms Allen, and fearful that they would be treated the same way as Ms Reeves had been treated, if they were to make a complaint.¹⁹²³ Ms O'Connor gave evidence that they raised issues about validity of laboratory testing processes, retesting of samples, and Ms Keller in particular held concerns about the bone extraction process.¹⁹²⁴
1472. Ms O'Connor had no scientific qualifications to assist with these issues¹⁹²⁵ and, in her human resources role, she was not required to. On one occasion where Ms Rika and Ms

¹⁹¹⁹ Transcript, Day 20, 27 October 2022, p2520.35-47.

¹⁹²⁰ Transcript, Day 13, 18 October 2022, p1622.14-20.

¹⁹²¹ Transcript, Day 13, 18 October 2022, p1627.38-47.

¹⁹²² Transcript, Day 13, 18 October 2022, pp1633.22-1634.17.

¹⁹²³ Transcript, Day 13, 18 October 2022, p1634.2-9.

¹⁹²⁴ Transcript, Day 13, 18 October 2022, p1634.19-45.

¹⁹²⁵ Transcript, Day 13, 18 October 2022, p1634.15-17.

Caunt raised concerns, Ms O'Connor included John Doherty in the discussion as she felt he had a strong understanding of DNA given his background in forensic science.¹⁹²⁶

1473. None of these issues were resolved. They are now reflected in the work of the Commission.

1474. A number of scientists contacted Forensic and Scientific Services' Executive Directors directly to raise concerns.

1475. Mr Doherty was Executive Director from January 2019 to September or October 2021. He had an open-door policy which, he told me, was extensively used by laboratory staff who spoke to him about both workplace and scientific issues.¹⁹²⁷ Mr Doherty gave evidence that Ms Rika raised an issue with him about limits of detection of DNA on laboratory instruments. Mr Doherty felt he did not have a sufficient technical understanding of the processes, so he contacted interstate laboratories for advice about the issue and received feedback which he understood to confirm that the laboratory's limits of detection were appropriate.¹⁹²⁸ Retrospectively, and at the time of giving evidence, Mr Doherty thought that this was linked with the Options Paper.¹⁹²⁹

1476. Ms Lara Keller commenced work as the acting Executive Director of FSS in October 2021. As I have said previously, scientists also raised a significant number of scientific issues with her. She referred concerns about DIFP thresholds to the Queensland Health Ethical Standards Unit (**ESU**) and also added testing thresholds to the Terms of Reference for a pending external review of the laboratory. However, Ms Keller could not have realised the true nature of these concerns, or that they were the same as those that QPS were raising with her almost simultaneously. She gave evidence that the reason she did not properly understand the issue was because of her lack of scientific knowledge.

¹⁹²⁶ Transcript, Day 13, 18 October 2022, p1634.19-45.

¹⁹²⁷ Transcript, Day 14, 19 October 2022, pp1779.35-1781.9.

¹⁹²⁸ Transcript, Day 14, 19 October 2022, p1782.10-44.

¹⁹²⁹ Transcript, Day 14, 19 October 2022, p1782.10-26.

1477. I accept that the role of Executive Director does not require expertise in the relevant Services Streams it overlooks. This model has directly caused multiple scientific complaints to remain unaddressed.
1478. In Section 4.2 I have considered the role played by ESU as a mechanism for making and resolving scientific complaints. As the laboratory is a government organisation, staff have the ability to make public interest disclosures or complaints of corrupt conduct. Staff can make complaints which are then assessed by the ESU to determine whether they constitute public interest disclosures. If they do not reach the statutory threshold or are rejected for some other reason, the ESU takes no further action and refers the matter back to the work unit.
1479. As I found in Section 4.2, it is clear on the evidence before me that the ESU is a wholly inadequate mechanism for dealing with scientific complaints even when they impinge upon the integrity of work being done.
1480. Another way scientists attempted to notify others of scientific issues was through their responses to the Working for Queensland (**WfQ**) survey. This is an annual survey given to Queensland government employees, including those at the laboratory. The survey asks staff to report anonymously on matters like job satisfaction, training opportunities and perceptions of management. It contains a series of questions to which people can agree or disagree, and some opportunities to write individual responses. The results of the survey are compiled and were available to the Commission.
1481. In 2018, only 40% of employees agreed that if they raised a complaint, they felt confident it would be taken seriously.¹⁹³⁰ By implication, this means that 60% of employees either disagreed with the statement or gave a neutral answer. This is a concerning figure, particularly in the context of a scientific laboratory which can only improve through collaboration and innovation.

¹⁹³⁰ Exhibit 202, Police Services 2018_all questions, 21 February 2019.

1482. More concerningly, while there was the opportunity to give specific feedback or raise concerns via the “free text” responses on the survey, it does not appear that this information was made available to managers. Mr Parry told me that he gave feedback through these surveys about scientific issues, but nothing came of it.¹⁹³¹
1483. Mr Doherty told me that he never received the “free text” responses during his tenure as Executive Director, despite asking for them.¹⁹³² Ms Lara Keller confirmed that this was so.¹⁹³³ It is concerning that employees could be raising concerns within the WfQ survey and that those responses were going unseen by Executive Directors of FSS.
1484. The lack of an effective mechanism for resolving scientific disputes, other than through the standard public sector complaints frameworks, affected the laboratory’s ability to achieve scientific best practice.

Consequences of inability to raise concerns

1485. Dr Kogios and Baker stated:

A healthy workplace culture supports best science, in part by encouraging innovation and probative inquiry; and also through encouraging staff to invest in their professional development to grow and learn. A healthy workplace culture can be vital in supporting staff to come forward with concerns without fear of punishment. Conversely, an unhealthy workplace culture does not support best science. We heard of examples of such a culture at QHFSS, including staff being reluctant to raise concerns about scientific processes and decisions due to fear of retribution.¹⁹³⁴

1486. The scientists who raised the concerns above gave evidence that the way they, or others, had been treated discouraged them from raising further concerns. A prominent example of the consequences of raising concerns was demonstrated through Ms Reeves’

¹⁹³¹ Transcript, Day 9, 12 October 2022, p1166.26.

¹⁹³² Transcript, Day 14, 19 October 2022, p1794.32.

¹⁹³³ Transcript, Day 18, 25 October 2022, pp2249.39-2250.4.

¹⁹³⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [199].

treatment after raising issues about spermatozoa microscopy. The context behind this issue is detailed within Section 5.3 of this report.

1487. Many of the scientists said that the treatment of Ms Reeves was a strong deterrent¹⁹³⁵ against raising scientific concerns. Mr Doherty told me that it was his impression that a lot of the concerns the scientists were bringing to him centred around an incident that concerned Ms Reeves prior to his arrival at FSS.¹⁹³⁶ He understood this incident had resulted in a situation where some scientists did not feel safe. He was told that they were fearful of retribution if they made any formal complaints, “just like Amanda encountered”.¹⁹³⁷
1488. Despite scientists taking concerns to Ms O’Connor, they were frightened about taking further action.¹⁹³⁸ This was something the scientists told Ms O’Connor directly. Separately to this, Ms Quartermain also told me that it was a commonly held impression amongst a group of scientists that if you raised any concerns you would have a “target on your back”.¹⁹³⁹
1489. Dr Moeller gave evidence that she felt as though Ms Reeves had been “ostracised” for raising concerns about sperm microscopy.¹⁹⁴⁰ Ms Reeves was moved into a windowless room in the library and given a make-work project outside of her responsibilities.¹⁹⁴¹ During this time, Dr Moeller tried to support Ms Reeves as a colleague and friend. Dr Moeller was fearful that she too would become the subject of reprisal because of her friendship with Ms Reeves.¹⁹⁴² The fact a mature and highly educated scientist would fear reprisal for supporting a colleague who was raising genuine scientific issues is powerfully demonstrative of the toxic culture which persisted at the time.

¹⁹³⁵ It is relevant that the word “deterrence” is derived from the Latin “de terrere” - to frighten away.

¹⁹³⁶ Transcript, Day 14, 19 October 2022, p1780.3-11.

¹⁹³⁷ Transcript, Day 14, 19 October 2022, p1780.3-11.

¹⁹³⁸ Transcript, Day 13, 18 October 2022, p1634.2-9.

¹⁹³⁹ Exhibit 60, Statement of Alicia Quartermain, 6 October 2022, [17].

¹⁹⁴⁰ Transcript, Day 10, 13 October 2022, p1297.11.

¹⁹⁴¹ Transcript, Day 10, 13 October 2022, p1336.

¹⁹⁴² Transcript, Day 10, 13 October 2022, p1298.42.

1490. As I have said in Section 4.2, during a meeting with Ms Keller, Ms Rika said that she was “scared after what happened to Amanda”.¹⁹⁴³ Similarly, Dr Moeller told Ms Keller she was scared of Ms Allen as she “punishes people”.¹⁹⁴⁴ As a consequence of this fear, some scientists in the lab became subdued, or docile. Raising scientific concerns to the Managing Scientist is the only true option for scientists due to the lack of scientific knowledge of those employed in positions above the Managing Scientist.

1491. The actions of senior management of the laboratory, in particular Ms Allen and Mr Howes, discouraged and suppressed debate about scientific matters, which had the result of deterring scientists from raising and ventilating proper concerns about scientific and workplace processes.

1492. This suppression of scientific debate had a stultifying effect on the ability of the laboratory to maintain its processes and procedures according to best practice at all times. It was one of the reasons for the dysfunction within the laboratory that led to the problems uncovered by this Commission.

Culture of control

1493. Another significant cultural issue that emerged through evidence was a high level of control exercised by Ms Allen over the laboratory staff. Ms Keller, FSS Executive Director, gave evidence that within months of commencing her position she formed the view that Ms Allen had a “command and control” approach to management. Ms Keller described this as hierarchical, “where only one person makes the decisions on behalf of everyone, or that people are managed such they have little – their voice is not loud enough – everything has to be run through a particular person in order to be approved, for example.”¹⁹⁴⁵ Ms Keller expressed the view that “you don’t necessarily get the best outcomes from that approach.”¹⁹⁴⁶

¹⁹⁴³ Exhibit 198, File note prepared by Lara Keller, 15 March 2022.

¹⁹⁴⁴ Exhibit 198.3, Email from Lara Keller to ESU, re ‘Submission for assessment – FSS’, 17 March 2022.

¹⁹⁴⁵ Transcript, Day 17, 24 October 2022, p2084.19-44.

¹⁹⁴⁶ Transcript, Day 17, 24 October 2022, p2084.36-37.

1494. Flexible Working Arrangements (**FWA**) are a significant and broad-ranging example of the control Ms Allen exercised, unnecessarily, over the laboratory. FWAs are agreements used in the public service between an employee and employer which allow the employee to work flexibly in an agreed way, such as varied starting or finishing times, telecommuting, or part-time work. Applications for FWAs are assessed by the person who holds the delegation, in this case the Executive Director, who must have regard to a number of factors including the operational requirements of the business.

1495. I heard evidence that there were difficulties obtaining FWAs. A specific example was given by Ms Quartermain, who said that she was not allowed to start work prior to 7am. This meant that she was unable to finish early enough to pick her children up from school.¹⁹⁴⁷ Mr Parry had formed the view that it was more difficult for female staff to access FWAs as it seemed as though, if they had children, they had to “jump through more hoops”.¹⁹⁴⁸

1496. When asked about the importance of flexibility of work arrangements, Ms Quartermain told me:

It's important for me because I want to maintain my career. [...] I want to be current in my job and be present. I want my children to see that I go to work and I do a good job and I love what I do, and I talk to them about that. I want to be able to balance being at home and seeing them while they're little with being able to come to work and enjoy my job and spend time with my work colleagues and do the tasks that are important at work. But I want that balance, it's important. To be able to spend time with my family while they're still in primary school, it's such a short period of time that lasts, that when they start high school, that time is passed, so I'm trying to maximise the time I get to spend with my family while they are young but also be able to work full time as a forensic scientist, because that's what I want to do.¹⁹⁴⁹

1497. Ms O'Connor, and Executive Directors Mr Doherty and Ms Keller all gave evidence that multiple staff members from the laboratory came to speak to them about issues they were experiencing with FWAs.¹⁹⁵⁰

¹⁹⁴⁷ Transcript, Day 7, 10 October 2022, p910.41-911.5.

¹⁹⁴⁸ Transcript, Day 9, 12 October 2022, p1171.5-21.

¹⁹⁴⁹ Transcript, Day 8, 11 October 2022, p1016.23-38.

¹⁹⁵⁰ Transcript, Day 13, 18 October 2022, pp1634.47-1635.15; Transcript, Day 14, 19 October 2022, p1792.12-17; Transcript, Day 17, 24 October 2022, pp2084.46-2085.32.

1498. Ms O'Connor's evidence was that staff were having difficulty progressing their FWAs beyond Ms Allen. Although the ability to approve them very clearly sits with the Executive Director, Ms Allen chose to be involved in the process at FSS.¹⁹⁵¹ Ms O'Connor's understanding was that Ms Allen believed employees needed to work full time and be present during certain hours in order to respond to police enquiries or to attend court to give evidence.¹⁹⁵² On the issue of the availability of part-time work, Ms O'Connor said, "it's one of those things that, as a HR practitioner, you're surprised that management actually ask you, that they're going to deny somebody coming back from maternity leave part-time. It's legislated. We have to comply with it."¹⁹⁵³

1499. Mr Doherty gave evidence that this issue is not unique to the laboratory or Queensland, largely because DNA analysis has a large proportion of women in the workforce, creating higher proportions of staff seeking access to flexible work.¹⁹⁵⁴ He felt that Ms Allen's approach was more focused on business needs than personal needs, but that during his tenure she came around to his approach, which was to put people first and allow flexible work arrangements.¹⁹⁵⁵ While he may have thought that at that point, Ms Keller was alerted to inflexibility with FWAs by staff and by Human Resources almost immediately upon her arrival. She was told by HR that the approach to FWAs was "less than contemporary".¹⁹⁵⁶ Ms Keller quickly intervened and removed Ms Allen from the FWA decision-making process.¹⁹⁵⁷

1500. Dr Kogios and Ms Baker also commented upon the difficulties faced by staff in applying for FWAs. They accepted that the laboratory must meet its business needs, but,

In order to attract and retain the highly skilled and experienced workforce required to operate a successful forensic DNA laboratory, we stress the importance of genuinely exploring flexible work options tailored to the individual

¹⁹⁵¹ Transcript, Day 13, 18 October 2022, p1635.17-38.

¹⁹⁵² Transcript, Day 13, 18 October 2022, p1635.17-25.

¹⁹⁵³ Transcript, Day 13, 18 October 2022, p1636.26-30.

¹⁹⁵⁴ Transcript, Day 14, 19 October 2022, p1793.34-42.

¹⁹⁵⁵ Transcript, Day 14, 19 October 2022, pp1793.2-1794.5.

¹⁹⁵⁶ Transcript, Day 17, 24 October 2022, p2085.34.

¹⁹⁵⁷ Transcript, Day 17, 24 October 2022, pp2084.46-2085.41.

and their circumstances, that can be balanced with operational demands and service delivery requirements.¹⁹⁵⁸

1501. Ms Allen contested her alleged control of FWA applications. She gave evidence that she does not have the delegation to make decisions about FWAs and only provided information to assist the Executive Director. She said that she did not pressure the Executive Director to make decisions in any particular way. It is true that there is no evidence before me of Ms Allen applying pressure at that level. However, the evidence of Ms O'Connor, Mr Doherty and Ms Keller was that Ms Allen exerted significant control over the progress of FWAs for approval.

1502. In a similar vein, evidence was led during the public hearings which demonstrated other serious errors of judgment of the same kind on Ms Allen's part. The minutes of a Management Team meeting from 5 February 2016 record that Ms Allen requested senior managers to provide her with the names of staff who "may be trying to get pregnant".¹⁹⁵⁹ It is recorded that Ms Allen went on to say, "there aren't any ramifications if the pregnancy doesn't eventuate, however large ramifications if not accounted for".¹⁹⁶⁰ In her evidence before me, Ms Allen confirmed that she had not sought advice from human resources about this astonishing request.¹⁹⁶¹

1503. In an email sent by Ms Allen on 10 March 2017 to laboratory staff titled "Staff Movements", Ms Allen advised that someone was returning from parental leave, and that another employee was about to take parental leave. The email closed with the note:

Unfortunately, funding for parental leave was not included in the current budget, but has been included for the next financial year so that coverage can be made available for parental leave.¹⁹⁶²

¹⁹⁵⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [192].

¹⁹⁵⁹ Exhibit 180, FSS Forensic DNA Analysis – Management Team Meeting Minutes, 5 February 2016.

¹⁹⁶⁰ Exhibit 180, FSS Forensic DNA Analysis – Management Team Meeting Minutes, 5 February 2016.

¹⁹⁶¹ Transcript, Day 22, 31 October 2022, p2749.26-30.

¹⁹⁶² Exhibit 287, Email from [Redacted] to Cathie Allen, re 'RE: Staff Movements', 10 March 2017.

1504. Ms Allen gave evidence that the intention behind these communications was to manage the budget successfully and to ensure that the laboratory had sufficient funds.¹⁹⁶³ She gave evidence that she was trying to forecast upcoming parental leave to ensure that there was money in the budget to backfill staff while they were on parental leave.¹⁹⁶⁴
1505. Ms Allen told me that it was not her intention to invade others' privacy¹⁹⁶⁵ or to imply that decisions about staff would be made on the basis of fertility.¹⁹⁶⁶ However, as a public service officer and a manager it was unacceptable for Ms Allen to have acted in this way regardless of her intention or budgetary demands.
1506. Ms Quartermain told me that there were a number of aspects of her workplace which made her feel that there was a high level of control being exerted over employees. She told me that the stationery cabinet in the laboratory is locked and anyone who requires stationery has to seek permission.¹⁹⁶⁷ She also told me that reporting staff were not permitted to start work before 7am and that staff were required to call in sick to administration between 8am and 9am the morning of and were admonished if they do not do so within that timeframe.¹⁹⁶⁸ There was no apparent reason for this strict rule.
1507. These matters are deceptively trivial if not considered from the perspective of those upon whom they are imposed. Ms Quartermain explained how such rules made her feel:
- It is just that feeling of not being trusted, that we are here trying to do the best that we can for the community and police and for ourselves knowing that we're putting out the best scientific work that we can but we're not being trusted¹⁹⁶⁹.
1508. Ms Allen's counsel has urged me to consider the structural context in which Ms Allen operated, namely that "there was a clear, enduring expectation that the Lab would

¹⁹⁶³ Transcript, Day 22, 31 October 2022, pp2748.15-2749.7; Transcript, Day 22, 31 October 2022, p2749.13-35.

¹⁹⁶⁴ Transcript, Day 22, 31 October 2022, p2750.30-42.

¹⁹⁶⁵ Transcript, Day 22, 31 October 2022, p2750.37-42.

¹⁹⁶⁶ Transcript, Day 22, 31 October 2022, p2751.2-6.

¹⁹⁶⁷ Transcript, Day 14, 19 October 2022, p1778.27-40; Transcript, Day 8, 11 October 2022, p910.28-39.

¹⁹⁶⁸ Transcript, Day 8, 11 October 2022, p910.16-21.

¹⁹⁶⁹ Transcript, Day 7, 10 October 2022, p910.35-39.

continue to do more with less – regardless of increase in demand, inadequacy of resources, or stagnation in funding.”¹⁹⁷⁰

1509. I accept this submission but I do not accept that it justifies the culture of control that Ms Allen maintained. I accept that Ms Allen’s enquiries about pregnancies may have been made in order to make budgetary and staffing arrangements.¹⁹⁷¹ However, funding constraints cannot justify this intrusive insult to an employee’s dignity.

Confidential bin

1510. There is a particular, specific incident which is a concerning example of Ms Allen’s control over the laboratory. In my view it provides insight into Ms Allen’s mind-set.

1511. Against the backdrop of scientific and interpersonal issues that had arisen from Ms Reeves’ complaints, outlined in Section 5.3, Ms Reeves left the laboratory on 29 March 2018. On that day Ms Allen received a report from an employee that there had been a “shredding party” at Ms Reeves’ workstation, at which documents were being placed into the locked confidential bin used for disposal of confidential documents.¹⁹⁷²

1512. Mr Paul Csoban was the Executive Director of Forensic and Scientific Services at the time. He gave evidence that Ms Allen advised him she had received a report from other staff members that a large amount of documents were being placed in the confidential bin and some of the staff felt some of the documents should not have been disposed of.¹⁹⁷³

1513. Ms Allen’s evidence was that after she received the report she spoke to Mr Csoban and they sought advice from human resources staff Andria Wyman-Clarke and Andrew Riddell, who advised them they needed to verify whether Ms Reeves had indeed disposed of confidential documents.¹⁹⁷⁴ I note that this implies that Ms Allen made the assertion,

¹⁹⁷⁰ Submissions on behalf of Cathie Allen and Justin Howes, 28 November 2022, [25].

¹⁹⁷¹ Transcript, Day 14, 19 October 2022, p1778.27-40.

¹⁹⁷² Transcript, Day 22, p2732.30-43.

¹⁹⁷³ Transcript, Day 15, 20 October 2022, pp1836.42-1837.12.

¹⁹⁷⁴ Transcript, Day 22, 31 October 2022, p2733.15-25.

to Ms Wyman-Clarke and Mr Riddell, that Ms Reeves may have disposed of confidential documents, and that this was made at a very early stage where the only information she had received was about a “shredding party” and not about the nature of the documents. In evidence Ms Allen accepted that at this stage, she had no reason to suspect that Ms Reeves was wrongfully disposing of documents.¹⁹⁷⁵

1514. On the same day Ms Allen and Mr Csoban went to Ms Reeves’ workstation. They took photographs of the desk, floor, and a calendar page and pamphlet that had been left behind.¹⁹⁷⁶ Ms Allen also identified that Ms Reeves had not left her 2017 and 2018 diaries behind at her desk. She then took the trouble to locate email correspondence in which Ms Reeves had previously ordered a 2018 diary.¹⁹⁷⁷

1515. Ms Allen and Mr Csoban took the confidential bin back to Mr Csoban’s office, arranged to get access to the key to the confidential bin and then unlocked and perused the contents of the bin.¹⁹⁷⁸ They made piles of documents that they considered could be disposed of and those that could not.¹⁹⁷⁹ Ms Allen told Mr Csoban about the recordkeeping requirements, which were that certain types of documents had to be retained and that originals must be retained unless they were backed up elsewhere. Mr Csoban was reliant on Ms Allen to identify this.¹⁹⁸⁰ Mr Csoban gave evidence that Ms Allen informed him that there were documents within the bin that should not have been there¹⁹⁸¹ as they had not been backed up.¹⁹⁸² He advised Ms Allen she should provide information to human resources to investigate.¹⁹⁸³ Mr Csoban accepted the proposition that in order to form

¹⁹⁷⁵ Transcript, Day 22, 31 October 2022, p2733.10-18.

¹⁹⁷⁶ Transcript, Day 22, 31 October 2022, p2736.38-2737.4; Exhibit 106, Email from Cathie Allen to Andria Wyman-Clarke and Andrew Riddell, re ‘Thursday afternoon’, 30 March 2018.

¹⁹⁷⁷ Exhibit 106, Email from Cathie Allen to Andria Wyman-Clarke and Paul Csoban, re ‘Thursday afternoon’, 30 March 2018.

¹⁹⁷⁸ Transcript, Day 15, 20 October 2022, p1837.14.

¹⁹⁷⁹ Transcript, Day 15, 20 October 2022, p1838.14-18.

¹⁹⁸⁰ Transcript, Day 15, 20 October 2022, pp1837.42-1838.25.

¹⁹⁸¹ Transcript, Day 15, 20 October 2022, p1840.12-17.

¹⁹⁸² Transcript, Day 15, 20 October 2022, p1842.20-33.

¹⁹⁸³ Transcript, Day 15, 20 October 2022, p1839.36-40.

the impression that the policy had been contravened the first step was to identify whether a document was also stored electronically.¹⁹⁸⁴ This had not yet been done.

1516. The next day was Good Friday. Ms Allen attended the laboratory and secured casefiles which had been left behind at Ms Reeves' workstation. She emailed information about the issue to Andria Wyman-Clarke and Andrew Riddell and "await[ed] their advice on any next steps".¹⁹⁸⁵ Ms Allen did not refer to any documents found that had been improperly disposed of.

1517. Later, on 19 April 2018, Ms Allen forwarded her previous email to Ms Wyman-Clark following up on the issue, attaching a list of documents in the bin ranked by the level of risk if they had been disposed of, and noting whether each item had been stored electronically or not.¹⁹⁸⁶ In my view, this strongly implies that when Ms Allen initially emailed Ms Wyman-Clark about the issue, she had not yet taken any step to identify whether the documents were saved elsewhere and whether there might have been a breach of the document retention policy.

1518. Ms Allen took further action. She spoke to Ms O'Connor, who recalls Ms Allen had approached her wanting to take disciplinary action against the scientists who had been present at the time of the alleged "shredding party". They were Ms Rika, Ms Caunt, Dr Moeller and Ms Reeves, despite her having left FSS. Ms O'Connor told Ms Allen that there was insufficient evidence to proceed with a disciplinary process.¹⁹⁸⁷

1519. Ms Allen then emailed Ms Rika, Ms Caunt, and Dr Moeller on 30 April 2018 requiring each of them to separately attend a confidential meeting.¹⁹⁸⁸ The email had a plainly

¹⁹⁸⁴ Transcript, Day 15, 20 October 2022, p1839.34.

¹⁹⁸⁵ Exhibit 106, Email from Cathie Allen to Andria Wyman-Clarke and Paul Csoban, re 'Thursday afternoon', 30 March 2018.

¹⁹⁸⁶ Exhibit 109, Email from Cathie Allen to Andria Wyman-Clarke and Paul Csoban, re 'FW: Thursday afternoon', 19 April 2018.

¹⁹⁸⁷ Transcript, Day 13, 18 October 2022, p1629.25-35.

¹⁹⁸⁸ Exhibit 73, Statement of Emma Caunt, 6 October 2022, [225]; Exhibit 78, Statement of Kylie Rika, 6 October 2022, [72]; Exhibit 78, Statement of Kylie Rika, 6 October 2022, KR-07, Email from Cathie Allen to Kylie Rika re 'Meeting'; Transcript, Day 10, 13 October 2022, p1302.10-36.

intimidating tone. She met them each in early May and asked them whether they had observed anything being placed in the confidential bin that should not be placed there.¹⁹⁸⁹ They told her that they had not taken note of what went into the confidential bin,¹⁹⁹⁰ or that they could not remember.¹⁹⁹¹ This experience caused Ms Rika, Ms Caunt and Dr Moeller significant fear and distress.¹⁹⁹² There was no further action taken by Ms Allen after the meetings, and Dr Moeller gave evidence that she felt the process was a “fishing expedition”,¹⁹⁹³ which, obviously, it was.

1520. Ms Allen’s counsel have submitted to me that Ms Allen was obliged to look into the issue, could not ignore it, and was required to gather further information. They submit that Ms Allen was acting under the supervision and direction of Mr Csoban, and was being advised by human resources.¹⁹⁹⁴ I reject this submission. The whole exercise was merely vindictive and was carved out to demonstrate dominance.

1521. Conversely, counsel for Mr Csoban submitted that Mr Csoban was notified of the issue by Ms Allen, was accompanied by Ms Allen, and was reliant on Ms Allen to advise him about the record keeping protocols. They submit that passing the information to human resources cannot be regarded as an intense effort to investigate on his part.¹⁹⁹⁵ They suggested that it was entirely understandable that an Executive Director should be concerned about a possible breach of protocols and that this was his concern.¹⁹⁹⁶ I accept that this was how the affair unfolded from Mr Csoban’s natural perspective.

1522. The fact was Ms Allen acted extremely quickly to investigate this issue despite having no evidence of any wrongdoing. When Ms Allen first spoke to Mr Csoban the only thing she

¹⁹⁸⁹ Transcript, Day 10, 13 October 2022, p1306.1; Exhibit 73, Statement of Emma Caunt, 6 October 2022, [119]; Exhibit 78, Statement of Kylie Rika, 6 October 2022, [74].

¹⁹⁹⁰ Exhibit 78, Statement of Kylie Rika, 6 October 2022, [74]; Exhibit 77, Statement of Ingrid Moeller, 6 October 2022, [79].

¹⁹⁹¹ Exhibit 73, Statement of Emma Caunt, 6 October 2022, [119].

¹⁹⁹² Exhibit 78, Statement of Kylie Rika, 6 October 2022, [75]; Exhibit 73, Statement of Emma Caunt, 6 October 2022, [120]; Transcript, Day 10, 13 October 2022, p1304.31-39.

¹⁹⁹³ Transcript, Day 10, 13 October 2022, p1307.13-24.

¹⁹⁹⁴ Submissions on behalf of Cathie Allen and Justin Howes, 28 November 2022, [139]-[140].

¹⁹⁹⁵ Submissions on behalf of Paul Csoban, 25 November 2022, [4.1]-[4.4].

¹⁹⁹⁶ Submissions on behalf of Paul Csoban, 25 November 2022, [4.4]-[4.5].

knew for certain was that some documents had been placed in the bin that had been provided for the destruction of confidential documents and not that they were documents that should not have been there. The lengths that she went to investigate were not at all warranted by the information that had been provided to her.

1523. The consequences of this strongheaded style of management was to preclude any chance that the laboratory could be a place in which staff could achieve excellence – despite themselves being capable of doing so.
1524. There is evidence before me of the engagement over a number of years of external workplace consultants to address conflict and dysfunction within the laboratory. While I have not explored the nature of the work done by those consultants in detail, there is ample evidence from which I can conclude that the culture of the laboratory remained dysfunctional or ‘toxic’.¹⁹⁹⁷
1525. In my view this must be attributable in great measure to the issues I have described above, which remained unresolved. In order for me to make recommendations with a view to improving laboratory culture it is necessary first for me to consider matters of governance, which I turn to in Chapter 9.

¹⁹⁹⁷ Transcript, day 13, 18 October 2022, 1636.41

8. ENGAGEMENT WITH STAKEHOLDERS

8.1 Engagement with the QPS

1526. The QPS has been the primary recipient of the laboratory's forensic DNA results since its inception. While independent experts, the laboratory is provided samples by the police and reports results to them. I have no doubt that often and in many respects the two organisations work well together. Unfortunately, the Commission has also heard evidence of mistrust, poor relationships and pressures which have hindered the delivery of the services these two organisations provide to the Queensland community.
1527. In their joint report on the current operations of the laboratory, Dr Kogios and Ms Baker observed this loss of trust and relationship damage between the QPS and the laboratory. This came about at least in part from the QPS raising concerns with the laboratory's management regarding success rates and amendments being made to results.¹⁹⁹⁸ I have also heard evidence about the consequences of the client-service provider model, funding, meetings being too infrequent, and poor communication by email.
1528. On the other hand, Ms Baker said she had reviewed some priority one samples and noted there was "really good collaboration and communication between the FSS and QPS for those cases". This translated into giving Ms Baker "great faith" the case management model recommended for the laboratory in Section 2.2, Operating model and workflow is a concept that both the QPS and the laboratory are capable of collaborating to make successful.¹⁹⁹⁹
1529. In short, the senior management of the laboratory was unable to form and maintain a good relationship with police officers. Working scientists had no trouble doing so.

¹⁹⁹⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [37(d)(i)].

¹⁹⁹⁹ Transcript, Day 23, 1 November 2022, p2881.15-24.

The client service-provider model

1530. The QPS pays the laboratory \$3,000,000 per annum for the testing of all its crime scene samples.²⁰⁰⁰ This funding arrangement has led to the perception within the QPS that the laboratory is a service provider with only one client: the QPS.²⁰⁰¹
1531. This ideology was pervasive in the evidence before me. The managers of the laboratory repeatedly referred to the QPS as their “client” throughout their oral evidence. This is at odds with the broader function of the laboratory to assist the administration of criminal justice.²⁰⁰² This language is littered throughout the laboratory’s internal documents²⁰⁰³ as well as internal staff communications.²⁰⁰⁴
1532. Dr Kogios and Ms Baker reported that there were many references by staff during their site visit to “police as the client.”²⁰⁰⁵ Ms Rika in oral evidence stated: “there is a big focus on the Queensland Police being our main client”. She did not recall hearing management using the word “client” to describe any other stakeholders.²⁰⁰⁶
1533. I observed a clear attempt by the laboratory to align work with the goals and desires of the QPS particularly in relation to turnaround times. Turnaround times have been the only metric in place to measure the laboratory’s effectiveness and efficiency.²⁰⁰⁷ That metric is not even a comprehensive one; it refers only to the turnaround time from sample submission to a cold link on the NCIDD,²⁰⁰⁸ and does not measure other turnaround times

²⁰⁰⁰ Exhibit 3, Statement of David Neville, 26 August 2022, p71.306, 74.318; Transcript, Day 4, 29 September 2022, p447.19-30.

²⁰⁰¹ Exhibit 3, Statement of David Neville, 26 August 2022, [100], [121],[306].

²⁰⁰² Transcript, Day 18, 25 October 2022, p2278.24-2279.2; Transcript, Day 19, 26 October 2022, p2389.43-45; Transcript, Day 20, 27 October 2022, p2516.27-2518.8.

²⁰⁰³ Exhibit 192.2, Project Proposal #184: An evaluation of the efficacy of a post-extraction concentration step using the Microcon Centrifugal Filter Devices in Yielding DNA Profile Intelligence, August 2017; Exhibit 91.19, Project #181: Spermatozoa Microscopy Sensitivity – Report, July 2020; Exhibit 190.2, 1711V11 Procedure for Case Management, 14 October 2006.

²⁰⁰⁴ Exhibit 154, Email from Justin Howes to Reporters re ‘statement wording’, 5 August 2016.

²⁰⁰⁵ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [22].

²⁰⁰⁶ Transcript, Day 1, 26 September 2022, p84.1-3.

²⁰⁰⁷ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [186].

²⁰⁰⁸ Transcript, Day 2, 27 September 2022, p242.5-7.

relevant to the criminal justice system such as comparison to a reference sample or preparation of a statement.

1534. As discussed in Chapter 4, Testing thresholds and the “Options Paper”, the Options Paper and subsequent DIFP process came about due to the desire to provide quicker results to the QPS.²⁰⁰⁹ Notwithstanding its significant prejudicial consequences for the criminal justice system, the managers of the laboratory failed to consult wider regarding the change that was implemented as a result of the Options Paper.²⁰¹⁰

1535. The QPS readily conforms to the client service-provider relationship. Inspector Neville referred to the relationship as being one of “service provider” and “customer” in his statement.²⁰¹¹ In response to questioning about the acceptance of the Options Paper by the QPS, Superintendent Frieberg stated:

We paid \$3 million to Queensland Health for a service. We are a client...they perform a service for us as a client.²⁰¹²

I would think as a client and an organisation that Queensland Health, being the experts providing a service, would provide the best advice to guide us to get the best outcome.²⁰¹³

1536. Various experts engaged to assist the Commission identified that the client service-provider model carries the risk of undermining the scientific integrity of the laboratory.

1537. Professor Wilson-Wilde noted that:

a funding model where police specifically pay for forensic services...can focus the attention of the forensic service provider solely to services and processes required by police and not the broader justice system. In doing so it can reduce the independence of the decision making of the laboratory.²⁰¹⁴

²⁰⁰⁹ Exhibit 30, A review of the automatic concentration of DNA extracts using Microcon Centrifugal Filter Devices: Options for QPS consideration, January 2018, pp 9-10.

²⁰¹⁰ Transcript, Day 4, 29 September 2022, p476.17-25.

²⁰¹¹ Exhibit 3, Statement of David Neville, 26 August 2022, [100], [121], [306].

²⁰¹² Transcript, Day 4, 29 September 2022, p472.8-14.

²⁰¹³ Transcript, Day 4, 29 September 2022, p483.45-484.1.

²⁰¹⁴ Exhibit 26, Report by Professor Linzi Wilson-Wilde, 20 September 2022, [36].

1538. Dr Budowle warned that the relationship “may favour throughput by QHFSS over quality and should be re-evaluated.”²⁰¹⁵ Dr Kogios similarly cautioned against having a “myopic focus on who is paying the bills”.²⁰¹⁶

1539. Scientists within the laboratory also recognised the danger of adopting a blinkered approach to their work, although many tried to maintain focus on their wider clients. In an email to her line manager, reporting scientist Alicia Quartermain expressed her frustration regarding the DIFP process (as discussed in Chapter 7, Laboratory culture), pointing out:

Our customers are not just QPS, but the Courts, the complainants, the defendants and the general community.²⁰¹⁷

1540. I have found throughout this report that in many respects, leaders at the laboratory did focus on turnaround times and throughput to the expense of scientific quality. The client-provider relationship was part of the context in which those poor priorities were implemented and affected the laboratory’s compliance with best practice standards.

Communication and collaboration

1541. Regular, professional and productive communication between the QPS and the laboratory is vital to ensure that issues are dealt with as they arise, appropriately, amicably and in a timely manner. Ideally the two organisations would do more than simply communicate well and would also collaborate in areas of research, innovation and training.

1542. At the management level, the QPS and the laboratory communicate through regular meetings. I was told by Inspector Neville that there are monthly or bimonthly meetings between QPS and FSS.²⁰¹⁸ Some evidence before me suggested that these meetings were not frequent enough to deal with issues that arose which required the urgent attention

²⁰¹⁵ Exhibit 31, Report by Dr Bruce Budowle, 15 September 2022, [82].

²⁰¹⁶ Transcript, Day 24, 2 November 2022, p2979.36-2980.14.

²⁰¹⁷ Exhibit 61, Email from Alicia Quartermain, re ‘DNA Insufficient for further processing’, 7 March 2019.

²⁰¹⁸ Exhibit 3, Statement of David Neville, 26 August 2022, p21.100, p71.303.

of both agencies. In an email to Ms Allen and Ms Keller on 30 May 2022 regarding the DIFP threshold, Inspector Neville said that an upcoming meeting was “too far away to discuss this important matter”.²⁰¹⁹ Superintendent McNab also noted that time frames for meetings made it difficult to deal with the thresholds issue.²⁰²⁰ Queensland Health and the QPS may consider increasing the frequency of these meetings to ensure issues are raised and dealt with in a timely way.

1543. It is clearly imperative for a good working relationship to exist between those steering the ship of the laboratory and DNA management at the QPS. Inspector Neville’s relationship with Ms Allen has not been good. They had previously worked well together and achieved good outcomes as a result.²⁰²¹ In more recent times, however, the relationship between Inspector Neville and Ms Allen has become “strained”.²⁰²² Superintendent Frieberg observed that the appeared to be an “obvious rub in personalities” between Inspector Neville and Cathie Allen.²⁰²³
1544. When Inspector Neville sought email advice from Ms Allen, he thought that she tended to respond without addressing the question asked.²⁰²⁴ This was true. Similarly, he believed that information that he sought from Ms Allen at the monthly or bimonthly meetings was never forthcoming.²⁰²⁵ This was also true.
1545. These examples are just a snapshot of the broken relationship. I saw many more in the emails between Inspector Neville and Ms Allen. There were many examples where Ms Allen failed to answer Inspector Neville’s questions either in a timely manner or at all. The clearest examples were when Inspector Neville was seeking clarification of the Options Paper and the issues arising regarding the thresholds used by the lab to triage

²⁰¹⁹ Exhibit 3, Statement of David Neville, 26 August 2022, 26 August 2022, DN-72, Email from David Neville to Lara Keller and Cathie Allen.

²⁰²⁰ Exhibit 138, Email from Bruce McNab to David Neville re ‘RE: Testing thresholds’, 11 May 2022.

²⁰²¹ Exhibit 3, Statement of David Neville, 26 August 2022, [110].

²⁰²² Exhibit 3, Statement of David Neville, 26 August 2022,[111].

²⁰²³ Exhibit 28(a), Statement of Dale Frieberg, 5 September 2022, [27].

²⁰²⁴ Exhibit 3, Statement of David Neville, 26 August 2022, [122].

²⁰²⁵ Exhibit 3, Statement of David Neville, 26 August 2022, [122].

samples.²⁰²⁶ Professor Wilson-Wilde noted that the response timings and language of these emails gave a sense of a “fractured and dysfunctional relationship”.²⁰²⁷ These emails are explored in detail in earlier sections of this report: see Section 4.1, The “Options Paper”.

Withdrawal of results

1546. A particular issue which demonstrated difficulties in communication relates to the reporting of incorrect results. In September 2018, Inspector Neville was concerned about the laboratory’s withdrawal of results that had been reported to the QPS.²⁰²⁸ He raised the matter with the laboratory persistently over 18 months.
1547. This was occurring more often in samples with a mixture of DNA from three or more than three persons. The laboratory had validated STRMix up to three person mixtures. It appeared more changes in results were appearing because the original scientists who interpreted and reviewed the result estimated there were three contributors, and the later scientist tasked with preparing a statement considered there were more than three, rendering the profile “complex unsuitable for interpretation” because of the limits of the laboratory’s capability.²⁰²⁹
1548. As has been noted in Section 2.2 Operating model and workflow and Section 2.4, Technical aspects, changes in results should be expected in forensic DNA analysis because it requires the application of substantive judgment. For that reason, the use of the terminology “incorrect” is inappropriate. The frequency of changes to results of which the QPS were concerned was, in any event, caused in part by the focus on turnaround times and the lack of case management at the laboratory; if results did not have to be reported to QPS after having been interpreted in isolation, they could be considered by the person writing the statement before being reported in the first place.

²⁰²⁶ Exhibit 3, Statement of David Neville, 26 August 2022, [122], Exhibits 64-66.

²⁰²⁷ Exhibit 26, Report by Professor Linzi Wilson-Wilde, 20 September 2022, [2].

²⁰²⁸ Exhibit 3, Statement of David Neville, 26 August 2022, [252].

²⁰²⁹ Exhibit 3, Statement of David Neville, 26 August 2022, [253], [259]-[264].

1549. While Inspector Neville was not content with the speed of responses to his requests,²⁰³⁰ he was provided with reasons for the incorrect results he identified and the laboratory validated the interpretation of four person mixtures, which decreased the incidence of the problem.

Swabs

1550. In early 2009 QPS determined the nylon flocked swabs it was using were not yielding profiles. They sought advice from the laboratory about rayon swabs and were told the rayon swabs were “suitable for use”. There seemed to be dissonance between the laboratory and the QPS about what advice was being sought. This issue was discussed at length in Section 3.2, Collection by the QPS.

1551. Further miscommunication occurred between the QPS and the laboratory between 2008 and 2010 regarding the change of wetting agent for swabs from distilled water to 70% ethanol, with advice being provided in a casual way: see Section 3.2, Collection by the QPS regarding this incident.

Audit Office Report 2018/2019

1552. In 2019, the Queensland Audit Office published a report titled *Delivering forensic services Report 21: 2018-19*. In it, the Audit Office noted a lack of interagency strategic and operational planning and recommended that the QPS and Queensland Health implement a governance structure to effectively coordinate and provide accountability for managing forensic services.²⁰³¹

²⁰³⁰ See, for example, Exhibit 3, Statement of David Neville, 26 August 2022, [259(mm)], Exhibit 141, [259(ww)], [259(aaa)], Exhibit 160, [259(jjj)], Exhibit 169.

²⁰³¹ Exhibit 190, Queensland Audit Office Report 21: 2018-19 Delivering Forensic Services, 27 July 2019.

1553. In response to the Audit Office’s findings, the QPS and Queensland Health undertook to enter a Memorandum of Understanding (**MOU**) with performance standards for the testing of crime scene samples.²⁰³² To date, no such MOU has been established.²⁰³³
1554. After the Audit Report was released in 2019, Mr Lok, then General Manager of Health Services Queensland, liaised with the QPS about developing the MOU. He gave evidence that the QPS initially agreed with the MOU in principle,²⁰³⁴ but after staff movement occurred at the QPS he “didn’t get a sense that there was the same momentum for an MOU at that point”.²⁰³⁵ Later, when the COVID-19 pandemic emerged, police priorities were elsewhere and Queensland Health did not agitate to progress the MOU at that time.²⁰³⁶
1555. Mr Lok considered the MOU an opportunity to set targets and expectations for how many samples the laboratory could process, and how many samples QPS would submit.²⁰³⁷ He also initially sought to include funding agreements in the MOU,²⁰³⁸ but developed a clear impression that QPS did not want it to focus on funding,²⁰³⁹ and did not want a service agreement with prices listed.²⁰⁴⁰
1556. Queensland Health provided a draft MOU to the QPS in November 2019,²⁰⁴¹ however I heard evidence that there was delay regarding the completion of the service schedules, which would set out the costing.²⁰⁴² Ms Lara Keller, Acting Executive Director of FSS said that progress was further stalled by COVID-19, and a changeover in executive leadership at both Queensland Health and QPS.²⁰⁴³

²⁰³² Exhibit 190, Queensland Audit Office Report 21: 2018-19 Delivering Forensic Services, 27 July 2019.

²⁰³³ Exhibit 3, Statement of David Neville, 26 August 2022, p74.318.

²⁰³⁴ Transcript, Day 14, 19 October 2022, p1737.17-28.

²⁰³⁵ Transcript, Day 14, 19 October 2022, p1737.23-30.

²⁰³⁶ Transcript, Day 14, 19 October 2022, p1737.24-28.

²⁰³⁷ Transcript, Day 14, 19 October 2022, p1734.28-30.

²⁰³⁸ Transcript, Day 14, 19 October 2022, p1734.23-26; p1735.3-17.

²⁰³⁹ Transcript, Day 14, 19 October 2022, p1734.28-37.

²⁰⁴⁰ Transcript, Day 14, 19 October 2022, p1737.41-46.

²⁰⁴¹ Exhibit 171, Statement of Catherine Allen, 16 September 2022, [224], CA-131, Email from Michael Lok to QPS.

²⁰⁴² Transcript, Day 5, 30 September 2022, p610.41-611.15.

²⁰⁴³ Transcript, Day 5, 30 September 2022, p610.41-611.15; Exhibit 24, Statement of Lara Keller, 20 September 2022, [80].

1557. Inspector Neville said that the QPS could not agree to the MOU without the schedules being complete.²⁰⁴⁴ He described it in evidence as agreeing to buy a car without having agreed a price.²⁰⁴⁵ Further, he said that planning for future demand requires an understanding of the current capacity of the laboratory.²⁰⁴⁶ Inspector Neville says that he has repeatedly tried to ascertain that information from Ms Allen²⁰⁴⁷ and to date, he has not received a response.²⁰⁴⁸

1558. Ms Lara Keller has continued to work towards an MOU since late 2021, when it was renewed as a priority for both organisations.²⁰⁴⁹ A resolution has not yet been achieved, as further work is still required on the addendum schedule specifying agreed services and costs.²⁰⁵⁰ Ms Keller cites impending recommendations from this Commission as “creating pause for FSS” when it comes to committing to services and costs,²⁰⁵¹ which a completed addendum schedule would require.

1559. It is unfortunate that the two agencies have not been able to work together to finalise a MOU in the three years since the QAO report was delivered.

A stronger relationship

1560. Some of these issues remain relevant today. The QPS and laboratory will have to work together on an MOU, or other funding and services arrangement and agree on an appropriate approach to changed results. If this report’s recommendations are to be effectively implemented, the two organisations will be required to engage in a high level of collaboration.

²⁰⁴⁴ Transcript, Day 3, 28 September 2022, p432.37-43.

²⁰⁴⁵ Transcript, Day 3, 28 September 2022, p423.43-45.

²⁰⁴⁶ Exhibit 3, Statement of David Neville, 26 August 2022, [307].

²⁰⁴⁷ Exhibit 3, Statement of David Neville, 26 August 2022, [307].

²⁰⁴⁸ Exhibit 3, Statement of David Neville, 26 August 2022, [307].

²⁰⁴⁹ Exhibit 24, Statement of Lara Keller, 20 September 2022, p18, [8(a)].

²⁰⁵⁰ Exhibit 24, Statement of Lara Keller, 20 September 2022, p18, [8(c)].

²⁰⁵¹ Exhibit 24, Statement of Lara Keller, 20 September 2022, p18, [8(d)].

1561. Dr Kogios and Ms Baker recommended that the laboratory work together with the QPS and other relevant stakeholders to strengthen relationships and develop a whole-of-justice approach to provision of forensic science services for the State of Queensland.²⁰⁵² The relationship with the QPS will be one worthy of significant focus.
1562. The QPS relationship in particular, should be built at both the executive and practitioner level. I note the many relationships that already exist between QPS officers and scientists, many of them collaborative and productive. Dr Kogios and Ms Baker identified regular case conferencing, particular for urgent or large, complex matters that are heavily dependent on DNA analysis results as one part of the relationship.²⁰⁵³ The laboratory and the QPS will need to broaden these relationships, at that level, and at the management level.

8.2 Engagement with the criminal justice system stakeholders

1563. A theme that has infiltrated almost every investigation undertaken by the Commission is the laboratory's myopic focus on the QPS as its sole or primary client. That has, at times, led to outcomes which prioritised some QPS priorities (such as turnaround times) over broader criminal justice system priorities such as obtaining all forensic evidence relevant to a case, and explaining clearly the uncertainties and caveats that should properly be placed on results reported by the laboratory.
1564. Dr Kogios and Ms Baker note that in addition to the QPS, the laboratory supports the Coroners Court of Queensland and the Office of the Director of Public Prosecutions (ODPP).²⁰⁵⁴ That may be the extent of its direct support, but the scope of its influence and relevance extends further: to defence lawyers, juries, judges, victims, complainants, defendants, journalists and the general public.

²⁰⁵² Exhibit 187, Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, Recommendation 47.

²⁰⁵³ Exhibit 187, Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [254].

²⁰⁵⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [253].

1565. There is evidence of some level of relationship with the ODP: Mr Howes and Ms Allen both identify meetings and training sessions conducted with the ODP, although they did not deal with the meaning of the DIFP and No DNA result lines.²⁰⁵⁵ Mr Howes and Ms Allen both identify that scientists from the laboratory are available for case conferencing with prosecutors.²⁰⁵⁶ This is a further example of taking a reactive approach to ensuring quality (in this case understanding of results by key actors in the criminal justice system), rather than proactively ensuring quality. Ms Allen provided evidence that the ODP were briefed promptly about the contamination issues arising from the DNA IQ extraction system in 2008 to 2009.²⁰⁵⁷
1566. On the other hand, there is little evidence of relationships with the criminal defence community or victim and complainant support groups.
1567. For the criminal justice system to thrive, there must be collaborative relationships between all stakeholders in the system. Such interaction will enhance the interaction between the laboratory and other stakeholders as each performs its function in the system. For the laboratory, it will assist scientists to understand their position as independent experts within the criminal justice system and how the evidence they give is used in criminal trials. Dr Kogios and Ms Baker said that the “development of a whole of justice approach to forensic science services would be highly beneficial”.²⁰⁵⁸ They recommended relationships at both practitioner and executive level and provided the example of cross-training of counsel and scientists as part of continuing professional development programs.²⁰⁵⁹ They identified the Australian Academy of Forensic Sciences model used in some other jurisdictions in Australia as one which strengthened

²⁰⁵⁵ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [69], [70]-[73], [97], [98]-[101], CA-68; Exhibit 147, Statement of Justin Howes, 16 September 2022, [45], [60], [67], [68].

²⁰⁵⁶ Exhibit 147, Statement of Justin Howes, 16 September 2022, [45], [67]; Exhibit 172, Statement of Catherine Allen, 19 September 2022, [70], [98].

²⁰⁵⁷ Exhibit 173, Statement of Catherine Allen, 11 October 2022, [184].

²⁰⁵⁸ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [257].

²⁰⁵⁹ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [254].

relationships across the justice system;²⁰⁶⁰ this should be considered in Queensland in the longer term.

1568. There is no evidence of a mechanism in place to allow defence representatives or self-represented defendants to request further testing of samples. On that topic, Ms Baker said that defence lawyers are important stakeholders in the criminal justice system and that they must have access to any remaining sample and to accredited providers of forensic science (that is, the scientists in the laboratory).²⁰⁶¹ Dr Kogios said that while samples should not be exhausted on a regular basis, if a sample is exhausted there are other means available to defence lawyers to scrutinise the results, such as reviewing the case file and observing the laboratory and scientists' practice. Dr Kogios envisioned that defence would be involved on a case-by-case basis but that ideally it would be a good thing for sample to be left for defence to test should they wish to do so.²⁰⁶² Dr Kogios and Ms Baker agreed that a mechanism should be established for defence to request testing, and this may ultimately not be confined to defence but to other criminal justice system stakeholders.²⁰⁶³ I agree that such a mechanism must be established for defence.

1569. The design of that mechanism is important. It is appropriate that consultation occur before a design is confirmed. It should be an obligation on the Queensland government, rather than the laboratory or Queensland Health because of its interaction with a number of government departments. I consider certain requirements to be necessary for it to serve the interests of the criminal justice system. First, it must be available and known to be available to all defence and defendants. Second, there must be a clear and efficient way that an application can be made to access the testing. Third, the testing is only available if some part of a sample remains after the laboratory has processed it in accordance with case management ideals. There should not be any obligation on the laboratory to save sample for this purpose; they must process the sample to the best of

²⁰⁶⁰ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, [255].

²⁰⁶¹ Transcript, Day 24, 2 November 2022, p2983.38-2984.21.

²⁰⁶² Transcript, Day 24, 2 November 2022, p2984.23-2985.26.

²⁰⁶³ Transcript, Day 24, 2 November 2022, p2985.28-2986.17.

their ability without reference to this consideration. Fourth, there must be some independent way for a determination to be made as to whether further testing should be free of charge. One option is the test used under s590AB of the *Criminal Code Act 1899* (Qld) for things that must be disclosed to the defence: that the thing will tend to help the case for the accused person. That phrase has judicial consideration which may assist in its interpretation, and serves the same aim as this defence testing mechanism – to ensure the defence have the information at their disposal appropriate for them to defend a prosecution.²⁰⁶⁴ Both the prosecution and defence should be able to provide information or submissions as to why or why not the circumstances meet the threshold determined. It is difficult to identify who should make the decision. A scientist would readily understand the possible benefits of further testing, but not the relevance to the case. A lawyer would have the converse difficulty. An independent public servant or lawyer may be best placed to make the decision. I will leave it to the consultation group to decide who would make the decision.

1570. I sought comment from stakeholders in the criminal justice system on possible recommendations that affect the criminal justice system. The Queensland Law Society was strongly supportive of the recommendation for the laboratory to publish information, change its reporting practices, collaborate with and develop their relationships with criminal justice stakeholders.²⁰⁶⁵ The Queensland Law Society and Legal Aid Queensland held reservations about scientists at the laboratory making the decision about the cost of retesting, with the Queensland Law Society noting that the decision maker must be informed of the context of the case by defence as well as the prosecution.²⁰⁶⁶ I trust that the consultation group will reach a decision which aims to best serve the criminal justice system.

²⁰⁶⁴ The words of s590AB of the *Criminal Code ACT 1899 (Qld)* dealing with the prosecution disclosure obligation.

²⁰⁶⁵ Submission from the Queensland Law Society regarding possible recommendation that impact the criminal justice system, 6 December 2022.

²⁰⁶⁶ Submission from Legal Aid Queensland regarding possible recommendations that impact the criminal justice system, 2 December 2022; Submission from the Queensland Law Society regarding possible recommendations that impact the criminal justice system, 6 December 2022.

1571. The Director of Public Prosecutions submitted that while the potential benefits of a system that allows defence to request retesting are patent, a potentially challenging framework for assessment and decision making (both legal and scientific) risks additional delays in the disposition of some cases.²⁰⁶⁷ I agree that this is an unavoidable risk of the proposal and one that the laboratory and consultation group should bear in mind when developing the system.

1572. The Queensland Sexual Assault Network submitted that victim-survivors and Sexual Assault Support Services will be directly affected by the Commission's findings and recommendations. I agree that the Commission's work may have been concerning or triggering for complainants or victim-survivors. They are an important participant of the criminal justice system and should be consulted (through appropriate organisations) where I have recommended consultation and collaboration with stakeholders. As well as specialised services, the QPS and ODPP also have significant legislative obligations to victims including relating to providing information and consultation which will assist victims if changes are made to the forensic DNA landscape in Queensland.

Rec 116. The laboratory should develop collaborative relationships with all stakeholders in the criminal justice system including the QPS, ODPP, Legal Aid Queensland, ATSIILS, victim advocacy groups, and defence solicitors and barristers (including through the Bar Association of Queensland and the Queensland Law Society and other organisations as appropriate). Relationships should be developed at both the executive and practitioner level and include:

- a. At the executive level, collaboration in developing the strategic direction of the laboratory, whole-of-justice system management and performance monitoring and joint projects and research;
- b. At the practitioner level, collaboration in case management and examination strategy setting, joint learning and development

²⁰⁶⁷ Letter from the Office of the Director of Public Prosecutions, 2 December 2022.

opportunities and performance monitoring of practitioners within the laboratory and stakeholders agencies.

Rec 117. The Queensland government should, within 6 months, create and implement a system whereby the accused person or their lawyers may request further testing, analysis or interpretation of samples processed by the laboratory. That system should:

- a. be created in collaboration with all stakeholders in the criminal justice system; and
- b. have as its focus that the laboratory is an independent provider of expert evidence to the criminal justice system and its obligation is to provide evidence that may support or detract from prosecution and defence cases without favour;
- c. have a clear and efficient mechanism for all defendants and defence lawyers to make an application for further testing, analysis or interpretation;
- d. have that mechanism available after the laboratory has carried out all testing it considers appropriate based on case management principles as set out in this report;
- e. involve no obligation on the part of the laboratory to maintain any part of the sample for the purpose of defence testing;
- f. involve a decision maker who is to determine whether the proposed further testing, analysis or interpretation should be free of charge. A possible threshold for that consequence is if the further testing, analysis or interpretation would tend to help the case for the accused person. If the testing is not to be free, the testing should be offered to the accused person to be done at an amount equal to the cost to the laboratory;
- g. allow the prosecution and defence the opportunity to provide information and make submissions as to whether the request meets the threshold;

- h. include a mechanism where remaining sample may be tested at another facility at the cost of the accused person.

8.3 Reporting in witness statements

1573. As explained in Chapter 3, Collection, the result for each sample tested by the laboratory is initially reported to the QPS through the Forensic Register. Results are reported using an ‘exhibit result line’ (for example ‘*DIFP – DNA Insufficient for further processing*’) and an ‘expanded comment’ that can be manually opened on the Forensic Register to provide further information on the exhibit result line. The QPS DNA Management Unit transfers the result to the general QPS system (QPRIME) to be available to investigators with similar wording to the Forensic Register.
1574. If requested by QPS, a witness statement will be prepared for a case by a reporting scientist. That statement collates all samples tested by the laboratory for a case and reports the results for use in the criminal justice system.
1575. Witness statements are accompanied by a standard appendix which provides detail on the role of the forensic biologist, examinations, chain of custody, accreditation, DNA profiling, statistical analysis, datasets and other information relating to the testing.²⁰⁶⁸
1576. Suggested statement wording is outlined in two of the laboratory’s standard operating procedures (17119 and 34006)²⁰⁶⁹ for use by reporting scientists when reporting results. The laboratory expectation is that the suggested statement wording is adopted by all scientists to ensure consistency in reporting.²⁰⁷⁰ Reporting scientists refer to the standard operating procedures as directions or advice regarding wording²⁰⁷¹ but some scientists

²⁰⁶⁸ Exhibit 190.17, 34006V5 Procedure for the Release of Results using the Forensic Register, 18 August 2022, p101.

²⁰⁶⁹ Exhibit 190.11, 17199V17 Procedure for the Release of Results, 17 March 2020; Exhibit 190.17, 34006V5 Procedure for the Release of Results using the Forensic Register, 18 August 2022.

²⁰⁷⁰ Exhibit 154, Email from Justin Howes to scientists, ‘statement wording’, 5 August 2016; Transcript, Day 19, 26 October 2022, p2448.30-2449.29.

²⁰⁷¹ Exhibit 196.61, Response from Angelina Keller to Commission about directions or advice to scientists about DIFP wording, 27 July 2022; Exhibit 196.62, Response from Allan McNevin to Commission about directions or

do not consider themselves free to diverge from the suggested wording.²⁰⁷² While Mr Howes²⁰⁷³ and Ms Allen²⁰⁷⁴ suggested that scientists were free to change the wording, I find that was neither encouraged nor supported in the laboratory.

Current reporting practices

1577. Dr Kogios and Ms Baker, who were engaged to review the current operation of the laboratory, reviewed relevant standard operating procedures and a range of casefiles as part of their consideration of reporting practices.²⁰⁷⁵ They found that the laboratory's approach to evaluative reporting (reporting results by reference to two competing propositions) and the witness statement appendix were consistent with best practice in DNA reporting.²⁰⁷⁶
1578. However, Dr Kogios and Ms Baker found that other aspects of the way results were reported required improvement.
1579. *First*, the laboratory lacks qualifying and contextualising statements to accompany and explain the meaning of results in witness statements.²⁰⁷⁷ Best practice requires reporting procedures that sufficiently explain the evidentiary strength of DNA evidence. Known assumptions, limitations and error rates must also be disclosed.²⁰⁷⁸ This is vital to ensure that interested parties in the criminal justice system can make informed decisions about actions they could take in a case. Such practices act as a safeguard to ensure DNA

advice to scientists about DIFP word, 27 July 2022; Exhibit 196.63, Response from Ingrid Moeller to Commission about directions or advice to scientists about DIFP wording, 27 July 2022; Exhibit 196.67, Initial response from Josie Entwistle to Commission, 28 July 2022; Exhibit 196.68, Response from Matthew Hunt to Commission about directions or advice to scientists about DIFP wording, 28 July 2022.

²⁰⁷² Transcript, Day 8, 11 October 2022, p1018.30-1019.9.

²⁰⁷³ Exhibit 144, Statement of Justin Howes, 9 August 2022, p6.

²⁰⁷⁴ Exhibit 169, Statement of Catherine Allen, 12 August 2022, [11].

²⁰⁷⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61].

²⁰⁷⁶ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(d)], [61(e)].

²⁰⁷⁷ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [70].

²⁰⁷⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [66].

evidence is not overstated or understated or misunderstood. Results must be able to be correctly understood by lay persons (including complainants, victim-survivors, defendants, witnesses, jurors, journalists and general members of the public). Ms Baker observed that laboratory witness statements also do not explain the reporting thresholds used by the laboratory and why they have been chosen nor do the statements say that a result below a reporting threshold has been considered, the reasons for doing so and the effect of that consideration.²⁰⁷⁹ This is contrary to best practice.

1580. *Second*, the laboratory’s limited use of verbal equivalents is not aligned with common Australasian approaches.²⁰⁸⁰ Verbal equivalents are qualifiers that explain the significance of a likelihood ratio in terms of the degree of support for a specific proposition relative to an alternative proposition. The Scientific Working Group DNA Analysis Methods recommends the following verbal equivalents be used in conjunction with a likelihood ratio:

Likelihood Ratio	Verbal Equivalent
1	Uninformative
2 – 99	Limited support
100 – 9,999	Moderate support
10,000 – 999,999	Strong support
> Or equal to 1,000,000	Very strong support

1581. The use of verbal equivalents is endorsed by leading scientific bodies.²⁰⁸¹ Their use aids the understanding of witness statements by non-scientific users by adding a qualitative

²⁰⁷⁹ Transcript, Day 24, 2 November 2022, p2916.34-2917.29.

²⁰⁸⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [65].

²⁰⁸¹ Including the Scientific Working Group DNA Analysis Methods (SWGDM), the European Network of Forensic Science Institutes (ENFSI) and Australia and New Zealand Policing Advisory Agency’s National Institute of Forensic Science’s Biologist Specialist Advisory Group (BSAG).

dimension to a scientific finding.²⁰⁸² The difficulty faced by QPS investigators and stakeholders in understanding the reporting of likelihood ratios was apparent in the Blackburn Case.²⁰⁸³

1582. The laboratory's lack of consistent verbal equivalents is inconsistent with both the Australia and New Zealand Policing Advisory Agency's National Institute of Forensic Science's Biologist Specialist Advisory Group and Scientific Working Group DNA Analysis Methods recommendations. It should be rectified.

1583. *Third*, there is inconsistency between how scientists report 'unknown' contributors in witness statements and the extent of information conveyed. Many witness statements lack an explanation as to whether an unknown contributor is suitable for meaningful comparison and why.²⁰⁸⁴ Mr Parry also gave evidence about inconsistencies in the way reporting scientists report unknown contributors. Some scientists identify whether an unknown profile is male or female and others do not. Mr Parry opined that failing to differentiate between unknown profiles in a statement of witness may be misleading to stakeholders in the criminal justice system. He considers that statement should differentiate between unknown profiles, as is done in the Forensic Register where unique numbers are allocated to unknown profiles.²⁰⁸⁵ Dr Duncan Taylor's report into the laboratory's use of STRmix recommended that the laboratory consider using the 'mixture-to-mixture' feature of STRmix to assist in determining when unknown profiles that have been interpreted from multiple samples in a case could be the same individual.²⁰⁸⁶ In that

²⁰⁸² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [62]-[64].

²⁰⁸³ Exhibit 218, Ms Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 17 November 2022, [56]-[57].

²⁰⁸⁴ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(g)].

²⁰⁸⁵ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [31]-[33].

²⁰⁸⁶ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p56.1776-1778.

report, Dr Taylor stated that inconsistencies have also existed in the reporting of SAIK swabs, including whether epithelial fractions are processed and reported or not.²⁰⁸⁷

1584. Fourth, the large number of reporting categories available to scientists to report a particular result is questioned. When a reporting scientist interprets a result, there are over 100 different exhibit result lines within the Forensic Register that can be used to explain the result.²⁰⁸⁸ An excessive number of categories increases the chance for mistake or confusion.²⁰⁸⁹ In particular, the difference in the number of options within the Forensic Register for a four-person as compared to two and three-person mixtures has no scientific basis.²⁰⁹⁰ The subsequent vast array of results and the absence of tables to summarise findings further decreases readability. This leads to lengthy statements and may reduce comprehension by stakeholders.²⁰⁹¹

1585. Lastly, Dr Kogios and Ms Baker identified source and activity level reporting as areas of emerging best practice currently adopted by some Australasian forensic service providers. Source reporting involves consideration of the likely biological source from which a DNA profile was obtained from (for example saliva, blood, semen). Activity reporting involves a consideration of the likelihood of different propositions about how the DNA was transferred (for example, the likelihood that the accused stabbed the victim the day following their meeting versus the proposition that an unknown person stabbed the victim the day following that meeting). Source and activity level reporting involve the use of a combination of sample types, bioscreening and DNA profiling results together

²⁰⁸⁷ Exhibit 254, Dr Duncan Taylor, Review of the use of STRmix by Queensland Health Forensic and Scientific Services (QH), 21 November 2022, p43.1734-44.1388.

²⁰⁸⁸ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(b)].

²⁰⁸⁹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(b)].

²⁰⁹⁰ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(b)].

²⁰⁹¹ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [61(c)].

with a range of technologies and evaluative methods to report results.²⁰⁹² The laboratory should take steps towards reviewing and adopting these developing technologies.

1586. Mr Parry gave evidence that current laboratory processes often involve the addition of a third, or more, contributor for statistical purposes in STRmix. His view is that such additions should be properly explained in the statement of witness (for example a profile should be reported as a two-person mixture with some indication of a potential low-level third contributor).²⁰⁹³ The Blackburn Case demonstrated the issues that arise from the reporting of an additional contributor without sufficient context as to the strength of the DNA. In that case, a sample was reported as having a second contributor on the basis of low-level results. Ms Veth, an expert engaged by the Commission to review the case, stated that it is important to include an explanation of the quality of the results and any assumptions made as to the number of contributors.²⁰⁹⁴ The addition of contributors to DNA profiles is discussed by Dr Duncan Taylor above in Section 2.4, Technical aspects.

1587. In order to ensure results are readily understood by readers of the information, Dr Kogios and Ms Baker recommended that the laboratory collaborate with all relevant stakeholders to develop qualifying statements and adopt such statements in all communications and reports.²⁰⁹⁵ Dr Kogios also gave evidence that the collaboration should occur at both the practitioner level and the strategic executive level and include developing a shared understanding of concepts, strengthening relationships, discussions around training new practitioners and participation in moot courts.²⁰⁹⁶ I accept this recommendation.

²⁰⁹² Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, [69].

²⁰⁹³ Exhibit 67, Statement of Rhys Parry, 28 September 2022, [34]-[42].

²⁰⁹⁴ Exhibit 218, Ms Johanna Veth and Dr Bruce Budowle, Review of DNA analysis undertaken in the Blackburn case, 17 November 2022, [56]-[59].

²⁰⁹⁵ Exhibit 187, Heidi Baker and Dr Rebecca Kogios, Review of the current operations of the QHFSS DNA Analysis Unit, 28 October 2022, Recommendation 11.

²⁰⁹⁶ Transcript, Day 24, 2 November 2022, p2919.37-2920.13.

1588. Ms Allen as the Managing Scientist and the Management Team are responsible for allowing reporting practices to fall below best practice.

- Rec 118. The laboratory should change its reporting practices to:
- a. review all reportable results and develop qualifying and contextual statements based on paragraph 61 to 71 of the report of Dr Kogios and Ms Baker and forensic service best practice;
 - b. standardise the reporting of 'unknown' DNA profiles through policies introduced to the standard operating procedures and training, and consider adopting the use of STRmix mixture-to-mixture feature to analyse unknown profiles;
 - c. reduce the number of categories used in reporting of results by reviewing and removing categories from the Forensic Register;
 - d. include tables, visual aids and verbal equivalents (as well as numerical likelihood ratios) throughout statements; and
 - e. take steps towards implementing source level reporting (attribution of body fluids to DNA results) by collaborating with the QPS about possible implementation pathways.

'DNA insufficient for further processing' reporting

1589. In my Interim Report, I found that the reporting of results in witness statements as having "Insufficient DNA for analysis" or words to similar effect (**the DIFP Statement**) was untrue.²⁰⁹⁷ This is because in instances where samples with quantitation values within the range 0.001 ng/μL and 0.0088 ng/μL were reported using the DIFP Statement the possibility of obtaining a profile cannot be excluded.

²⁰⁹⁷ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [7].

1590. The Interim Report concerned only the question of whether the DIFP Statement was untrue. It did not concern any question of responsibility for the use of the DIFP Statement in witness statements.²⁰⁹⁸ I now turn to the question of responsibility.
1591. The DIFP Statement was originally developed in late 2012. At that time, it was used to report Priority 3 (Volume Crime) samples that had a quantitation value of less than 0.01 ng/ μ L.²⁰⁹⁹
1592. Mr Howes gave evidence that the DIFP wording was created by reporting scientists who “worked together on standardised wording for statements”.²¹⁰⁰ However, as early as November 2012, scientists were raising concerns about the accuracy of the DIFP Statement. Mr McNevin stated in an email to Ms Allen, Mr Howes, Ms Brisotto and six other scientists (in response to Ms Brisotto’s original email about DIFP):
- “I think we need to [sic] careful, to state that for quants<0.01ng/uL, we have shown that we are unlikely to get a usable dna profile, rather than it being less than some limit below which we cannot interpret...”²¹⁰¹
1593. Ms Brisotto submitted that this email was about results reported to QPS.²¹⁰² That is true, but it raises the essential problem with the DIFP statement which continued in formal witness statements. There is no evidence of any action being taken by anyone at the laboratory to make the wording accurate at that time. Ms Allen, Ms Brisotto and Mr Howes should have acted on this concern.
1594. Following the commencement of the DIFP process for Priority 1 and 2 (Urgent and Major Crime) samples after the Options Paper, on 7 February 2018 Ms Caunt raised concerns about the accuracy of the DIFP Statement expanded comment line displayed to the QPS in the Forensic Register. She told Mr Howes by email that the expanded line incorrectly

²⁰⁹⁸ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [120].

²⁰⁹⁹ Exhibit 190.8, 17119V13 Procedure for the Release of Results, 30 July 2014, p80.

²¹⁰⁰ Exhibit 144, Statement of Justin Howes, 9 August 2022, p3.

²¹⁰¹ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, PB-86.

²¹⁰² Submissions on behalf of Paula Brisotto, 30 November 2022, [73].

implied that there was nothing further that could be done to the sample and she asked that it be clarified to state there may be a chance of getting a usable profile.²¹⁰³ Mr Howes corrected that exhibit line as part of the implementation of the DIFP process but he did not ensure similar amendments were made to the witness statement wording.

1595. On the same day, Mr Howes suggested that statements describe the samples as having “low levels of DNA”. He sent his proposed wording to three scientists, two of whom supported the “low levels of DNA” description. Mr Howes sent that suggested wording to all reporting scientists on 7 February 2018.²¹⁰⁴ Nevertheless, the original DIFP Statement remained as the suggested statement wording in the standard operating procedure.²¹⁰⁵ Mr Howes could not explain his failure to update the standard operating procedure to his proposed wording,²¹⁰⁶ despite having said that he would update it.²¹⁰⁷ In any case, while his wording removed the inaccurate statement “insufficient” it did not deal with the ability to re-test and potentially obtain a profile. Mr Howes, as Team Leader of the Reporting Team, failed to write and implement accurate wording for DIFP samples in formal witness statements after the introduction of the DIFP process in 2018.
1596. As managing scientist, Ms Allen must also take responsibility for the laboratory’s failure to ensure accurate wording for DIFP samples in formal witness statements.
1597. In conjunction with QPS, the laboratory did review and amend the ‘expanded comment’ for the DIFP result line in the Forensic Register on a number of occasions between 2018 and 2022 to more accurately explain the meaning of the DIFP Statement and the further processing options.²¹⁰⁸ Although again, despite saying multiple times that the relevant

²¹⁰³ Exhibit 72, Statement of Emma-Jayne Caunt, 16 September 2022, EC-02.

²¹⁰⁴ Exhibit 196.45, Email from Justin Howes to reporting scientists about potential wording that could be used to report DIFP results in statements, 7 February 2018.

²¹⁰⁵ Exhibit 190.10, 17119V16 Procedure for the Release of Results, 8 August 2018, p78.

²¹⁰⁶ Transcript, Day 19, 26 October 2022, p2450.13-20.

²¹⁰⁷ Exhibit 196.45, Email from Justin Howes to reporting scientists about potential wording that could be used to report DIFP results in statements, 7 February 2018.

²¹⁰⁸ Exhibit 196.29, Email chain between Justin Howes and Troy O’Malley (QPS) about DIFP expanded comment wording, 8 February 2018; Exhibit 196.31, Email chain containing email from Olivia McIntyre (QPS) to Justin Howes about QPS changes to expanded wording, 2 March 2018; Exhibit 196.34, Email chain between Justin Howes, Cathie Allen and Gerard Simpfendorfer (QPS) about updated expanded comments (including DIFP), 11 December 2018;

standard operating procedure would be amended,²¹⁰⁹ Mr Howes did not update the relevant standard operating procedure to reflect the changes to the Forensic Register expanded comment at the time of each change.²¹¹⁰

1598. Scientists within the laboratory continued to have concerns about the wording in witness statements. On 7 March 2019, Ms Quartermain sent an email to her line manager Ms Rika, copying Mr Howes, which expressed concerns about the falsity of the DIFP Statement.²¹¹¹ Again, on 29 April 2021, Ms Quartermain emailed Mr Howes about her concerns and stated “I feel that reporting these samples as DIFP is technically incorrect.”²¹¹² Mr Howes forwarded that email to Ms Brisotto²¹¹³ but otherwise appears to have done nothing to correct the issue. Ms Brisotto said she assumed Mr Howes would do something about the issue, and so she also did nothing.²¹¹⁴
1599. Mr Howes failed to act on valid concerns about the falsity of the DIFP wording in formal witness statements raised with him by Ms Caunt in 2018 and Ms Quartermain in 2019.
1600. Despite the concerns, the two standard operating procedures were each reviewed and reissued by Ms Allen as Managing Scientist on two separate occasions, still with the untrue wording. Thus, Ms Allen promulgated the untrue wording. Mr Howes could provide no explanation for this failure.²¹¹⁵

Exhibit 196.40, Email from Justin Howes to QPS providing updated expanded comment lines (including DIFP) in excel spreadsheet following March 2021 FSS meeting, 10 May 2021; Exhibit 196.42, Email from BDNA to Justin Howes, Paula Brisotto and Allan McNevin about latest version of result lines, 25 October 2021.

²¹⁰⁹ Exhibit 192.44, Email from Justin Howes to Emma Caunt and Kylie Rika RE: Auto-microcons, 7 February 2018; Exhibit 196.30, Email chain between Justin Howes and Troy O’Malley (QPS) about DIFP expanded comment wording, 12 February 2018; Exhibit 196.31, Email chain containing email from Olivia McIntyre (QPS) to Justin Howes about QPS changes to expanded wording, 2 March 2018.

²¹¹⁰ Exhibit 190.20, 34229V2 Explanation of Exhibit Result using Forensic Register, 15 April 2019, p36-37; Exhibit 214.19, 34229V3 Explanations of Exhibit Results for Forensic Register, 12 July 2021, p39.

²¹¹¹ Exhibit 61, Email from Alicia Quartermain ‘DNA Insufficient for further processing’, 7 March 2019.

²¹¹² Exhibit 59a, Statement of Alicia Quartermain, 10 October 2022, AQ-01 - AQ-07.

²¹¹³ Exhibit 61, Email from Alicia Quartermain ‘DNA Insufficient for further processing’, 7 March 2019.

²¹¹⁴ Transcript, Day 16, 21 October 2022, p1986.35-1988.23.

²¹¹⁵ Transcript, Day 19, 26 October 2022, p2450.13-2450.

1601. It was not until August 2022, following the provision by me of potential findings, including that the DIFP statement was untrue, that Queensland Health took action to correct the statement wording.²¹¹⁶ The Acting Director-General directed that the wording be changed to:

Low levels of DNA were detected in this sample and it was not submitted for further DNA profiling.

The sample may have sufficient DNA to result in a DNA profile suitable for interpretation. It is possible that further testing may result in an interpretable DNA profile in some cases.²¹¹⁷

1602. I sought information from the Office of the Director of Public Prosecutions, the Bar Association of Queensland and the Queensland Law Society about the understanding of the DIFP statement by those working in the criminal justice system. A survey conducted by the ODPP revealed that of 195 Crown Prosecutors and Legal Officers, only:

- a. four (2%) understood that samples reported using the DIFP Statement could be tested further at the laboratory; and
- b. 19 (9.7%) understood that samples reported using the DIFP Statement, if tested further, could result in partial or full DNA profiles in some cases.²¹¹⁸

1603. A similar survey conducted by the Bar Association of Queensland of barristers practicing in criminal law revealed five of 31 respondents (16%) understood DIFP samples could be tested further and four of 31 (13%) understood a profile might be obtained.²¹¹⁹

²¹¹⁶ Exhibit 196.57, Email from 'DG Correspondence' to Helen Gregg attaching amended memorandum: DG Memo – Urgent Amendment to Standard Operating Procedure required, 5 August 2022.

²¹¹⁷ Exhibit 190.16, Comment on 34006v4 about 'DIFP' wording, 8 August 2022.

²¹¹⁸ Exhibit 155, Submission from the Director of Public Prosecutions to Commissioner Sofronoff regarding 'DIFP' and 'No DNA', 7 October 2022.

²¹¹⁹ Exhibit 196.75, Submission by the Bar Association of Queensland in relation to the interpretation of 'DIFP' and 'No DNA' results, 31 October 2022.

1604. The Queensland Law Society provided the Commission with anecdotal experiences of members of the society.²¹²⁰ While some members were aware requests could be made for further testing and that if tested further, DNA profiles could be obtained in some cases, the QLS submission demonstrates an absence of correct understanding by members.²¹²¹
1605. Those survey results and anecdotal evidence show how widespread misunderstanding of the DIFP Statement has been since 2018, with significant actors in the criminal justice system unaware of the truth about samples reported in that way. Mr Howes conceded, on the basis of the ODPP's survey results, that the laboratory had failed in educating prosecutors as to the meaning of the DIFP Statement.²¹²² He also acknowledged that part of the educational component was incumbent upon the laboratory.²¹²³ In statements provided to the Commission, neither Ms Allen²¹²⁴ or Mr Howes,²¹²⁵ nor Ms Brisotto,²¹²⁶ could identify any efforts made by the laboratory to explain the DIFP Statement to the ODPP, Legal Aid Queensland, criminal defence solicitors and barristers or the judiciary.
1606. From the QPS perspective, Inspector Neville was also unable to identify any communications between the QPS and the ODPP explaining the meaning of the DIFP Statement.²¹²⁷ The QPS must take some responsibility for the education of the Office of the Director of Public Prosecutions staff given that it is they who provide the statements to them.
1607. Ms Allen, Mr Howes and Ms Brisotto failed to consider whether stakeholders in the criminal justice system understood the meaning of DIFP statements and failed to take

²¹²⁰ Exhibit 196.74, Submission by the Queensland Law Society in relation to the interpretation of 'DIFP' and 'No DNA' results, 14 October 2022; Exhibit 196.73, Submission by the Queensland Law Society in relation to the interpretation of 'DIFP' and 'No DNA' results, 17 October 2022.

²¹²¹ Exhibit 196.74, Submission by the Queensland Law Society in relation to the interpretation of 'DIFP' and 'No DNA' results, 14 October 2022.

²¹²² Transcript, Day 20, 27 October 2022, p2475.7-2476.3.

²¹²³ Transcript, Day 20, 27 October 2022, p2476-7.

²¹²⁴ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [73].

²¹²⁵ Exhibit 147, Statement of Justin Howes, 16 September 2022, [44]-[45].

²¹²⁶ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [154], [157].

²¹²⁷ Exhibit 12, Statement of David Neville, 14 September 2022, [7].

reasonable steps to ensure correct understanding. Ms Brisotto submitted that she was not aware of any stakeholder being misled.²¹²⁸ That may be true, but it was her obligation, along with Ms Allen and Mr Howes to take reasonable steps to ensure they were not.

1608. In terms of the result lines published in the Forensic Register and QPRIME, I find that they are true and accurate. Despite that, many QPS officers who spoke to Mark Ainsworth, a consultant engaged by the Commission, believed that nothing further could be done in relation to a sample reported as 'DIFP' and 'No DNA'. Most officers believed that a result of this nature meant the end of the forensic DNA avenue.²¹²⁹ Two officers gave evidence of a similar lack of understanding.²¹³⁰ This topic is discussed in Section 3.4, Results of Forensic DNA Testing.

1609. The evidence establishes that fundamental participants in the criminal justice system have been misled and have acted under a misapprehension as to the meaning of DIFP in witness statements. The risks which I identified in the Interim Report may well have come to pass given the wholesale lack of understanding of the true position.

No DNA detected reporting

1610. In my Interim Report, I found that a result reported as "No DNA detected" or words to a similar effect in a witness statement are apt to be regarded as asserting the absence of DNA and equally apt to be misunderstood as proof that an offender's DNA was not present.²¹³¹ The true meaning of the result confirms neither of these propositions, but rather, indicates that a scientist was unable to reliably determine whether DNA was or was not present within a sample. Accordingly, I found that the choice of language has

²¹²⁸ Submissions on behalf of Paula Brisotto, 30 November 2022, [75].

²¹²⁹ Exhibit 212.25, Statement of Mark Ainsworth, 17 October 2022, [18(b)].

²¹³⁰ Exhibit 39, Statement of Andrew McNamara, 20 September 2022, [43]-[44]; Exhibit 40, Statement of Devonne Tomuli, 20 September 2022, [25]-[26].

²¹³¹ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [169].

been unfortunate, should not be used any longer, and recommended that addendum statements be provided that accurately described the position.²¹³²

1611. The language “No DNA detected” has been used by the laboratory to describe samples since at least 2012.

1612. While that language may have scientific meaning, being that no DNA was reliably detected by the laboratory’s instruments as the quantitation result fell below the limit of detection, the actual meaning was never made plain to participants in the criminal justice system including counsel, solicitors, judges or juries.²¹³³

1613. A survey conducted by the ODPP indicated that of 195 Crown Prosecutors and Legal Officers, only:

- a. five (2.6%) understood that samples reported as “No DNA detected” could be tested further at the laboratory; and
- b. three (1.5%) understood that samples reported as “No DNA detected”, if tested further, could result in partial or full DNA profiles in a small percentage of cases.²¹³⁴

1614. The survey conducted by the Bar Association of Queensland of barristers practicing in criminal law revealed two of 31 respondents (6.4%) understood No DNA samples could be tested further and understood a profile might be obtained.²¹³⁵

²¹³² Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [171], [174].

²¹³³ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [170].

²¹³⁴ Exhibit 155, Submission from the Director of Public Prosecutions to Commissioner Sofronoff regarding ‘DIFP’ and ‘No DNA’, 7 October 2022.

²¹³⁵ Exhibit 196.75, Submission by the Bar Association of Queensland in relation to the interpretation of ‘DIFP’ and ‘No DNA’ results, 31 October 2022.

1615. Queensland Law Society’s submission said that “Most members ... were not aware further testing of these [No DNA detected] samples may yield partial or full DNA profiles”.²¹³⁶

1616. Again, in statements provided to the Commission, Ms Allen,²¹³⁷ Mr Howes²¹³⁸ and Ms Brisotto²¹³⁹ could not identify any efforts on their part to explain the result or ensure stakeholders understood the meaning of the words used.

1617. Although commonly used by scientists, the meaning of the expression “No DNA detected” when used to report the result of a sample was not understood by non-scientific stakeholders. Those stakeholders were misled by the reporting of those results. The risks I identified in the Interim Report²¹⁴⁰ may have come to pass.

Rec 119. The laboratory should review its reporting standard operating procedures and suggested wording contained therein and make amendments to ensure the language it uses in the Forensic Register and in formal witness statements accurately describes the true situation of the testing that has been conducted on the sample in plain English.

Rec 120. The laboratory should ensure the QPS, Office of the Director of Public Prosecutors, defence barristers and solicitors (including through the Bar Association of Queensland and the Queensland Law Society and other organisations as appropriate) and other participants in the criminal justice system understand the meaning of the results it reports by:

- a. collaborating with those participants in developing accurate wording that is understood by all stakeholders;
- b. educating those participants as to the processes and reporting practices of the laboratory through training sessions; and

²¹³⁶ Exhibit 196.74, Submission by the Queensland Law Society in relation to the interpretation of ‘DIFP’ and ‘No DNA’ results, 14 October 2022, p2.

²¹³⁷ Exhibit 172, Statement of Catherine Allen, 19 September 2022, [97], [101].

²¹³⁸ Exhibit 147, Statement of Justin Howes, 16 September 2022, [66]-[68].

²¹³⁹ Exhibit 50, Statement of Paula Brisotto, 21 September 2022, [199]-[200].

²¹⁴⁰ Walter Sofronoff KC, Report Concerning Use by Queensland Health Forensic and Scientific Services of Certain Evidentiary Statements, 15 September 2022, [169].

- c. maintaining an ongoing and regular education program for participants who join the criminal justice system and foresee interacting with DNA evidence.

1618. The recommendations in this chapter are strongly supported by the Queensland Law Society.²¹⁴¹ The Office of the Director of Public Prosecutions gave similar support to the increased clarity in the reporting of results which would follow from implementation of the recommendations.²¹⁴²

1619. I acknowledge that a template addendum statement for corrections of previous DIFP and No DNA results has been finalised by Queensland Health and that the preparation and issuing of such addendum statements has been initiated.²¹⁴³

²¹⁴¹ Submission, Queensland Law Society, Possible recommendations that impact the criminal justice system – DNA Commission of Inquiry, 6 December 2022, p5.

²¹⁴² Submission, Director of Public Prosecutions, 2 December 2022, p1.

²¹⁴³ Appendix B, Queensland Health relevant actions and engagement to date, 25 November 2022, [6].

9. GOVERNANCE AND FUTURE

1620. The problems uncovered by my commission are significant. They ranged from matters of workplace culture and management through to fundamental problems with the quality of the science being delivered in the laboratory.

1621. The challenges thus presented are not small. They will require sustained attention over several years to rectify, and significant responses including radical long-term structural change, interim organisational change and fresh leadership, retrospective case analysis, and a significant and lasting funding injection.

9.1 Organisational structure

1622. The principle that must guide the government in deciding upon a organisational structure must be that:

- a. the structure is one that ensures that senior management of the laboratory faithfully maintains the standpoint that the function of the unit is to serve the administration of criminal justice by providing reliable information to the QPS and reliable expert evidence to the courts; and
 - b. the structure provides for independent oversight of the work of the laboratory and the giving of expert advice to its chief executive officer.
1623. In order to fulfil the first of these principles, it is necessary that the unit be, and be seen by the community to be, independent and impartial. An obvious structural assertion of independence would also serve to inculcate in the unit's scientists a sense of their responsibility to serve the justice system by employing their high expertise to advance the truth.

1624. There are many ways in which such a structure might be put in place but the current placement of FSS within QH is not one of them. As a mere unit of a large department that

has functions and purposes that are not allied with the functions and purposes of FSS, there will always be a risk that its true mission will be lost.

1625. The UK House of Lords report 'Forensic science and the criminal justice system: a blueprint for change' said the sector needed strategic and accountable leadership that 'reflects all the main stakeholders to set the vision, strategy, and agenda for forensic science'.²¹⁴⁴
1626. Dr Kogios and Ms Baker saw benefit in a governance structure which connected the laboratory with other criminal justice agencies to ensure the laboratory's frame of reference encompassed the whole system it services.²¹⁴⁵ They recommended the creation of a Forensic Science Advisory Board to enable broad engagement in the setting of policies that would affect the criminal justice system, and bring accountability, transparency and governance from a whole-of-sector perspective.²¹⁴⁶
1627. I have consulted with experienced administrators with the Department of Premier and Cabinet, Queensland Health and the Department of Justice and the Attorney-General. I have been greatly assisted by the candid expert advice that I have been given.
1628. I initially considered that the best structure to establish an industry-leading forensic science laboratory in Queensland was to have an independent statutory agency, as a stand-alone body, which was not able to be compromised by the aims of any one department.

²¹⁴⁴ 'Forensic Science and the criminal justice system: a blueprint for change', Science and Technology Select Committee, 3rd Report of Session 2017-2019, HL Paper 333 (1 May 2019) quoted in Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p12 [23].

²¹⁴⁵ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p12 [25]-[26].

²¹⁴⁶ Exhibit 187, Heidi Baker and Rebecca Kogios, Review of the current operations of the Queensland Health Forensic and Scientific Services DNA Analysis Unit, 28 October 2022, p12-13 [27].

1629. This model would be effective. However, it has been pointed out to me, and I accept, that model has potential problems. The most important of these is the length of time that it would take to create such an agency.
1630. I have concluded that the best way to establish a new Forensic Science laboratory in Queensland is to mimic the structure of the Office of the Director of Public Prosecutions. This would have the advantage that a laboratory that nests within the Department of Justice and Attorney-General, which I think is the natural place for a *forensic* science institute, could take advantage of some of the existing administrative structures within that department.
1631. Section 4A of the *Director of Public Prosecutions Act 1984* establishes the position and the office of the Director of Public Prosecutions. The Director is appointed to the position by the Governor in Council. That is to say, the director is not a public servant; he or she is an officer appointed under statute. The director's term of engagement, salary, allowances and other terms of employment are those set by the Governor in Council on the advice of the Minister, who is the Attorney-General. The functions of the director are set out in s 10 and relate to the preparation, institution and conduct of criminal proceedings. The Act provides for the appointment by the Governor in Council of Deputy Directors who, like the director, are not public servants. Section 23 provides for the appointment of Crown prosecutors and other officers to assist the director.
1632. The Act otherwise makes provision for ancillary matters. Section 32 gives the chief executive of the Department of Justice and Attorney-General control of "matters of an administrative nature" associated with the discharge of the director's statutory functions. It is the chief executive who is the accountable officer under the *Financial Accountability Act 2009*.
1633. The director must be an experienced lawyer. The Act imposes a clearly stated set of statutory duties upon the Director of Public Prosecutions to serve the administration of criminal justice in the ways set out in s 10 and allows no room for anyone to interfere. It

also allows for no distraction from that duty because the purely administrative functions required to run an office lie with the chief executive.

1634. By comparison, the Executive Director of FSS is one that does not require any substantial subject matter experience. The key responsibilities begin with these two:

- c. Adhere to defined service quality standards, health and safety policies and procedures relating to the work being undertaken to ensure high quality, safe services and workplaces.
- d. Fulfil the responsibilities of this role in accordance with Queensland Public Service values.²¹⁴⁷

1635. The words “expert evidence”, “court” and “administration of criminal justice” nowhere appear in the role description.

1636. I recommend that an Act be passed under which there is to be a Director of Forensic Science (or similarly named) as head of a forensic science institute. The director should be appointed under that statute on terms set by the Governor in Council upon advice from the Minister – who should be the Attorney-General. The most senior scientists who serve under, and report to, the director should also be appointed under the statute (that is the Technical Lead, Operations Manager and the Quality Manager roles outlined above in section 2.8 Management). Otherwise, as in the case of the office of the DPP, the professional officers of the institute, its scientists and its secretariat, should be public servants.

1637. Having regard to its work exclusively in science, it would not be appropriate for the chief executive of the institute to be the Director General of the department. Instead, a statutory office of chief operations officer should be created to be responsible for the administrative duties associated with operating the institute.

²¹⁴⁷ Exhibit 24, Statement of Lara Keller, 20 September 2022, LK-1.

1638. The Director of Forensic Science should report to a non-executive advisory board, like that recommended by Dr Kogios and Ms Baker. The Board should comprise, at least:
- a. two or three eminent forensic scientists from jurisdictions other than Queensland, including in the field of forensic DNA analysis;
 - b. a representative of the QPS;
 - c. a representative of the Director of Public Prosecutions;
 - d. a representative of the Public Defender;
 - e. two representatives of the private legal profession, appointed by the President of the Bar Association of Queensland and the President of the Queensland Law Society; and
 - f. a representative of a victims' support organisation.
1639. The Director and chief operations officer ought to be *ex officio* members of the board. This will ensure that any resolutions of the board can be given effect by the Director or chief operations officer in the exercise of their statutory powers.
1640. The board should be chaired by an eminent person with relevant experience. Consideration should be given to the appointment to that position of a retired District Court judge, that being the jurisdiction that is concerned with the most substantial number of cases in which DNA evidence will be tendered.
1641. The board should report to the Attorney-General.
1642. If a forensic science advisory board had existed, it would have precluded the adoption of speed of results as a criterion that deformed the integrity of the laboratory. It would have prevented the blunder that was the Options Paper process. Indeed, it is difficult to see how many of the mistakes dealt with in this report could have lain undetected for long if there had been such oversight.

1643. The new entity must have a dedicated research and development unit that is adequately funded to ensure that the institute is able to perform its functions with all necessary technology and knowledge. The head of this unit, with the support of the Director, should create and maintain a relationship with a tertiary institution in order to aid its research function, maintain the knowledge and skills of its staff, afford those working in academia to gain practical knowledge and experience and to encourage the engagement of students as potential forensic scientists. These matters were dealt within in detail in section 2.7 Quality Management.

1644. The Director should aim to establish strong and workable relationships with the QPS, the DPP and other participants in the criminal justice system, as set out in Chapter 8, Engagement with Stakeholders.

Rec 121. The government should pass legislation creating a forensic science institute for Queensland. The legislation should provide for:

- a. The creation of the institute as an independent office within the Department of Justice and Attorney-General, similar to the Office of the Director of Public Prosecutions;
- b. A Director of Forensic Science to be appointed on terms set by the Governor in Council upon advice from the Attorney-General;
- c. Provisions which protect and promote the independence of the institute and the Director as a provider of expert forensic services to the criminal justice system;
- d. The appointment of a Chief Operations Officer who is responsible for the administrative duties associated with operating the Institute;
- e. The appointment of the senior leaders of the forensic DNA laboratory;
- f. The establishment of a dedicated research and development unit within the institute;
- g. The establishment of a non-executive advisory board, to be chaired by an eminent person with relevant forensic science or criminal justice

expertise, which would report to the Attorney-General on the performance of the laboratory and comprise:

- i. Two or three eminent forensic scientists from jurisdictions other than Queensland, including in the field of forensic DNA analysis;
- ii. A representative of the QPS;
- iii. A representative of the DPP;
- iv. A representative of the Public Defender;
- v. Two representatives of the private legal profession, appointed by the President of the Bar Association of Queensland and the President of the Queensland Law Society; and
- vi. A representative of a victims' support organisation.

9.2 Interim approach

1645. The inauguration of such an institute will take time, yet the work of FSS must go on. I am deeply aware that the work of my commission has interrupted and severely disrupted the normal work of the DNA laboratory and has devastated the equilibrium of its staff. The restructuring of the laboratory cannot be delayed.

1646. Queensland Health made submissions about immediate steps that can be taken²¹⁴⁸ and I respectfully accept those submissions. Accordingly, I recommend that the following steps be taken as soon as practicable:

- a. a Chief Executive Officer be appointed to lead the reform of the laboratory. This person should be someone who is eminent in the field of forensic DNA analysis.
- b. an advisory sub-committee be appointed to give expert guidance and support to the Chief Executive Officer. The sub-committee should be constituted by at least three eminent scientists in the field.

²¹⁴⁸ Supplementary Submissions on Behalf of the State of Queensland, through Queensland Health, 2 December 2022, [17]-[24], Appendix C.

- c. a Chief Operations Officer be appointed to lead the administrative management of the laboratory. This officer will report to the Chief Executive Officer.
- d. the priority of each of the Chief Executive Officer, the Chief Operations Officer and the members of the advisory sub-committee should be to set the priority of work to be done to re-establish the working integrity of the laboratory and its capacity to fulfil its functions and to establish a plan to achieve those aims.

- Rec 122. As soon as practicable, Queensland Health should appoint:
- a. a chief executive officer, who is eminent in the field of forensic DNA analysis, to lead the reform of the laboratory;
 - b. an advisory sub-committee, constituted by at least three eminent scientists in the field, who will give expert guidance and support to the chief executive officer; and
 - c. a chief operations officer to lead the administrative management of the laboratory.

1647. This leadership team, with other changes as set out in Section 2.8 Management, will be well placed to take forward the recommendations made in my report and lead the transition to the new forensic science institute.

9.3 Matters of funding

1648. It is beyond argument there needs to be an immediate and significant injection of funding into the forensic laboratory. This is not just funding for projects to redo validations and to conduct the significant retrospective case review. The new funding must also address the current backlog in ongoing service delivery, to immediately fund a revised management structure and, ultimately, the development of a new organisational structure.

1649. Funding and resourcing is also essential to ensure governance and oversight structures can be put in place and legislation developed to carry things forward. The creation of new

structural approach and new committees, with associated secretariat support, is critical to the success of the new laboratory.

1650. From the evidence before me, this is unlikely to be able to be funded from within FSS's existing budget.
1651. While it is of course for government to determine the appropriate funding for the immediate and future delivery of forensic DNA analysis services, such funding decisions must be made in accordance with the following key principles to ensure that the laboratory develops into an effective independent institute capable of delivering high quality forensic services in Queensland.
1652. *First*, funding should be adequate to ensure forensic DNA analysis can support the criminal justice system. Funding must also be sufficient to ensure that the quality of the science is maintained and that corners are not cut in the delivery of strong scientific outcomes. This includes adequate funding to maintain internal and external quality oversight, as well as key research and innovation functions. I have noted elsewhere the criticality of funding research and innovation at the laboratory. In the context of forensic science, this is not an optional extra. Research and innovation is central to the delivery of effective justice outcomes.
1653. *Second*, funding should be transparent, so that the amount of funding provided to the laboratory and the source of this funding is publicly reported. This will be achieved if the laboratory is a separate statutory office. Should the Board be of the view that the administration of justice is being prejudiced by funding constraints, then this view can be advanced and the responsible Minister can make appropriate decisions about what to do.
1654. *Third*, there must be sufficient certainty of funding year-on-year to allow the laboratory to invest in new technology and replace outdated systems. A successful laboratory cannot function if it is constantly having to find savings.

1655. *Finally*, I note the large number of recommendations in my report and the need to coordinate and report on the implementation of these. Transparency, appropriate speed, and accountability of implementation are critical to restoring faith in forensic DNA analysis in Queensland and in the criminal justice system.

Rec 123. In order to facilitate the rapid restoration of confidence in the criminal justice system, the Premier, the Minister for Health, and the Attorney-General must ensure that sufficient funding is provided to the relevant agencies to ensure that the recommendations in this report can be implemented in a timely and supported manner, and utilising a best-practice approach to scientific service delivery.

APPENDIX A – TERMS OF REFERENCE



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[No. 27

Commissions of Inquiry Act 1950

Commissions of Inquiry Order (No.3) 2022

Short title

1. This Order in Council may be cited as the *Commissions of Inquiry Order (No.3) 2022*.

Commencement

2. This Order in Council commences on Monday 13 June 2022.

Appointment of Commissioner

3. UNDER the provisions of the *Commissions of Inquiry Act 1950*, the Governor in Council hereby appoints Walter Sofronoff QC, as Commissioner, from Monday 13 June 2022, to make full and careful inquiry in an open and independent manner with respect to:
 - a) whether the methods, systems and processes used by the Queensland Police Service and the Forensic and Scientific Services for forensic Deoxyribonucleic Acid (DNA) collection, testing and analysis are, and have been, reliable, conducted in accordance with best international practice, and result in, and have resulted in, accurate reporting of the presence of DNA in samples submitted for testing and accurate matching of DNA samples; and,
 - b) whether, if such methods, systems or processes are not, or have not been, reliable, or conducted in accordance with best international practice, or do not result, or have not resulted, in accurate reporting or accurate matching, the reasons for any such failure.

Commission to report and make recommendations

4. AND directs that the Commissioner make full and faithful report and recommendations on the aforesaid subject matter of the inquiry, including an executive summary.

5. AND directs that the Report be transmitted to the Honourable the Premier and Minister for the Olympics, the Honourable Minister for Health and Ambulance Services and the Honourable Attorney-General and Minister for Justice, Minister for Women and Minister for the Prevention of Domestic and Family Violence.

6. AND directs that the final report be provided within six months of commencement of the Commission, that is, by 13 December 2022, AND that the Commissioner will determine whether an interim report is provided before that date.

Application of Act

7. Pursuant to section 4(2) of the *Commissions of Inquiry Act 1950*, it is declared that all of the provisions of the *Commissions of Inquiry Act 1950* shall be applicable for the purposes of this inquiry, except for section 19C (Authority to use listening devices).

Conduct of inquiry

8. The Commission may receive submissions from relevant individuals and entities and hold public and private hearings in such a manner and in such locations as determined by the Commissioner, as appropriate and convenient and in a way that protects and promotes the rights protected under the *Human Rights Act 2019*.

Endnotes

1. Made by the Governor in Council on 10 June 2022.
2. Notified in the Gazette on 10 June 2022.
3. Not required to be laid before the Legislative Assembly.
4. The administering agency is the Department of the Premier and Cabinet.

APPENDIX B – STAFF OF THE INQUIRY

Mr Walter Sofronoff KC was appointed as Commissioner for the Inquiry. Barristers Michael Hodge KC, Laura Reece, Joshua Jones, and Susan Hedge were appointed as Counsel Assisting.

The Commissioner was supported by a secretariat comprising the following staff.

EXECUTIVE DIRECTOR

Jess Wellard

EXECUTIVE ASSISTANTS

Delma Dewar

Hilary Clayton

BARRISTER

Carl Tessmann

SENIOR LEGAL OFFICERS

Eleanor Lynch

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