COMMISSION OF INQUIRY
INTO FORENSIC DNA TESTING IN QUEENSLAND

Brisbane Magistrates Court
Level 1/363 George Street, Brisbane

On Friday, 25 November 2022 at 9.30am

Before: The Hon Walter Sofronoff KC, Commissioner

Counsel Assisting: Mr Michael Hodge KC
Ms Laura Reece
Mr Joshua Jones
Ms Susan Hedge

THE COMMISSIONER: Yes Mr Jones.

MR JONES: Mr Commissioner, before we start with my opening and evidence from Professor Wilson-Wilde, Mr Clarke is at the Commission. He seeks to make an application for leave to appear on behalf of Nationwide News, and then if that leave is granted there should be a folder together with some documents in front of you which details an application that he has to make.

THE COMMISSIONER: Yes, Mr Clarke, where are you?

MR CLARKE: Good morning, Mr Commissioner. May it please the Commission my name is Clarke, C-L-A-R-K-E, initials ME of counsel. I seek leave to appear on behalf of Nationwide News Pty Ltd instructed by Thomson Geer.

THE COMMISSIONER: Yes. That's in relation to varying a non-publication order, is that right?

MR CLARKE: That's so, Commissioner.

THE COMMISSIONER: Yes.

MR CLARKE: A non-publication order number 12 which was made on Wednesday.

THE COMMISSIONER: Yes. Is there any reason I shouldn't give Mr Clarke leave to appear? No? You have leave, Mr Clarke.

MR CLARKE: Thank you, Commissioner.

THE COMMISSIONER: I know that this effects the police, QPS, who had asked very early on in the proceedings for a non-publication order and after consulting with them I had varied the order by reducing its scope, and your client would like the scope of restriction reduced even further, that is you want leave to publish material that at the moment your client can't publish, is that right?

MR CLARKE: That's so, Commissioner, yes. The QPS was informed as to the nature of the application yesterday morning, that's quite soon obviously to this morning but it was only in respect of the order which was made on Wednesday. I'm not sure if --

THE COMMISSIONER: Hang on, the order that was made on Wednesday - anyway, it doesn't matter. Look, Mr Hunter, obviously that's not something you'd be ready to deal with now, or is it?

MR HUNTER: We became aware that there was an application to vary the order.

THE COMMISSIONER: Yes.

MR HUNTER: But we weren't made aware of what the variation sought actually was until about quarter to ten this morning.

THE COMMISSIONER: I haven't seen it yet, but it doesn't matter. How should we proceed?

MR HUNTER: It may be that we're able to reach an agreed position between the parties.

THE COMMISSIONER: Yes.

MR HUNTER: The sticking point as far as we're concerned is the ongoing with current matters that are either being investigated or before the courts.

THE COMMISSIONER: So I should leave your client and Mr Clark's client to see if it can be resolved, and if not then we can worry about making directions so that this can be dealt with quickly, is that right?

MR HUNTER: Yes, we think it might well be the case that we can dealt with it by way of written submissions.

THE COMMISSIONER: All right.

MR HUNTER: Perhaps if you were prepared to revisit the issue at --

THE COMMISSIONER: Well I'll do it whenever you want. Subject to this, that we've got experts who are ready to give evidence about matters and I want to release them as soon as possible. So subject to that we can do it any time, Mr Hunter.

MR HUNTER: Can I suggest 2.15 or 2.30?

THE COMMISSIONER: Any time you like. Speak to Ms Hedge and Mr Jones and work it out.

MR HUNTER: The only reason I said 2.30 was because I suspect that it will only involve maybe five minutes.

THE COMMISSIONER: Yes. The other thing is this, when we adjourn for lunch we can deal with this, that's one option.

MR HUNTER: Yes.

THE COMMISSIONER: I'll wait to hear from you and Mr Clarke about how you want to proceed otherwise we'll proceed with the evidence. Are you happy with that?

MR HUNTER: Yes.

THE COMMISSIONER: Are you happy with that, Mr Clarke?

MR CLARKE: I am, Commissioner. I'm just concerned there may not be an agreement and it will need to be the subject of some argument.

THE COMMISSIONER: Yes.

MR CLARKE: If that happens, if Mr Hunter requires more time it might as another way to proceed be appropriate to make some brief oral submissions and then just some directions be made as to the filing of submissions in response in writing.

THE COMMISSIONER: I'll proceed in whatever way the parties wish subject to proceeding efficiently in a way that doesn't interrupt other matters more than necessary. At the moment is there anything you want to do differently?

MR CLARKE: No, Commissioner.

THE COMMISSIONER: All right. I'll leave it to the two of you to sort it out and to tell me how you want to proceed in due course.

MR CLARKE: Thank you, Commissioner.

THE COMMISSIONER: All right, Mr Jones. And, Mr Clarke, stay or go as you wish.

MR CLARKE: If I could be excused?

THE COMMISSIONER: Yes, certainly, and you needn't ask. Just come and go as you wish.

MR CLARKE: Thank you, Commissioner. I'm sorry, Commissioner, just one final thing.

THE COMMISSIONER: Yes.

MR CLARKE: I'll just identify the materials that have been placed before you.

THE COMMISSIONER: No need to do that, I've got some stuff here. I'm not going to look at it unless I have to.

MR CLARKE: I just mention it because there is a draft order there and, Commissioner, you mentioned you hadn't seen a copy of what the proposed variation to the order is.

THE COMMISSIONER: Yes, but I'm not going to look at it until the point comes when I'm looking at it for a particular purpose.

MR CLARKE: Thank you, Commissioner.

THE COMMISSIONER: I'll just hang on to the material in the folder and during the break I might look at it, but otherwise I'll wait for you two to tell me what I should do.

MR CLARKE: Thank you, Commissioner.

THE COMMISSIONER: Mr Jones.

MR JONES: Commissioner, on 1 November 2022 Ms Baker alerted us to a concerning finding made by her and Dr Kogios when reviewing the operations of the laboratory. The finding related to the swabs and wetting agent used by the Queensland Police Service to collect biological from crime scenes.

Since 2010 the Queensland Police Service has used rayon swabs with 70 per cent ethanol as the wetting agent.

Dr Kogios and Ms Baker had not seen this before and they commenced reviewing some literature and recommended that

investigations be performed to confirm the suitability of rayon swabs with 70 per cent ethanol as the wetting agent.

If the collection method is poor or sub-optimal it will affect the success of downstream DNA analysis. So this is a significant issue that is worthy of proper and thorough investigation.

Accordingly, you requested statements addressing the issue from both the Queensland Police Service and from Queensland Health. You also requested documents separate from the statements from Queensland Health regarding validations or verifications that had been done since the year 2008.

You received two statements from Inspector Neville, a statement from Cathie Allen and a statement from Allan McNevin. You also commissioned Professor Linzi Wilson-Wilde to provide an opinion.

You will hear from Professor Wilson-Wilde shortly but first I'll give you some background about how the Queensland Police Service came to be using rayon swabs with 70 per cent ethanol as the wetting agent.

Mr Operator, could QPS.0308.0002.0001 be brought up on the screen, please, and turn to page 2. You'll see the heading at the bottom there, Commissioner, "sampling technique". This is a statement of Inspector Neville of 2 November 2022. A hard copy is provided of the material I'm referring to in the bundles that are in front of you, Commissioner.

THE COMMISSIONER: Just let me find it. Yes, I have it, Mr Jones.

MR JONES: Thank you, Commissioner. As you are well aware, Commissioner, the Queensland Police Service took over sub-sampling from FSS in 2008.

THE COMMISSIONER: Yes.

MR JONES: That's confirmed there in paragraph 11 of Inspector Neville's statement. At that time the Queensland Police Service commenced using Copan 4N6 flocked swabs with water as a wetting agent. If the page can be turned to page 3 please, Mr Operator.

Inspector Neville says that the Copan 4N6 flocked swab was selected after joint research was undertaken between QPS and FSS. This is picked up in paragraph 12 of the statement. I'll come back to the notion of joint research in a moment, but could alongside Inspector Neville's statement document WIT.0019.0043.0001 be brought up, please, and turn to page 2.

You'll see in paragraph 12 of Inspector Neville's statement reference made is to Exhibit 221.

THE COMMISSIONER: Yes.

MR JONES: Which is a copy of a final report.

THE COMMISSIONER: Yes.

MR JONES: I'll come back to that in a moment but if Exhibit 222 could be brought up on the screen, please, which is at page 90. Sorry, it's Exhibit 220, my apologies, which is at page 89.

This is an email from Cathie Allen of 18 June 2008 to the QPS regarding the use of water or 70 per cent ethanol. Ms Allen says:

> *I spoke with a couple of other scientists and they were in agreement. We thought that either distilled water or 70 per cent ethanol would be a suitable solution to collect blood.*

This is in response to a question asked by the QPS which is outlined at page 11 of Inspector Neville's statement.

On the document to the right at page 2, paragraph 6 Ms Allen says that she has no memory of the discussions that were had with other scientists. It seems that as a consequence of that email water was selected as the wetting agent and the swab Copan 4N6 was used commencing in 2008 when the police took over sub-sampling.

You'll hear, Commissioner, from Professor Wilson-Wilde about what amounts to or what a validation is and what a verification is and the importance of doing a validation or a verification when changing processes such as this.

It would seem on the current evidence that the use of the Copan 4N6 swab with water as a wetting agent was not validated or verified by the Queensland Police Service before its use in 2008 but it cannot be ascertained currently whether there was a validation before 2008. It seems unlikely though because Ms Allen has identified in her statement at para 8 that when she started there was historical use of ethanol, not water with the Copan 4N6.

Of course the police only started sub-sampling in 2008 and Professor Wilson-Wilde will tell you that it's important when doing a validation to validate it how it's going to be used, so by police --

THE COMMISSIONER: Just hang on a minute, Mr Jones. Go ahead, Mr Jones.

MR JONES: I was just saying it seems it very unlikely it would have been validated or verified prior to 2008 because the police didn't have - weren't doing the sub-sampling. But the lab may have done some form of validation when they were doing the sub-sampling but we don't have that.

Ms Allen finishes paragraph 8 there by --

THE COMMISSIONER: The position is that there's no evidence that anybody did any validation?

MR JONES: That's right, and we have only asked so far for validations since 2008. But Ms Allen has indicated a lack of memory surrounding some of those things but difficulty getting documents that may be in hard copy.

THE COMMISSIONER: Anyway, you go ahead.

MR JONES: Ms Allen concludes there at paragraph 8:

> *My assumption is that published journal articles regarding an appropriate medium to collect possible blood on a swab was the source of the information, as upon my commencement with the laboratory it had historically used ethanol as a medium.*

That's another reason we say that it probably was not validated water with the Copan 4N6 swab.

Could document WIT.0040.0102.0001 be brought up please?

THE COMMISSIONER: What is that?

MR JONES: That is Allan McNevin's statement of 24 November 2022. It has the wrong month, it has October but it was given to us and only asked in the last few days so it was November.

Could Inspector Neville's statement be brought up, QPS.0308.0002.0001. Over the page to paragraph 13 please. Thank you. You'll see there, Commissioner, in Inspector Neville's statement that in early 2009 --

THE COMMISSIONER: Hang on, I want to find my copy. I have it, yes.

MR JONES: In paragraph 13.

THE COMMISSIONER: Yes.

MR JONES: In early 2009 the Queensland Police Service experienced an issue with Copan 4N6 swabs and water as the wetting agent not wielding DNA profiles.

THE COMMISSIONER: Yes.

MR JONES: The Queensland Police Service looked for an alternative swab, one that could snap off from the shaft so that it was robot ready.

THE COMMISSIONER: Yes.

MR JONES: Could you turn to page 90 of Inspector Neville's statement please, operator, and turn to page 2 of Mr McNevin's statement, please. In Inspector Neville's statement would you go over a page to page 90. Thank you.

THE COMMISSIONER: Yes Mr Jones.

MR JONES: You'll see there in paragraph 7 that Mr McNevin is speaking of the January 2009, then a laboratory study done on the 4N6 swab.

THE COMMISSIONER: Yes.

MR JONES: This it seems is a response to the issue that

the QPS were having with not getting DNA with the water that Inspector Neville spoke of. It also appears to be the joint research that Inspector Neville is referring to in paragraph 12 of his statement. Certainly no other documents were provided and it seems that Inspector Neville may have conflated the issue with the swabs not picking up DNA and with the selection of the 4N6 swab.

But in any event this study was undertaken and under the heading "introduction" there, Commissioner, if that could just be blown up, the paragraph "introduction", please.

> *The examination of items for forensic DNA testing is labour intensive and depending on the item, a time consuming process. For simple items such as swabs laboratory efficiency could be improved by delivering items to the testing laboratory in a format that is suitable for analytical use.*

This is making a reference to the item being robot ready and compatible with the processes of the lab and equipment of the lab.

> *Such a format includes the supply of swab heads packaged in a tube suitable for testing in the analytical environment, ie suitable to be used directly in the DNA extraction procedure without the need for examination by a scientist.*

Then it identifies one such swab. Then:

> *One format that the product may be purchased in is a kit containing a flocked nylon swab packaged with a 2ml tube with a vented lid allowing for the drying of the swab head.*
>
> *The testing like lots of other decisions in the lab had reference back to reducing time consuming processes.*

And here that means robot ready.

> *At the time there was no published papers that could be found by authors that*

directly compared the Copan 4N6 with other swabs in use.

And that can be picked up under the heading "aims". If the operator could go down - sorry, under the heading - sorry, just above "aims" there. Then if the "aims" section could be blown up please, and that can be taken down.

Testing only related to the efficacy of the Copan 4N6 flocked swab to uptake and release DNA in comparison to spun cotton swabs and spun rayon swabs.

If we could go over the page now please, operator. Experiment 1, if that could be blown up please, related to whole blood being spotted directly onto the swab and allowed to air dry for an hour.

Then if experiment 2 could be blown up please. Experiment 2 was diluted whole blood, again being spotted onto the swab, not the swab swiping a substrate.

Experiment 3 was buccal cells spotted directly on to the swab and allowed to dry for an hour.

Experiment 4 was then a dilution of the cells and again spotted directly on to the swab.

Then experiment 5 was whole blood spotted directly on to the surface of a new petri dish and allowed to dry overnight and then standard laboratory techniques used for liberating the blood at a crime scene were used to liberate the blood onto the swab, that is the swiping of the swab on the petri dish. There was a wetting agent used in experiment 5, Nanopure water, not ethanol. Thank you, that can be taken down.

Then the results are detailed over the next few pages but if we can go to page 10, please. In the first paragraph there, the sentence concludes the paragraph with:

Additionally given the small sample size for these experiments further testing is warranted to draw a clearer conclusion

THE COMMISSIONER: Where are you reading from?

MR JONES: This is page 10, the top paragraph, the final sentence.

THE COMMISSIONER: Yes, I see it. I've got it. Thank you.

MR JONES: Then under the heading "recommendations" the report concludes with:

> *The testing carried out in this trial has been on small scale and represents some initial evaluation of the 4N6. The testing falls short of a validation or verification. All results should be viewed and 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.*

THE COMMISSIONER: So why did they bother doing it?

MR JONES: Why did the laboratory bother doing the testing?

THE COMMISSIONER: Well it's not even testing because some experiments were conducted from which you conclude nothing.

MR JONES: Because of the small scale.

THE COMMISSIONER: Because of whatever reason he gives, but you spend all this time doing it and then you say you can't rely on this for anything. Anyway, yes, where do we go next?

MR JONES: Two other things that should be said about that report, if you like. The testing did not use or compare different wetting agents, in fact all of the experiments bar one didn't have a wetting agent. In some instances they were allowed to just dry over an hour. And none of the experiments used surfaces such as concrete or other such surfaces found at a crime scene to swipe the swab on.

If those two documents could be taken down, please, and QPS.0308.0002.0001. I'm just checking to see whether I can give you an answer, Commissioner, to your question from paragraph 7 and onwards of Mr McNevin's statement where he identifies doing the research and what the research involved, but he doesn't identify what the purpose of the

research was other than to say that in 2009 the laboratory conducted a study comparing the swabs.

THE COMMISSIONER: No. As a result told everybody "don't pay any attention to this".

MR JONES: Yes, that's right. The Queensland Police Service it seems after this study in 2009 identified a rayon swab and sought advice from FSS as to its suitability. This is picked up at page 100 of Inspector Neville's statement.

THE COMMISSIONER: Paragraph 100?

MR JONES: Page 100, it's an exhibit --

THE COMMISSIONER: No, I understand that. It's fine. That's an email?

MR JONES: That's right.

THE COMMISSIONER: Yes.

MR JONES: This is an email from Allan McNevin to Inspector Neville and Liza. It seems that Inspector Neville had after the study, research we just spoke about had gone into the laboratory with another type of swab and spoke with Mr McNevin about whether it was suitable and Mr McNevin then sent this email some time later on 26 March 2009.

There's a few things to note from this email. Firstly, the advice being sought was to suitability, not validation or verification. This observation is supported by the recent statement of Mr McNevin. Which is - if it can be brought up alongside of this please, WIT.0040.0102.0001 and turn to page 2, paragraph 5.

Now the reason I draw your attention, Commissioner, to the distinction of suitability and not a validation or verification is the suitability, as I understand it, goes to the swab and the packaging suitability to be able to fit in with the laboratory's processes rather than a study or question about the efficacy of using a particular swab with a particular wetting agent.

THE COMMISSIONER: I don't understand the distinction. (Indistinct) what suitability means then.

MR JONES: It's important to differentiate - this is Mr McNevin - between DNA collection and DNA extraction. If, for example, the police officer --

THE COMMISSIONER: Let me read that then. I think that's pretty atrocious really. Tell me if I've understood this correctly.

MR JONES: Yes.

THE COMMISSIONER: They have absolutely no idea whether the swabs that the police are putting forward are of any use in getting biological material into the swab.

MR JONES: Perhaps if paragraph 5 can be shrunk down so we can see the rest of what Mr McNevin says, please.

THE COMMISSIONER: In the email Mr McNevin told Inspector Neville that the rayon swabs are suitable for use and it's not necessary to perform any testing.

MR JONES: Over the page you'll see more information --

THE COMMISSIONER: Over the page?

MR JONES: Of McNevin's statement to page four.

THE COMMISSIONER: Yes.

MR JONES: And, Commissioner, if you read that it may put into context --

THE COMMISSIONER: Which paragraph?

MR JONES: It starts at paragraph 15:

> *On Tuesday 3 March Inspector Neville attended the laboratory.*

THE COMMISSIONER: Let me read it, yes. What does Inspector Neville say about that?

MR JONES: He doesn't mention - I'll just bring it up, sorry.

THE COMMISSIONER: Mr McNevin says in paragraph 17 that he

didn't have the experience or knowledge to discuss the suitability of a swab for uptake, that is DNA collection.

MR JONES: Correct. At paragraph 13 Inspector Neville says, speaks of the issue in early 2009 with the 4N6 swabs:

> *As a result we searched for an alternative with a shaft that would enable the swab head to be broken off into the tube.*

Obviously being robot ready, Commissioner.

> *A rayon swab with a plastic shaft was identified that would achieve this. The QPS sought advice from QHFSS as to the suitability of the swab. Mr Allan McNevin provided email advice that: "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".*

A copy of the email is attached and then that's the email, Commissioner, that's on the screen, Exhibit 222.

At the very least there is a misunderstanding between Inspector Neville --

THE COMMISSIONER: Where does he say in his communications with Inspector Neville to make it clear that he's only talking about whether the swab is suitable for the limited purpose of the lab's processes in extracting DNA and that he's giving no opinion about its suitability for collecting DNA? I would have thought that the lab's interest is in obtaining of DNA in order to extract it, and it's convenient now to say "I'm only talking about its suitability for extraction having learned that there's a problem with collection". But where is that ever made plain at the time so that police knew?

MR JONES: It's not explicitly said by Mr McNevin but in paragraph 13 by Inspector Neville he's asking about the suitability of the swab. There's no mention of it being validated or verified in terms of its efficacy. Some of this --

THE COMMISSIONER: Some lay person said - I mean I know Inspector Neville is not a lay person, he's a scientist as well, but when you ask, "We're going to using this for swabbing up blood samples with a view to getting DNA profiles, is this suitable", you'd hardly be understood to be speaking about, "Is it suitable for a limited purpose?"

MR JONES: The difficulty of course is that we are receiving evidence from what appears to have occurred as a conversation in March 2009, at least part of it, that is picked up from paragraph 15 of McNevin's statement, where Inspector Neville attends the laboratory and shows them the swab. And there's a discussion with Cathie Allen about that and then it goes on with the recollection of McNevin:

> *I recall in my conversation with Inspector Neville on 3 March was about whether the swab and the tube was suitable for the process in the laboratory.*

THE COMMISSIONER: Where is that?

MR JONES: This is at paragraph 16:

> *I specifically recall discussing the physical properties of the swab and how these physical properties could effect the DNA extraction process. For example, the length of the swab stick and whether it would fit in our spin basket.*

So this is all about the suitability of the product working within the lab's process, not about the efficacy of the product.

THE COMMISSIONER: Well, in his mind.

MR JONES: That's what I say, this is the conversation that is said to have been had with Inspector Neville and Inspector Neville's statement at paragraph 12 or 13 speaks about the a suitability, not the efficacy.

THE COMMISSIONER: The upshot is that Mr McNevin says:

> *I was only talking about whether the lab could work with these swabs given its own*

processes and I had no experience or knowledge to know whether this swab type would ever pick up any DNA.

MR JONES: And McNevin uses that as a mechanism for recall to say, in effect:

I'm confident that what we spoke about in paragraph 16 was suitability, and not efficacy, because I wasn't qualified at the time to talk about efficacy.

THE COMMISSIONER: But he doesn't suggest in any of his evidence that he made that limitation plain to the police officer whose interest was in getting profiles, not in using swabs uselessly to pick up nothing so that it could be used in a particular machine.

MR JONES: Yes. Professor-Wilson-Wilde will tell you, I suspect, that any validation or verification would be a collaborative effort, not one that is solely placed on the responsibility of the laboratory.

THE COMMISSIONER: As Dr Bedowle said yesterday, in order to test whether something is suitable or not for the purpose for which it's going to be used, you have to test it in the real word in swabbing something and then seeing if you can get that something out. Mr McNevin might well have had, if we take his statement at face value, a mental reservation about his expertise and may well have been using the term 'suitable' in his own mind as whether they can stick it into their machines and extract anything that's there. But it's certainly not evident from anything that he's written in his statement that he made that plain to Inspector Neville.

MR JONES: That's right. Although the only other point I would make is that it doesn't seem that Inspector Neville has said, 'I understood what I was discussing with him to be about efficacy'. He uses the word 'suitability' as well, but --

THE COMMISSIONER: Suitability is all encompassing, it's a plastic word that depends on its context and when police ask is this suitable for - what's the language of the email that we looked at a moment ago?

We have considered the rayon swabs suitable for use.

MR JONES: Yes, but that needs to be read in the context of both that conversation and also the email that wasn't given to us by the QPS but is included at paragraph 18 of McNevin's statement:

Thanks for bringing out the sample of the swabs and tube. I just wanted to summarise where to go 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 1.5 ml tube appears to be the same product that we have used before, although we prefer a 2 ml tube of which I've provided an SSI product for comparison. It appears okay but I will get back to you on that. Additionally you are going to get --

THE COMMISSIONER: This is like the Options Paper in putting the onus on police. How are police going to know whether a swab is useful for picking up DNA? Only the lab will be able to test for that.

MR JONES: As I understand it the evidence will be it's done in collaboration.

THE COMMISSIONER: Yes, of course, of course, but the QPS doesn't have its own resources to swab samples for testing to see whether it, the particular swab is effective in picking up biological material containing DNA, and so when you ask the lab is this suitable, what does any rational person think you're asking? Whether it's suitable in all respects for getting DNA profiles.

Anyway, Mr McNevin might well have, in his own mind, thought he was only speaking about suitability for extracting what's there, although I find it difficult to think that he could have appreciated that Inspector Neville was limiting his question in that way but, anyway, it

doesn't matter. Where do we go next?

MR JONES: Secondly, about this email of 26 March is, of course, it speaks of it being identical, but it's not identical, so before it was used it would need to be validated or verified and, thirdly, there is no discussion or advice in the email about wetting agents that are to be used. It seems that that advice is about what will be compatible only with the laboratory.

There is that earlier email, the two line email that, Commissioner, you saw from Cathie Allen in 2008 about a reference to either water or 70 per cent ethanol, but otherwise --

THE COMMISSIONER: Now, that makes it plain, doesn't it, that what they're being asked about is suitability for collection, not for extraction?

MR JONES: It seems so, in June 2008.

THE COMMISSIONER: The collection includes extraction because you use something to scoop up material and you hope to scoop it up effectively with a view to having it extracted from the thing that scooped it up for testing to give you a profile. You're not interested in an extremely inefficient useless collection device that's wonderful in the lab for extracting nothing that's there. Anyway, that's a story. Where do we go next?

MR JONES: Exhibit 177 to Inspector Neville's statement of August 2022, which is WIT.0020.0004.0001. So that is August 2022 at p421.

THE COMMISSIONER: Let me see if I can find it, Mr Jones.

MR JONES: You won't have that, I'm told. Apologies.

THE COMMISSIONER: Yes, all right. You can tell me where we're going.

MR JONES: If you could just go over the page, Mr Operator, to 22 please. It's 422. Thank you. In early 2010 the Queensland Police Service were advised of suspected mould on some of their swabs. Acting Senior Scientist Adrian Pippia concludes in his email that is before you in the final paragraph:

I am wondering if ethanol would be the choice of wetting agents for swabs as it evaporates a lot quicker than distilled water. Please let me know of your investigations.

So this is, the context to this email is the issue of the mould is being raised with police and an Acting Senior Scientist is questioning whether ethanol would assist with the mould because it would likely dry a lot quicker than water, which is what the police were using at the time.

THE COMMISSIONER: He's writing to Quality Manager PFS. What's that? Police Forensic Services or --

MR JONES: I don't know, but the Quality Manager is - there's a Quality Management Section within the DNA Management Unit and what becomes apparent over the page, if we go back to 21, 421, is that Inspector Neville and Lyza McMenz, who is a research officer --

THE COMMISSIONER: With whom?

MR JONES: The QPS. If that can just be blown up a little bit so we can see the response down there.

THE COMMISSIONER: She's in something called the Quality Management Section as well.

MR JONES: That's right. And I'm going from memory here, but I'm sure Mr Hunter will correct me if I'm wrong, I think Inspector Neville was in charge of the Quality Management Section at around 2010, hence he becomes part of that chain of email above.

So the suggestion in the earlier email is that the police will carry out some investigations and let the Acting Senior Scientist know what the outcomes are.

And then the research officer commences to look at the issue of drying, but not efficacy, and she makes reference to the higher humidity areas of presumably Queensland where they're collecting some samples.

And if that is taken down and above that is Inspector Neville's request of Lyza to provide the data that was

compiled in assessing that, and that is Exhibit 223 to Inspector Neville's statement of 2 November 2022 and you have that statement, Commissioner, it's at p102.

THE COMMISSIONER: Hang on a minute, whose statement?

MR JONES: Inspector Neville's, 2 November 2022, Exhibit 223. The dock ID is QPS.0308.0002.0001. And then turn to p0102, please, Operator.

Under the heading 'Purpose' you'll see, Commissioner, the purpose was the evaluation was directed towards drying times, not efficacy of rayon swabs as 70 per cent ethanol as a wetting agent.

Under the heading 'Background' on p1 there, the report refers to turnaround times as a focus and rapid delivery to the laboratory. That's picked up in paragraph 1 under the heading 'Background'.

Then a reference is made to the tubes having an evaporation hole in that same paragraph. That's, as we understand it, to assist in drying. 94 per cent of the samples considered in this study by the police have been collected during a particularly wet period. That's picked up in paragraph 3 under the heading 'Background'.

In the final paragraph of 'Background', you'll see it starts with:

> *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 two collection and packaging options. In a separate project studies have been undertaken to assess the ability to generate a DNA profile from dried bloodstains collected using 70 per cent ethanol and water as solvent.*

Could, on the left-hand side of the screen document WIT.0020.0012.0001 be brought up on the screen, please. Turn to p3 and expand paragraph 14 and 15, please.

As a consequence of the paragraph in the report of

Lyza-Jane McMenz referencing separate project studies, Commissioner, you asked for a further statement from Inspector Neville. That further statement was provided and is dated 14 November 2022.

In response to a request about being provided with those separate project studies, Inspector Neville said:

> *This work, if undertaken, occurred more than ten years ago and the officer involved left the employment of the Queensland Police Service 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.*

So it seems that the report that references separate project studies either wasn't done to completion or has now been lost. In any event --

THE COMMISSIONER: But we see from Ms McMenz's study, which is at p102 of Inspector Neville's statement, that while she was interested in addressing the mould issue by studying the rate of drying of swabs, she incidentally found that while the ethanol dried much more, the ethanol soaked swabs dried much more quickly, she says at p2:

> *These swabs do not appear to collect as much sample as the water moistened swab*

and she doesn't seem to have any numerical data for that, but then at the foot of p3 she repeats that:

> *When using 70 per cent ethanol moistened swabs it appeared that not as much of the stain is completed. This may prove to be critical in the case of small stains on semi porous surfaces such as plasterboard.*

And she then at the end says something that Dr Bedowle said:

> *It's apparent that the use of silica desiccants can assist with the drying of samples.*

If they're to be stored in plastic for an extended period of time, which she noted was going to happen because Australia Post evidently required these sorts of things to be put into plastic bags. Then she says:

> *Items should be thoroughly dried prior to packaging and consideration should be given to the addition of silica desiccants.*

So she says ethanol dries more quickly, it doesn't work as well, and you should be drying these things before sending them if they're going to be sent, if they're going to be put into plastic packages.

MR JONES: And then one further matter. They're the matters I was going to point out to you but there is one further matter under the heading 'Recommendation' on p5.

THE COMMISSIONER: It may be that it really didn't matter, as I thought it did matter, that Mr McNevin was speaking at cross-purposes with Inspector Neville, if he was, as he says, that he was referring to a limited issue of lab use, not efficacy of collection, because police had done their own work on collection.

MR JONES: But remember this is just the history. They only are about to start using ethanol and this is the concluding - that is, the QPS are about to start using ethanol as their emergent response to some mould, and it's in the context that they have now done their own study on drying times which concludes on p5:

> *Conduct further experiments comparing the effect of 70 per cent ethanol and water on DNA yield and profiling results, particularly in cases of semi porous surfaces and small stains.*

So it's a case that no validation or verification has taken place as at the time they decide to use ethanol, but even more egregiously is the fact that they are on notice that its efficacy is questionable.

THE COMMISSIONER: That's the point. But you're being told take into account that it appears to be not as good and this may matter with small stains.

MR JONES: Yes.

THE COMMISSIONER: And then having given that warning she then says just make sure everything's dry before you send it.

MR JONES: Yes.

THE COMMISSIONER: And suggests a way that can be done. And then what happens after that?

MR JONES: Rayon swabs with 70 per cent ethanol were then commissioned into use without any further consideration and have been in operation since 2010, some twelve years without, it seems, any further consideration.

THE COMMISSIONER: I see, all right. Where do we go next in the evidence?

MR JONES: Next is Professor Linzi Wilson-Wilde will give her opinion about these swabs and wetting agents to assist you, Commissioner, in investigating this issue fully. I call Professor --

THE COMMISSIONER: Just before you do, do we know the date of this study of Ms McMenz?

MR JONES: Yes. It is 2010. And I've worked that out in this way. Firstly, under 'Background' it speaks of the July 2010 an assessment of effectiveness, speaking about these studies, that couldn't be produced, but also in I think Inspector Neville's statement --

THE COMMISSIONER: Anyway, the reason I ask is that whatever might have been the situation with what Mr McNevin said - Mr McNevin was dealing with this issue, we see, from the emails that you showed, in --

MR JONES: 2009.

THE COMMISSIONER: 2009. Ms Allen's email to --

MR JONES: 2008.

THE COMMISSIONER: Was 2008 and 2009, so they didn't change at that point?

MR JONES: So it goes with sub-sampling happening in 2008 and the use of the flocked swab with water.

THE COMMISSIONER: So they changed the swab at that point but not --

MR JONES: 2008 was flocked swab with water.

THE COMMISSIONER: Yes.

MR JONES: As the inception of police taking over.

THE COMMISSIONER: Yes.

MR JONES: The flocked swab with water. In 2009 an issue was experienced with not picking up DNA at all.

THE COMMISSIONER: Yes.

MR JONES: And so they changed to rayon swabs that were compatible with the --

THE COMMISSIONER: Yes. And that was the subject matter of the discussion with Mr McNevin.

MR JONES: That's in 2009. And then in 2010, January and February, they have the issue with mould and they kick to 70 per cent ethanol.

THE COMMISSIONER: So is there - anyway, I'll ask later when you've told me more about it.

So we changed to rayon in 2009 and that's after the discussions with Mr McNevin. Then they have issues with mould, they're still using water, and in no earlier than July 2010, we see that from the contents of Ms McMenz's document, no earlier than July 2010 experiments are conducted to see whether ethanol or water dries more quickly, and incidentally to that study she found that the ethanol moistened swabs didn't pick up material as well as water moistened swabs and warns about that and then says here, 'So you can avoid mould, just make sure everything is dry before you stick them into plastic bags'. So then what happened, then they changed to ethanol swabs after that?

MR JONES: So could I just invite, Commissioner, you to turn up Inspector Neville's 2 November 2022 statement and -

from paragraph 11 onwards. Each paragraph starts with a date and the chronology of the events. So at paragraph 11 it's taking over the sampling of the use of the Copan flocked swab with water as a wetting agent. You'll see that in paragraph 11.

THE COMMISSIONER: Yes.

MR JONES: Then if you turn over the page, at that time advice was given that two line email from Cathie Allen about water or ethanol, and then there's some confusion about the joint research. If you just place that aside for one moment and go down to paragraph 13. It's early 2009 that they stop getting profiles with the swab, and so then they switch. At the bottom of that paragraph 13, 'Based on this advice we switched to rayon'.

THE COMMISSIONER: Yes.

MR JONES: And then in paragraph 14 you'll see, 'On 15 February we had issues with mould'.

THE COMMISSIONER: Yes.

MR JONES: And they do their study with ethanol and they concluded it dried six times faster.

THE COMMISSIONER: Yes.

MR JONES: And in paragraph 15 they adopt ethanol and Inspector Neville doesn't refer to anything other than the email, provided the two line email of Ms Allen in 2008, which is cited in paragraph 11 at the top of that page.

THE COMMISSIONER: And that's despite Ms McMenz's work?

MR JONES: Correct.

THE COMMISSIONER: All right. So you're going to call Professor Wilson-Wilde.

MR JONES: And the Professor will take an affirmation.

THE COMMISSIONER: Professor, you can take it that you're under your previous affirmation. Yes, Mr Jones.

<LINZI MARY ADELINE WILSON-WILDE, recalled: [11.56 AM]

<EXAMINATION BY MR JONES:

Q. We'll just do a test. Can you hear me, Professor?
A. I can, yes.

Q. Your full name is Linzi Wilson-Wilde?
A. Linzi Mary Adeline Wilson-Wilde.

Q. You're a forensic biologist?
A. I am, yes.

Q. We've heard that you're the Director of the Forensic Science South Australia laboratory?
A. That's correct.

Q. You prepared a report for the Commissioner primarily about the Queensland Police Service's use of rayon swabs with 70 per cent ethanol as a wetting agent?
A. I did, that's correct.

Q. And that report is dated 18 November 2022?
A. That's correct.

Q. Could EXP.0002.0009.0001 be brought up on the screen, please. Is that a copy of your report?
A. That is, yes.

Q. And you can see that on your screen, can you, Professor?
A. It's small, but I can see it.

I tender that, Commissioner.

EXHIBIT #225 REPORT OF LINZI WILSON-WILDE DATED 18 NOVEMBER 2022

Q. You say in your report that the method used to collect biological material from a substrate is a critical element in the forensic DNA analysis process?
A. I do, yes.

Q. Can you give us some idea what biological material that term encapsulates, please?
A. Biological materials are essentially body fluids such as blood, semen, hair, saliva, or any other material like skin cells or even naked DNA. So it's material that comes

from the body that we use it in reference to samples that are more likely to contain DNA from that individual.

Q. And what is a substrate?
A. The substrate is the surface on which the biological material is deposited. So it could be a porous material like concrete or clothing, those sorts of things. It could be non-porous like plastic or wood. It's essentially the surface on which the biological material is deposited.

Q. And can you tell us why the method used to collect the biological material from a substrate is critical element to the forensic DNA analysis process, please?
A. Yes. The collection is extremely important. If you don't collect the biological material in the right way to maximise the collection of material, or you don't collect it in such a way that preserves the evidence that you've collected, then it may compromise the downstream processes, be that the DNA analysis practices or whatever other evidence type that you might be analysing and so the collection is, the process is designed to maximise the capture of the biological material, but then store it in a sufficient way that it preserves the evidence as much as possible for the analysis.

Q. Thank you. Is there a single suitable method for collecting of biological samples/types from substrates?
A. No, there isn't. There's various methods for collecting biological material like swabbing, tape lifting, you can collect the entire substrate that it's on or you could sample the substrate and the method that you choose depends on the biological material itself and the substrate to which it's deposited on.

Q. And what about if we focus on swabbing then. Is there a single suitable or optimal swab type to use?
A. There's no one set swabbing method and wetting agent combination that - the perfect method for every different type of biological material and substrate. It is a balance of maximizing it in the environmental conditions to which you're operating.

Q. And what about the use of a wetting agent, when is a wetting agent used and why?
A. Wetting agents are generally used when the sample is dry. So a dried bloodstain, you'd use a wetting agent on the swab in order to be able to collect that dried sample

as much as possible.

Q. Right. So a wetting agent is not used if the biological material is itself wet?
A. If you had a large pool of blood you certainly wouldn't need to use a wetting agent and generally speaking if it's wet you don't need to, although I mean you might get a bloodstain that's dry around the edges and wet in the middle and if it's a small one you might choose to use a wetting agent for that, partially dry, partially wet, so it's up to the crime scene examiner to consider each sample that they're looking at and test the best (indistinct) for that particular sample.

Q. And can we take it from that that a wetting agent is not used if a sample has been taken from inside the body?
A. No, generally not.

Q. Is there a most common type of wetting agent or optimal type of wetting agent?
A. There's not an optimal type. Generally speaking water is used, it's probably the most common one, common wetting agent but it's not always, it's not shown to be always the best, it's just it's the most common one that would be used in most generic situations.

Q. And what about packaging once the sample has been collected, packaging the swab, is there a method used to dry the swab?
A. There's varying methods that can be used. You could snip a section out of the swab tube so that the air can, the moisture can get out of the swab tube and the swab facilitates the whole, facilitates the drying process, or you could use a desiccant process and some, obviously some alcohol you can use that evaporates the water far more readily and will dry the swab quicker. So there's varying things that can be used but again it depends on the environmental conditions that you're operating in.

Q. All right. And how does one then make a decision about which swab or wetting agent to use?
A. It's best practice to conduct a validation and so you would test within your environment and your laboratory settings or operating environment, that you would identify a number of different options for swabs and wetting agents (indistinct words), so using the process that you would analyse the system so there's an end to end. So you'd

limit your casework systems as much as possible and you would test them and see in your hands which of the options work the best or which combination of options works best for you.

Q. So how does a validation work when you have a police agency that use the swabs, that is they collect the biological material, and they give it to the laboratory in a robot ready format, how does the validation work then when you have two agencies that need to validate the one swab?
A. You can envisage a collaborative process whereby whoever is responsible for that component, the methodology, they should understand I guess the processes that sit behind the method and how it works and design a validation study that limits the different environmental conditions, different substrates, you know, how they're going to transport it to the laboratory. So they would pick up that component of an empirical study and then they would ship them as they would normally ship them to the laboratory, who could then do the downstream testing. So it would be a collaborative effort.

The laboratory might have some components or tests they would like to put into the empirical study that maybe picks up some of their issues and by working together between both agencies you could have an agreed empirical structure design that would suit all needs and test a majority of the circumstances that you would routinely encounter in casework, noting that each case is different and that you're unlikely to be able to test every single circumstance, but as long as you're testing the most common ones then you can have confidence in the eventual decision of where you go as far as that validation process goes.

Q. And does your laboratory - how does your laboratory deal with the validations of swabs used by the South Australian police?
A. We have a project going at the moment. We work in partnership with our police agencies to look at combined issues and design appropriate studies based on that. So we take a collaborative approach to these sorts of projects.

Q. Is it something that's only done when there's a change of process or is it something that you do regularly?
A. It's really if issues arise or there's a tender process.

Q. And how long does it take you to validate a swab in a wetting agent generally speaking in that collaborative way?
A. It does depend on the level of the change that's required. It's a little bit how long is a piece of string? The more you're changing, the more it is, but these can take a few months sometimes to do, depending how big the study or whether it's a validation or a verification, because there would be two different sizes of studies. It's a little bit hard to answer that one but measured in months as opposed to years, I would suggest.

Q. Would you consider it best practice if one of these issues arose that required a change of process, to change the process without a validation or before a validation?
A. It is not advisable to change any processes without a proper validation or verification process because you wouldn't understand or potentially you would miss things that might impact on the analysis processes that you haven't considered and so I wouldn't advise it at all. I would test it if you were going to make a change. And those changes really, what you are focussing on they're critical changes that effect the, that might impact on the ability to obtain a result. So something that substantially impacts on the end result would need to be tested.

For instance, if you are changing a wetting agent you would need to validate or verify that, depending on whether it's been validated elsewhere, you won't need to verify it. If you're changing a label on the outside of the tube then you probably, then you wouldn't need to verify that. So it does depend on what you're changing. If it's a change that may substantially impact on the result, then you need to validate or verify it.

Q. You've spoken or you've mentioned a couple of times verification. Would you tell the Commissioner what a verification is and when a verification is done as opposed to a validation, please?
A. Sure. A validation is an empirical study that is designed to understand the methodology and it's whether it's fit for purpose, whether it performs to expected outcomes. Is it repeatable, i.e. each time you do the method you'll get the expected result or that it's reproducible. If one examiner performs a method versus another examiner performs a method, that they both get the

expected result. You understand the false positive, false negative rates. And so essentially a validation is about understanding the limitations of the method. So where is the realm of where it effectively operates and it should be performed in conditions of casework. So that's for every method, you should do a validation.

A verification is when another laboratory or a manufacturer of a method or system, or whatever it might be, has done a validation. So some of that information is well-known and understood and hopefully it's out in the peer reviewed literature. And so you could take some of those, that information and adopt it but you still need to demonstrate that the method operates in your hands in the way that you would expect and so that you can get those reproducible results within the expected range. So verification is much smaller study.

There are some techniques that are very well understood that have been utilised in multiple laboratories throughout the world. Those methods don't need to be re-validated in every single laboratory and so they just need this verification process. So that's essentially the difference between them.

Q. Would you consider the use of 70 per cent ethanol as a wetting agent to be one of those methods that's so widely used that it could just be verified?
A. In my review of the literature I haven't found any validation studies on rayon swabs with 70 per cent ethanol and so I can't find any evidence that it's been validated, so I would expect a validation somewhere to be done if it was to be implemented.

Q. And to be clear, you would expect that to be a collaboration between the collector of the biological sample and the laboratory?
A. I would, yes. I mean whoever is conducting the method should understand the science behind the method, they should understand the limitations of the method. These sorts of - you know, you can't just swab it or use it, you need to understand what's going on and so - or someone in the agency does - and so that's what a validation study gives you, it gives you the limits of the methodology and the collection is a critical step that can substantially impact on the results, so it does need to be validated and I can't find any evidence of that.

Q. So when you say the user of the method needs to be familiar with those matters you just mentioned, are you referring to the police, that is the forensic officers need to be familiar with the method that they are using in collection, that is the validation of the method they are using?
A. Absolutely. I think it's really important that any method that's used that is a critical method is well understood by those that are using it.

Q. Now, I'll take you to paragraph 22 of your report, and you've touched on this already. Mr Operator, if you could turn over four pages to p4 please. Thank you. What are the implications for failing or validate or verify a change in the process such as swabs and wetting agents?
A. If you don't sufficiently validate you can't be confident that there won't be unforeseen impacts on the method such as, as we've heard, reduced sample collection efficiency if it doesn't sample properly, compromised sample storage in terms of swabbing, or potential downstream effects such as compromised DNA analysis and subsequent profile generation. So I think - and that's in reference to swabbing in particular, but any method. You know, you don't know - if you haven't fully validated it you won't know what those things are. And if you haven't verified it, for instance in a Queensland cases with a rayon swab and water you're working in an environment potentially that has high humidity, and so that's part of the environmental impact on the swabbing, storage, transportation systems. So that's why it's really important to verify the products so that you can test for these aspects. And so those you would hope may come out in the verification process, and so that's what you would - that's essentially what you're trying to do, is mimic the process to ensure that you're getting - you can show that you're getting suitable (indistinct).

Q. So the verification might, for example, expose that 70 per cent ethanol as a drying agent is okay on some substrates and on some types of samples but should be avoided on other substrates or biological samples because it damages or its efficacy is questionable?
A. That's correct. It would show you how good rayon swabs versus cotton swabs versus polyester swabs, there's lot of different types of swabs that show you how good they are at collecting samples in your environment, and then the

wetting agent how good that wetting is, seeing the swab and collecting it. But then also there's a (indistinct) transport component as well through to any impacts on downstream DNA analysis that it might have.

Q. What about if the issue is with mould growing on the - potential mould growing on the swabs, you mentioned before about one way of drying is cutting a slip in the tube. Is cutting the tube like that something again that's a change of process that would require a validation, or would that be an interim measure that could be done until you're able to validate a new wetting agent?
A. Yeah, put some desiccant into a - and snip it with some, you know, you would probably, you could keep the swab that you have, put a hole up near the top of the handle, not down near the swab, and put a small packet of desiccant in and that would resolve, you would hope that would resolve that issue whilst you validate other options. I mean there are other options.

Q. Sorry, Professor, the question was whether or not that small change would need to be validated or whether that could be used as an interim measure until full validation could be done?
A. Yeah, that could be just an interim measure.

Q. Once a validation is done or a verification is done where should it be kept?
A. It should be kept on file in a place that members that are using that process have easy access to.

Q. Right. Should the information from it be included in the Standard Operating Procedures?
A. I think it's good practice to reference validation, important validations. So these are verifications that are in the SOPs so those that are using that SOP know that it exists and can access it.

Q. That touches on what you were saying before, the people using it must understand the method and have available to them the validation so they can see the weaknesses and strengths of it?
A. That's correct. I mean you go through a training process to be qualified to use these methods and sometimes validation reports can be part of those training documents. (Indistinct) go through the training process and then you wouldn't look at that document, essentially you wouldn't

look at it again. Whereas an SOP every time there's a change it's updated and re-issued. And so if there are - the validation studies go in the SOPs as references then those that are using it know that there are new studies and can track the history of it. You're more likely to go to an SOP than back to the original (indistinct words). Ease of use for those that are conducting the test.

Q. Were you able to identify in any of the documents that had been given to you, the Queensland Police Service documents or Queensland Health documents, records like you're talking about in terms of verification or validation, and in the police training documents reference back to the validations or verifications for rayon and 70 per cent ethanol?
A. I couldn't find any reference to a validation study for that particular combination.

Q. You have listed at the back of your report the documents that were provided to you when you were briefed by the Commissioner. Further documents were provided to you yesterday, they included a statement from Cathie Allen and Allan McNevin, together with a project plan and two project reports?
A. Yes.

Q. A biology management team minutes and then three DNA analysis management team minutes. In those documents and also the documents you were originally briefed with were you able to identify any validation or verification of rayon swabs with 70 per cent ethanol as the wetting agent?
A. No, I couldn't.

Q. Do you have an opinion about the use of rayon swabs with 70 per cent ethanol as a wetting agent?
A. I do have concerns about that particular combination as a swabbing form. It's not the worst but it's also not the best.

Q. All right?
A. I think there are potentially better combinations that would (indistinct) needs.

Q. Could I direct your attention to paragraph 21 of your report and can you tell us what those other options or better options are?
A. I think there are other wetting agents such as

isopropanol that can be used, that's another type of alcohol but has a different structure to ethanol that has been shown to perform better. And by choosing a swab with a desiccant attached to it would be good. I think the issue is the - given the environmental conditions (indistinct) they really do need to look at different swab options and different wetting agent options.

Q. That then ties into what recommendations would you now make with respect to the swabs and wetting agent used by the Queensland Police Service?
A. Would be to have a look at other options. 70 per cent ethanol, I can't see evidence of it being a better wetting agent than other options. It's not the best in most circumstances, from the research and the literature, and so I'd be recommending that they have a look at other options and validate, conduct a validation study on those different options.

Q. So if they were to continue using rayon and 70 per cent ethanol your recommendation would be that they work collaboratively with the laboratory to do a validation?
A. That's correct.

Q. Is it reasonable for the collector, the Queensland Police Service, to simply ask the laboratory for the advice as to what's the correct swab or what's the correct wetting agent?
A. Just asking them, asking them for advice on what are the types of swabs or wetting agents that they could test is perfectly reasonable. But I think it's then important for Queensland Police to then actually test them to see how they perform in their hands through their processes. Queensland Health don't go to scenes, they wouldn't have the experience of different types of substrates found at crime scenes, so their advice would potentially be limited and so it's really that collaborative approach that would elicit the best outcome.

Q. I direct your attention to paragraph 17 of your report. You identify some literature that Inspector Neville has cited in a statement. Have you reviewed those publications?
A. I have reviewed those publications.

Q. What are you able to observe about what Inspector Neville has said about those publications?

A. The papers have value and they provide information but none of the papers represent a validation study for a rayon 70 per cent ethanol combination, and none of them represent a - are done by Queensland Police. So you can't infer that in their (indistinct) and nor would any of those or the totality of those articles provide all of the validation information that would be required.

Q. Did you review other Queensland Police Service Standard Operating Procedures associated with the collection of biological material?
A. I did, there's a list that's provided in appendix 2 of my report.

Q. Thank you. What were your general findings about that? I direct you to paragraphs 29 and 30 of your report?
A. Many of these methods are well-understood in the literature and have been used for some time, but there was no evidence of any validation or verification study reference in the SOPs so I can't ascertain whether they were or weren't validated or verified as appropriate.

Q. And if they had not been validated or verified they should be validated and verified?
A. Yes, there is a section in the quality manual that does suggest that if it is validated elsewhere that it doesn't need to be validated or verified, which I did have some concerns about. I would consider the best practice is to verify any method that has the potential to substantially impact on the downstream result, it should be verified prior to implementation.

Q. Just a question about self-drying and self-vented swabs. Are they a relatively new piece of equipment? How long have they been around and what are they?
A. I couldn't tell you how long they have been around exactly but I know there have been some tubes with little vents on the end of them for quite a number of years.

Q. At least since 2009 there's been vented lids, is that right?
A. Sorry, I couldn't give you the exact date they were implemented but I know it's been quite a number of years.

Q. I'll just quickly show you some documents. The first is Exhibit 222, Inspector Neville's statement, QPS.0308.0002.0089, which is an email from Cathie Allen of

18 June 2008. Do you see that, Professor?
A. I do.

Q. I'll state the obvious, that's obviously not a validation or a verification study?
A. No, no, that's not.

Q. Is it an appropriate form, way in which to advise the QPS as to the appropriate wetting agent to be used?
A. It's certainly a (indistinct) statement to suggest here are two options that you could look at and investigate.

Q. Could Exhibit 221 which is QPS.0308.0002.0001, page 90 which is the report on 4N6 swabs - can you see that?
A. Yes.

Q. Now that report deals with the efficacy in terms of the uptake of DNA and the extraction of DNA, do you accept that, is that right?
A. Yes.

Q. It doesn't deal with wetting agents and types of swabs?
A. No, it primarily focuses on looking at different types of swabs to see how they perform in an extraction methodology, ie the release of DNA from the swab.

Q. And the testing was not in the case environment?
A. No, it wasn't.

Q. And the only time a wetting agent was used it was water and it was in one experiment, experiment 5?
A. That's correct as far as I can tell.

Q. And it was a very small scale test?
A. Five I think.

Q. The question asked by the Commissioner was if it doesn't make any recommendations what's the real purpose of it? Having read it are you able to determine what its utility is, if any?
A. This type of pilot study I would suggest could be used as a, "Here's a new swab, let's have a quick look at it to see whether it's something you should look at further" would be the purpose of this type of study.

Q. So as it suggests it would be inappropriate to rely on it as a recommendation or a validation?

A. That's correct.

Q. But it might be the starting point towards a proper validation?
A. That's correct. So if it didn't perform well then you'd do no further study on it.

Q. Could Exhibit 222 to Inspector Neville's statement which is at page 100 be brought up please?
A. I need to alert you, I do apologise, my computer battery appears to be running low.

Q. I've only got three more questions, it will be Ms Hedge that suffers that.

THE COMMISSIONER: What should we do, Professor?
A. I was - we can go but then I'd probably need to log back in via my phone.

Q. Yes, so should we adjourn so that you can change your equipment?
A. That would be good actually. I do apologise.

Q. It's half past 12 here, let's break for ten minutes and we'll - we'll come back when you're ready but not before ten minutes?
A. Excellent, thank you.

Q. Thank you?
A. Thank you Commissioner.

SHORT ADJOURNMENT

MR JONES: Professor, on the screen is Exhibit 222 to Inspector Neville's statement, QPS.0308.0002.0001 at page 100. That's an email from Allan McNevin regarding the rayon swabs and it's dated 26 March 2009. Can you see that?
A. I can, yes.

Q. Again, to state the obvious that's not a validation or verification of any type, is it?
A. No.

Q. What do you make of the language "suitable for use", what is it that's being said by Mr McNevin?
A. I don't think I can comment on that.

THE COMMISSIONER: I don't think it's a question for Professor Wilson-Wilde, Mr Jones.

MR JONES: Thank you. Could QPS.0308.0002.0102 be brought up please. Again, you reviewed that research?
A. I did, yes.

Q. It doesn't amount to a validation or verification of 70 per cent ethanol and rayon swab?
A. No.

Q. Thank you. Could WIT.0020.0007.0001 page 10 be brought up please, operator. At the start of your evidence you told us about different substrates and what you had read about 70 per cent ethanol or 100 per cent ethanol or ethanol as a wetting agent and it being less than optimal from what you were able to discover. Could you have a look at the surfaces on page 10 here and tell us, if you can, what effect 70 per cent ethanol with a rayon swab may have on that surface from what you've been able to discover from published material?
A. Ethanol from the research doesn't have as good a recovery of blood as other types of wetting agents. It does depend on how much they rubbed, how wet it was, how they were able to collect it. There are other options. It's wood, it could have been - you could have excised some of that sample with a scalpel, so there are different ways it could have been collected. There's obviously a lot of blood there in the wood. Ethanol will pick everything up but it will actually pick up all of the inhibitors that might be there in that wood as well and so you don't know what the downstream effects of the inhibitors might be as it's being collected.

Q. Okay?
A. It is difficult to say without testing it empirically but there are - I would have a few comments about that.

Q. What about page 11, over the page, that substrate and type of biological sample?
A. Is that on concrete or brick?

Q. It appears to be concrete?
A. Yeah. It's hard to say what the best technique would have been for these. Obviously you'd need a swab with some wetting agent to be able to collect the blood from this

type of sample. What's the best would depend on how you're going to store it, what's proven, environmental conditions, et cetera. It's a bit difficult to comment but again ethanol would pick up all of the inhibitors as well that's on a surface like that.

Q. Thank you?
A. Without testing you don't know what the effect would be.

Q. Thank you, Professor. Commissioner, that's the evidence-in-chief. Ms Hedge is now going to open the second part of Professor Wilson-Wilde's evidence.

THE COMMISSIONER: Thank you. Yes Ms Hedge.

MS HEDGE: Thank you Commissioner. The Commission has asked Professor Linzi Wilson-Wilde to perform a review of another topic and so I'll open that briefly before I ask the professor some questions about it.

The topic is the success rates of the laboratory. One (indistinct) the performance of a forensic DNA laboratory is its success rates. Success in this context refers to the ability to progress a sample through all stages of DNA testing analysis and interpretation to obtain a DNA profile that can be used for some purpose in the criminal justice system.

The Queensland laboratory has not had a ready way of determining its success rates through data mining using the forensic-register. Dr Matthew Croft of the Queensland Police Service published a paper in 2021 with some success rates in it, but those rates were calculated from QPS data which does not include some of the detail known to the laboratory, but of course it includes some other details that are not known to the laboratory.

That data was not accepted by the laboratory or by the managing scientist as being accurate and Dr Croft said in his article that the purpose of that data analysis was to compare sampling techniques by police rather than to consider the laboratory's performance objectively.

For that reason and for the lack of knowledge of success rates by the Queensland laboratory, the Commission required Queensland Health to provide data on success rates for

different types of samples and those samples categorised as what you would know as DIFP and no DNA for the last five years, from 2018 to 2022, as well as contamination rates by Queensland police officers and other information.

The Commission engaged Professor Linzi Wilson-Wilde to review that data and asked the question whether it sat within what might be expected of a laboratory in Australia. She prepared a report which we'll come to in a moment. Generally she considered that the success rates of the laboratory were within the range that might be expected, taking into account the high thresholds used by the laboratory. That is if you have high thresholds like DIFP and no DNA, and those are hard thresholds, then you test less material and you test the better quality material and so your success rates are higher than a laboratory --

THE COMMISSIONER: That is to say if we look only at what has been tested the success rate is acceptable?

MS HEDGE: Yes, that's right. But if you test everything, for example, if you're a laboratory that tests absolutely everything, no thresholds at all, then you'd expect your success rate to be lower than a laboratory like the Queensland laboratory has been functioning.

THE COMMISSIONER: Yes, they've reserved themselves to the best samples. They've restricted their work to the best samples.

MS HEDGE: To the higher samples, that's right.

THE COMMISSIONER: Yes.

MS HEDGE: Can we place on the screen the report EXP.0002.0010.0001. Can I in opening just draw the Commission's attention to a number of the key features and then I'll ask some questions of Professor Linzi Wilson-Wilde to deal with the detail.

THE COMMISSIONER: Yes.

MS HEDGE: If we turn to page 3 of that document and paragraph 15 and zoom in on or expand paragraph 15, please. These are the success rates for the sample types that the Commission asked about over a five year period. So blood 82 per cent, semen 81 per cent, saliva 67 per cent, HBS

stands for high vaginal swab 74 per cent. As you see there the conclusion is they're within the expected range for those sample types considering the quantitation threshold applied.

THE COMMISSIONER: Yes.

MS HEDGE: Can we turn then to paragraph 12 on that same page. This deals with Queensland police officer contamination rates, so that is when the DNA of a police officer is found in a sample which is explainable by them having taken the sample or being present when the sample was being taken, and in the middle of that paragraph the percentages over the last five years of range between .09 per cent and .21 per cent which is considered appropriate within an acceptable range.

Can I hand up, Commissioner, a list of documents to tender as part of this topic. Could I tender those documents as an exhibit number column on the far right-hand side for which I thought we might put the numbers consecutively from where we're up to.

THE COMMISSIONER: All right. Well then document number 1 is Exhibit 225.

EXHIBIT #225 DOCUMENT NUMBER 1

EXHIBIT #226 DOCUMENT NUMBER 2

EXHIBIT #227 DOCUMENT NUMBER 3

EXHIBIT #228 DOCUMENT NUMBER 4

EXHIBIT #229 DOCUMENT NUMBER 5

EXHIBIT #230 DOCUMENT NUMBER 6

EXHIBIT #231 DOCUMENT NUMBER 7

EXHIBIT #232 DOCUMENT NUMBER 8

EXHIBIT #233 DOCUMENT NUMBER 9

EXHIBIT #234 DOCUMENT NUMBER 10

MS HEDGE: And can I tender as a bundle three extra

documents which are the spreadsheets that Professor Wilson-Wilde used, her working spreadsheets.

EXHIBIT #235 WORKING SPREADSHEETS

MS HEDGE: Thank you.

<EXAMINATION BY MS HEDGE:

Q. Can you see and hear me, Professor?
A. I can, yes.

Q. Thank you. You've heard an explanation of what you were asked to do by the Commission in terms of success rate data; is that right?
A. That's correct.

Q. Can we deal first with what success rate means and can we turn to page 2 of your report and paragraph 3. That's the definition that you've been using in your review?
A. It is, yes, and that's a definition of the samples that produce a DNA profile of any measure, be that single source or (indistinct) interpreted, but it's essentially the definition provided by Queensland Health in the data tables that were provided. So it's where they determined a profile has been generated, I've accepted that as a (indistinct words).

THE COMMISSIONER: Professor, if we applied that definition to all of the samples that FSS received, a significant proportion of which they chose not to test, then it would be appropriate to put those samples that they chose not to test because of this Options Paper protocol into the category of failures so that the success rate would have to take into account not just the samples received and tested but the samples received that achieved no result, not because testing was unable to achieve a profile but because of a wrong decision not to test them. What do you say about that?
A. I haven't accounted --

Q. No, I know you haven't, I'm talking as a matter of principle?
A. Yeah. When they don't progress you don't know whether you can get a DNA profile or not, so it's very difficult to ascertain whether they would have produced a profile or not. You can do some data analytics based on success rates

and quantitation rates to determine it. It is very difficult to comment because there's a chance that they wouldn't produce a profile.

Q. Anyway, in absolute I infer I put a false comparison so I won't pursue it. Thanks for that?
A. Thank you.

MS HEDGE: Turning to those quantitation thresholds that the Commissioner just mentioned, if we look at paragraph 5 on that same page. I'm sorry, I have a copy of the report, Commissioner.

THE COMMISSIONER: Thank you.

MS HEDGE: Paragraph 5 on the same page deals with the issue of quantitation thresholds and you conclude there that when a laboratory has a high quantitation threshold one might expect their success data to be higher than a laboratory with a lower quantitation threshold, is that right?
A. That's right. The success right is determined by quite a number of factors that impact on the DNA analysis process throughout it. You can have thresholds at varying processes in the stage from the number of exhibits received versus exhibits collected at crime scenes versus those you collect, the number of samples you then choose to analyse and process through, quantitation levels, et cetera, settings on instruments can have an effect. The amplification kit that you use has an effect. So these are all the variables that impact on success rates, but if you set a quantitation threshold high you would realistically expect that if you're targeting your samples at those with higher levels of DNA or measurable levels of DNA, then anticipate a high success rate.

Q. Would you agree that the Queensland Health laboratory when it was operating with both DIFP and no DNA thresholds in place was one that had high thresholds?
A. That is a higher threshold, yes.

Q. All right. Can we talk briefly about what the limitations are of this data. Is it easy for a laboratory to determine what its success rates are?
A. It is. In all honesty it is very complicated as a process. Intuitively we think that it's easy to calculate our success rate, the number of samples goes in, the number

of profiles you get. But it is very complicated in the sense of you might get a high vaginal swab that you split into two (indistinct) female and male fractions. You'll process those. You might repeat them. You might go back and concentrate a sample (indistinct). So if you're not just doing a linear process, ie (indistinct) sample then you analyse them once and the result you get is the result you get. If you're doing anything other than that then there's nuances in how you calculate these figures. Indeed, if you have a mixed profile you might have a major component and a minor component (indistinct words), two results or one result. So this data was extremely difficult to ascertain given the labelling what it's actually referring to in all of that, and it would be I think quite difficult for most labs to get easy success rate data for all of their samples they get.

Q. All right. Just on that last point, is that because of most laboratories current document or information management systems, is it possible to set up a system that would get good success rate data and that just doesn't exist generally?
A. You have to have a system that can collect the data and interpret it. Not all labs have an electronic system, so some are manual. Those that do you need to understand I guess what the laboratory information systems can capture and then you've got to cut the data in a way that it's meaningful and then if you want to compare it to others then you've got to make sure you're comparing apples with apples, which is also problematic. Not all labs would have visibility I would suggest.

Q. As the manager or director of a laboratory, is the success rate data of interest or use to you in terms of how you would then make decisions about the laboratory?
A. 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. But it is difficult to capture.

Q. In an ideal world would you like to have that success rate data available to you being a manager or a director of a laboratory in real time so you can always be checking how it's going for the year or the previous six months or the previous three years or whatever period you choose?
A. Absolutely. Success rate data is very useful as a

director and I would advocate for a system that can produce that data in a readily digestible format.

Q. Thank you. Can we turn then to the overall success rates and can we turn to page 12 of the report which is appendix 3F. If we zoom in on the 2018 at the top of the table there. This appendix deals with P1, P2, the 1, 2, 3 is P1, P2, P3; is that right?
A. That's correct.

Q. This is just for 2018. There's the number tested, the number the profile was obtained from and the percentage of samples tested that gave a profile and then the percentage of samples tested loaded to the national database. Now you say that you consider the getting of a profile more important than the database, can you just explain your reasoning for that?
A. The samples that are loaded to the database won't be reflective of all of the profiles that were generated. For instance in a sexual assault case you might have a victim's profile that you wouldn't load to NCIDD if that victim's profile was found at a suspect's premises or in their car, it wouldn't be very good evidence or probative evidence for an investigation. And so NCIDD figure represents a subset of value that you might get from DNA profiling.

Q. We see those numbers there for 2018, 40 per cent for priority 1, 55 per cent priority 2, 39 per cent priority 3?
A. Correct.

Q. And you say that's not surprising but priority 3 would be below the other because often there's trace DNA samples and so on gathered in that sort of case?
A. Generally speaking, and again these results are just simply taken from the data provided in terms of those tested, those who are categorised as a profile that's been generated. So just emphasising that caveat. But it's not a surprising figure that the volume crime is lower than the (indistinct) crime.

Q. All right. And just dealing with that caveat, does that mean that the percentages you've calculated might be seen as an estimate of the true value, as opposed to an exact true value?
A. It means I can't conclusively say these are the actual figures, it's purely based off the data that was provided.

Q. But from the data that's been provided and the way that it's been created, which Queensland Health provided to the Commission and then to you, from that are you satisfied that it's an estimate of the true value?
A. It would be somewhere around an estimate of the true value, depending on how those profile figures are calculated, but it gives you certainly an indication between the three priorities and the true figure would be somewhere in that, as you would anticipate.

Q. Could we zoom in right at the bottom then on the 2022 part of the table and the overall - to the last part of the table. This is 2022 up to late October, I understand. And so those percentages there are generally slightly higher than the percentages from 2018, so there's been an improvement in obtaining profiles by the laboratory over five years?
A. Or it could represent a better targeting of samples or a higher threshold has been applied. There's a lot of - an improved kit, different extraction. There's many reasons why this might change but it does show that they are getting good results. Whether that's from targeting better samples or not, I don't know.

Q. I see. And the overall, over the five years, is a 50 per cent success rate for all types of samples?
A. Correct.

Commissioner, I note the time.

THE COMMISSIONER: Yes.

MS HEDGE: I've probably got another 15 or 20 minutes and then, of course, there'll be cross-examination on both what Mr Jones has asked about and myself.

THE COMMISSIONER: Are you aware that there will be, or don't you know?

MS HEDGE: Definitely Mr Hunter, but I haven't spoken to everyone.

MR HUNTER: I might have half an hour.

THE COMMISSIONER: Yes, all right. Well then we'd better adjourn.

Professor, we will adjourn until 2.30 unless another time suits you better?
A. That's fine.

Q. All right, we'll adjourn until 2.30 then.
A. Thank you, Commissioner.

Thank you.

LUNCHEON ADJOURNMENT

THE COMMISSIONER: Ms Hedge.

MS HEDGE: Thank you, Commissioner.

Q. Can you see and hear me, Professor?
A. I can, yes, thank you.

Q. Thank you. Just before the break we spoke about the overall success rates split into the priority categories 1, 2 and 3. Can I now turn to the sample type categories, blood, saliva, semen and high vaginal swab. Can we first turn to p3 of your report and paragraph 15. Now these four categories were chosen by the Commission, not by you, is that right?
A. That's correct.

Q. Do you think they're useful categories to get a handle on how the laboratory's performing on key samples of interest?
A. They can give you an indication on these types of samples, absolutely.

Q. I suppose what I mean is, are those the types of samples that are particularly useful generally in criminal investigations?
A. They are. There are other types such as (indistinct) that can be used as well, but these do represent probably a high portion of samples.

Q. Now we see those percentages there, which is the total percentage success rate over the five year period?
A. That's correct.

Q. And just to clarify, that's the percentage success being the percentage of samples that were tested that resulted in a profile that might be able to be compared to

something?
A. That's correct.

Q. And those percentages, blood 82 per cent, semen 81 per cent, saliva 67 per cent and high vaginal swab 74 per cent are all within the expected range for those swabs types?
A. Yes, they are.

Q. Subject, of course, to the quantitation thresholds that we've discussed earlier?
A. Exactly.

Q. Just on the high vaginal swab, it's correct that the information from Queensland Health is that it would count as success if the high vaginal swab had either the profile of the person from whom it was taken or someone else, is that right?
A. I believe that's correct.

Q. And so would it be more informative if someone was to do data review down the track in the Queensland laboratory, would it be more informative to find the percentage that obtained - where sperm was seen, for example, on spermicroscopy, and then the percentage of them that the (indistinct) obtained?
A. I think that would be a more useful analysis to do. So where you have spermatozoa, what is the percentage of samples that then give you a profile from that, from those.

Q. And just focusing on that, still on the high vaginal swabs. Is that number - would you not expect to get a profile in 100 per cent of cases on a high vaginal swab if you include the DNA profile of the person from whom the sample was taken?
A. You would potentially get a higher percentage but, as I said before, it's hard to determine what sits behind some of these samples and what samples (indistinct) a profile and what means. So it is a little bit, was a little bit hard to tell.

Q. All right. Can we turn to p14 now and appendix 3h, which is the broken down by years data. Just zooming in on that whole table if that's possible. We can see there in the blue numbers these numbers for 2018 to 2022. Did you notice anything about any trend or matter of interest in how these numbers have fluctuated over the years?
A. They're all - I mean obviously there's a range. The

blood, for instance, ranges from 79 to about 85 per cent that give a profile. It's a little bit hard to infer too much from that though, it's only a very small percentage range difference that it's fluctuating. There wasn't that much that could be observed from it in terms of the trend lines. There were round about relatively consistent over (indistinct).

Q. And if being relatively consistent but the other numbers of P1, P2, P3 increasing over time, can you draw any conclusions from that?
A. It's probably the number of samples that go in the P2, P3 include trace samples as well as the biological material samples listed here and so I'd be inferring, and it would just be a complete inference, not based on any empirical data, to say that they're potentially getting more results from samples where they hadn't got them before. Maybe there's an increased sensitivity that they're getting more results from trace samples or something like that. It would be a complete inference because I don't have a break down of the samples that aren't biological material typically.

Q. And so that might be one explanation that the laboratory had an increased sensitivity to improve their ability to get a profile from a trace DNA sample?
A. Possibly, but there could be other reasons as well. Maybe they're targeting samples a little bit better outside of these particular ones, so maybe they're targeting a particular type of or doing less (indistinct) samples that wouldn't perhaps give a profile before. They could be changing their thresholds. There's probably many reasons why you would get these differences but you'd have to break down all of those thresholds at all of those points and compare it to each of the individual sample types in order to actually ascertain or be more concrete.

Q. I understand. Can we move on then to the no DNA threshold that was in place. Can we turn to p7 of the report please and appendix 3a. So here we have on the far left, so the second column after the years, the number of exhibits or samples that were reported or first categorised as no DNA?
A. Yes.

Q. And in the second, those that were nonetheless processed, whether that be because of a QPS request or

because of a scientist request or for some other reason we're not aware of, but were nonetheless processed?
A. That's correct.

Q. Then in the fourth column along is the count of both samples, including sub-samples, that resulted in a profile?
A. Yes, that's correct.

Q. So looking at that third column then, the per cent of total samples processed, this is the per cent of samples that were first categorised as no DNA that were nonetheless processed?
A. I understand that's the case.

Q. And so that number fluctuates between 5 per cent in 2022, up to 18 per cent in 2018 and then 2020. So the flip side of that is that 80 per cent of samples categorised as no DNA were not further processed in 2018 and 95 per cent in 2022?
A. That would be correct.

Q. And then looking at the per cent that gave a profile, this is a percentage of those that were processed and those numbered --
A. Yes.

Q. -- between 55 and 97?
A. A percentage, yes.

Q. Yes. So when things were processed there was quite a high percentage chance of getting a profile according to these figures, is that right ?
A. Yes. So they appear to be targeting samples that whilst they've got a quantitation value that indicates there's no DNA there, they're getting better at targeting those that are more likely to still give a profile, but it's a smaller number.

Q. Now can I just - can we turn over on to appendix 3b and can we just interrogate that 97 percent number, which is for 2022. So in appendix 3b can we have the last part of the table expanded please. So this is the totals. Above that it's separated by blood, semen, saliva and high vaginal swab. But this is the totals per year split into halves. Do you see that?
A. Yes.

Q. And there's four columns of numbers there. Thank you, the Operator has sorted that out for me. Can we just look at 2022 half 1. Do you see that there?
A. Yes.

Q. 1279 were originally categorised as no DNA, then 83 were further processed and then 103 got a profile. So ordinarily you wouldn't expect that second number to be higher than the first number and that shows the issue with the sub-samples, is that right?
A. That's correct. So that's showing that they're processing but they may (indistinct) a sample or (indistinct) a sample, so you'll end up, potentially end up with more, a higher count in this column.

Q. And so that 97 per cent number then must be an over estimate because clearly there's more sub-samples than samples in that particular time period?
A. Yeah, I would assume it's an over estimate of the true value and this exemplifies the issue with the data in the sense of I'm taking an assumption over what the titles mean, but what actually sits behind it, because I don't have the full data and it's thousands of samples and that would be a very difficult task to do, but without going through each individual result and each individual sample and tracking the path, it is very difficult to infer anything too specific from this data.

Q. All right. Now that one's an obvious example but you can't tell from some of the others - that's the only one, for example, that shows that really stark difference?
A. Yes, that's correct.

Q. Can we turn over to DIFP and can we turn to appendix 3c, p9. This is the same table we looked at 2 before. So the percentages in the third column are the percentages of DIFP samples that were nonetheless processed for whatever reason and the fifth column is the percentage of those that returned a profile?
A. Correct.

Q. And so same as we discussed before, that if the numbers in the third column range between 10 and 16 per cent, so that means that 80 to 90 per cent of samples in every year for the last five years that were categorised as DIFP were not further processed?
A. That appears to be what the data is saying.

Q. And the fifth column shows that when things were processed, that there was above 50 per cent chance of success?
A. Correct.

Q. Can we turn then to appendix 3e and this is a - p11. This is a combination or a position of the effect of the no DNA and the DIFP thresholds. So the first part of that table sets out that data we've already looked at, that is what percentage of samples that were categorised as DIFP or no DNA were not further processed?
A. Correct. It indicates the percentage of samples that didn't move on.

Q. That's right. And in the far right-hand column --
A. Sorry, I'll correct that. The first columns are those that were classified as no DNA detected or classified as insufficient DNA for further processing.

Q. That's right, and didn't move on. Whereas the addition in this table is the first column, which is total samples received by the laboratory in each year, which is over 20,000 in each case?
A. Correct.

Q. And the last column, which shows the percentage of that total samples received that were classified as no DNA or DIFP and did not progress?
A. Correct.

Q. And so what that last column shows is that between 18.8 per cent and 26.9 per cent of total samples received were not progressed because of those two thresholds?
A. That's correct, according to the data provided.

Q. And looking at the total samples received being between 20 and 25,000 samples, those numbers, which is about 20 per cent, equates to over 4000 samples in every year were not processed (indistinct words)?
A. Yes, that's what the data indicates.

Q. All right. And so that data provided by Queensland Health shows the effect of those two thresholds over this period of time in terms of what was not tested?
A. Correct.

Q. Thank you. Can I finally deal with instances of contamination by first responders and police. Can I go to p3 of your report and to paragraph 12?
A. Yes.

Q. And that sets out the percentages - so you understand that (indistinct words) from the police have their DNA profile available for the lab to eliminate them if they happened to contaminate a sample?
A. Yes.

Q. And that contamination might happen inadvertently when one is trying to take a sample and some DNA, skin cell or something, biological material, comes off the police officer into the sample somehow?
A. Yes.

Q. And the percentages found, according to the data provided, was between .09 per cent and .21 per cent of total samples received by the laboratory?
A. That was detected, correct.

Q. And you're content that that's within an acceptable range for the collection of biological material?
A. Yes. You would expect some contamination events to occur when you have humans involved, but that is what happens, we aim for zero, but having a human element does mean that these incidences will occur and so based on the literature that I've been able to find in terms of what contamination rates have been found elsewhere, this is, you know, at a lower level than that.

Yes, thank you. Thank you, Commissioner, those are my questions.

<EXAMINATION BY MR HUNTER: [2.53 PM]

Q. Professor, I act for the Queensland Police Service. Can I start by asking you about an answer you gave to Mr Jones earlier today when he was asking you about the use of isopropanol, as opposed to ethanol?
A. Yes.

Q. And my note of the answer you gave was that isopropanol has been shown to perform better than ethanol?
A. Yes.

Q. When you gave that evidence were you referring to a particular study?
A. Yes. In addition, experience.

Q. So which particular study were you referring to? Was that Lacerenza?
A. I believe it's Bonsu.

Q. Bonsu?
A. Yes. I'll just check that. I could be - Lacerenza is one of them actually.

Q. Yes. Lacerenza was concerned with 100 per cent ethanol though, wasn't it?
A. That's correct.

Q. Not a mixture of ethanol and water?
A. That's correct.

Q. In Bonsu, though, the authors concluded, didn't they, that, or they referred to a number of other studies but then said that:

> *The results of those studies demonstrated that whilst swab types and buffers effect the DNA collection process, there was no individual best swab brand or moistening agent.*

A. There isn't, no, that's correct, it's the appropriate one for that period. The other article I was referring to is (indistinct), which showed some improvement in some instances, and again it depends on what swab that you're using.

Q. Again, (indistinct), the conclusion was that there is no single best moistening agent for DNA collection, i.e. certain agents combine better with certain cotton swabs?
A. That's right, you need to - and that's why you need to validate.

Q. Can I make it quite clear, I'm not suggesting that there should not been validation, there was no need for validation to occur in this instance, but there was a study that compared 70 per cent ethanol and 100 per cent isopropanol. I'm going to have a crack at pronouncing the author's name, Phueng Mong Kolchaikija. Do you know the

one I'm talking about?
A. I do know the one you're talking about.

Q. And this was a study to look at alcohols as a solution for delaying microbial degradation on cotton swabs?
A. Yes.

Q. The result of that study was that no funnel growth was observed on any of the cotton swabs that was moistened with either of those two moistening agents?
A. That would be expected.

Q. And that full DNA profiles could be generated from all swabs on days 1, 3 and 5, that is days 1, 3 and 5 from collection?
A. Yes.

Q. But on the other hand, funnel growth was detected on two out of three swabs moistened with sterile deionised water after five days?
A. Yes.

Q. And then the study went on to say that:

> *Although effects from the types of biological evidence, higher storage temperatures and types of services still need to be further investigated, the results suggested that in combination with using 70 per cent ethanol or 100 per cent isopropanol of swab moistening agent plastic bags should be used as containers when better ventilated packaging such as cardboard boxes isn't available.*

That, I'm suggesting, is at p2 of that study?
A. Yes.

Q. And there was a study that found that 70 per cent ethanol outperformed water when it came to - Jansen?
A. Yes.

Q. Jansen involved a comparison between swabs and absorbent paper and 70 per cent either nuclease free water or 70 per cent ethanol?
A. Yes.

Q. And the conclusion was that using pieces of absorbing paper moistened with ethanol can improve the efficiency of stain collection from items with small amounts of DNA compared to the standard method with cotton swabs and water?
A. Yes.

Q. And that more DNA was recovered when collecting epithelial cells and touch DNA using pieces of absorbing paper moistened with 70 per cent ethanol instead of cotton swabs moistened with water?
A. Yes.

Q. I guess my point is that 70 per cent ethanol seems to be at least in some corners thought to be a method of moistening swabs or other collection media that merited investigating, which would suggest that some people must be using it?
A. Ethanol could be a useful wetting agent in some circumstances for some laboratories depending on their environmental conditions and other processes.

Q. Thank you?
A. It's not an invalid method but the testing to confirm whether it's the best method in that particular environment in that particular methodology.

Q. So chemically when it comes to gathering biological material of any relevant type, I'm talking about DNA, what chemically is the important difference between isopropanol on the one hand and ethanol on the other?
A. I'll just preface my answer with I'm not a chemist so I can only give you my understanding. My understanding is structurally they're different compounds. Ethanol is a polar molecule whereas isopropanol is a non-polar - it has a preference for non-polar compounds should I say. So ethanol is a good solvent for polar compounds whereas isopropanol is solvent for non-polar compounds. Ethanol has a different structure, it has a linear structure, whereas isopropanol has a branch structure to it. And whilst they're both alcohol they're going to perform in a slightly different way. They're both alcohol so they'll both remove the water out of the sample, so that's why it's better for samples that have - in situations where mould might perform. They'll both remove the biological material and the inhibitors with them. So that's - I think when I assess whether they're a good solvent or a polar versus

non-polar compound will have an implication in (indistinct words) for forensic testing and downstream DNA. Because if it's a polar compound it is a good solvent for DNA, because DNA is polar. So will the number of inhibitors as well. The point I guess I'm trying to make is they are chemically - chemically they have differences, they will perform differently so you need to test what the impact of that difference is.

THE COMMISSIONER: Professor, you used the expression polar, what did you mean by that in this context?
A. It's the structure and relates to the structure of the compound and the negative charge versus positive charge on the compound. So it's - water is polar, DNA is polar, and it's the way that it's structured and where the negative and positive charges sat.

Q. Thank you.

MR HUNTER: Are you sure that isopropanol alcohol is non-polar?
A. It's a good solvent for non-polar compound.

Q. Are you sure that it's a non-polar solvent?

THE COMMISSIONER: You're asking whether the compound itself is polar?

MR HUNTER: Isopropanol alcohol, can I suggest to you that isopropanol alcohol is, like ethanol, a polar solvent?
A. It is a good solvent for non-polar compounds.

Q. Well, my question to you though is whether you accept that isopropanol alcohol is a polar solvent?
A. It can do that but it's whether it's preferential or not.

Q. But as a compound its chemistry is polar I'm suggesting to you?
A. I'm just trying to work out what you're actually saying.

Q. What I'm suggesting to you is that you told us that the chemical structure of isopropanol alcohol?
A. Yeah.

Q. Is different from ethanol because one is polar and the

other is non-polar?
A. No, what I'm actually saying is that how good a solvent - I mean isopropanol is a polar molecule itself. It's a good solvent for non-polar compounds, the solvent component of it. But I'm differentiating not the structure of the property of isopropanol itself.

Q. So both ethanol and isopropanol are polar solvents, yes?
A. They're both polar compounds.

Q. They're both solvents?
A. But it's whether it's the preference for what it is good to - as a good solvent or not.

Q. Sure. But do you accept that they are both polar solvents?
A. Yes.

Q. Can I ask you, please, about the validation process that you mentioned in answer to Mr Jones's questions. You spoke about a project that was currently under way. Has there been a validation process in South Australia for the swabs and moistening agent used by the South Australian Police?
A. That's currently occurring.

Q. So the answer to my question is no?
A. I honestly cannot tell you in the past. I'm not aware before my time and I haven't looked into whether we have a validation report or whether that's occurred in the past so I can't answer the question.

Q. Have you been in your current position since the commencement of this current validation process?
A. Yes.

Q. And have you had oversight of it?
A. Not detailed oversight but I'm aware it's occurring.

Q. Is there a particular reason why this validation process is being currently undertaken, for example has there been a material change in swab or solvent?
A. The swab that South Australia police are currently using is no longer available from the manufacturer and they have a limited supply left, so we are working with South Australia to identify an appropriate replacement.

Q. You don't know whether what they had been using up until this shortage emerged had ever been validated?
A. I don't know, I can't tell you that.

Q. What about the moistening agent, has that been validated to your knowledge?
A. I don't know, I haven't been asked that question before.

Q. Coming back then to the solvent properties, whether it's isopropanol or ethanol. You were shown a photograph of a stain on some timber?
A. Yes.

Q. And you said that your evidence was that ethanol will pick up the inhibitors?
A. Yes.

Q. Isopropanol would also pick up the inhibitors, wouldn't it?
A. They would.

Q. If another method was used, that is maybe someone scraped the stain off the timber, there's a fair chance that that might pick up some of the inhibitors in the timber as well, do you agree?
A. It might, yes.

Q. Isopropanol over ethanol is not going to solve that problem, is it?
A. All I can tell you is in our hands, in our experience the isopropanol works better than ethanol. It's not a published study but certainly in our experience that's what we've found.

Q. You accept though that there's no substitute for a properly conducted study if you're going to express an opinion on a matter like that?
A. Absolutely, and we certainly have internal studies that we've done here that I accept are not published where we've demonstrated that and that was my comment before about in my experience as well as the published literature.

Q. Was there a point in time at which ethanol was used as a moistening agent in South Australia?
A. I'm not aware of that.

Q. And when the studies were done internally in your laboratory did they involve 100 per cent ethanol or 70 per cent ethanol?
A. 70 per cent ethanol.

Q. What was the reason that your lab was comparing that particular combination, 70 per cent ethanol, and I assume water was the other 30 per cent, what reason --
A. Yes.

Q. What was the reason that prompted you to compare those two moistening agents?
A. I can't talk for who designed the study at the time and designed it, it was before my time, but I would assume it was because that was an option that was put in the literature as having essentially merit and it should be tried. It was quite a broad-based study that was conducted using various different types of wetting agents and 70 per cent ethanol was one of those.

Q. I suppose my point is that it's not as though the idea of 70 per cent ethanol and 30 per cent water is something that was just plucked from the ether by the Queensland lab for example?
A. No, absolutely not. But certainly studies that have discussed it before and 70 per cent ethanol is used in the extraction process, so there's some logic to - in some extraction processes, there's some logic to it, but it's a matter of testing and verifying that that is the best solution as a wetting agent in your environment in your (indistinct words) hands.

Q. Can ask about other methods, other analytical methods that are employed by the South Australian Police, and in particular I'm talking about the presumptive reagents?
A. Yes.

Q. For example tetramethylbenzidine, or TMB. Do you know whether the South Australian police have validated either the product itself or their procedure in respect of TMB?
A. I'm not aware.

Q. TMB has been used as a presumptive test for blood for decades, correct?
A. That's correct.

Q. The method by which it's used is - it's a pretty basic thing to use, do you agree, it's not a complicated reagent to deploy?
A. No, that's correct. It's very well-validated and it's very well accepted within the community.

Q. And the same could be said for Combur test strips?
A. Absolutely.

Q. Leucocrystal Violet?
A. Correct.

Q. Luminol?
A. Correct.

Q. Harris hematoxylin stain?
A. Correct.

Q. The ABA card for testing for seminal fluid?
A. Yes.

Q. Acid phosphatase test for seminal fluid?
A. Very well accepted.

Q. And the ABA card Hematrace for blood again?
A. Yes.

Q. Do you know whether the South Australian Police service has validated its collection methods, I've already asked you about swabs and wetting agents, do you know whether they've validated and verified their tape lift method?
A. I have no oversight over any of the methodologies or any of the implementation of South Australia police methodologies. I simply haven't looked into that because I haven't been here long enough.

Q. You accept, don't you, that the police themselves could not validate their own collection processes, could they?
A. Some they could, absolutely.

Q. For DNA they couldn't, could they?
A. Not a swabbing technique that would have - be collected for downstream DNA testing, that would need to be done in partnership with the --

Q. And so would a tape lift method?
A. The tape lift method. But something like the TMB

method wouldn't.

Q. No, no, I'm not talking about the presumptive test now, I'm talking about validating collection methods for DNA testing?
A. Right.

Q. They couldn't validate swabs and wetting agents by themselves because they'd need the analysis provided by the lab?
A. That's correct.

Q. They couldn't validate the tape lift method for the same reason?
A. That's correct.

Q. Similarly in respect of a vacuuming method of collecting biological material, they'd need the lab's analysis, yes?
A. They would need the lab's assistance.

Q. And same for swabs from fingernail scrapings?
A. Yes, it would need to be a collaborative approach.

Q. Sure. Are you aware of your laboratory's involvement in the validation of any of those methods used by the South Australian Police?
A. I just know that we're assisting with the current swab validation studies at the moment and I can't comment on anything before that I'm afraid.

Q. Okay. But do you accept that if those methods were validated then there must have been some engagement between the South Australian Police and your laboratory?
A. I would assume so.

Q. You were asked some questions about the success rate, and accepting of course that there are issues with the way the data's been collected and displayed, can I ask you though back in 2009 and 2010 when the Queensland Police changed from distilled water to 70 per cent ethanol, it would be possible to have a look at the results that were before and after the point in time when that change was made, do you agree?
A. You can have a look at them.

Q. And accepting that the DIFP regime was not in place at

that point, it might be possible to see whether or not there was a discernible change in the success rate after the change to ethanol was made?
A. You could certainly have a look at that. That's not a verification study though.

Q. No, I'm not suggesting it is. Just in terms of allaying any concerns that this change to ethanol might have resulted in a significant problem in terms of the gathering of evidence.

THE COMMISSIONER: Mr Hunter, are you developing the proposition that what could be done - what could have been done or what could be done now to ensure that - to understand the scope of the issue that's arisen for consideration, which we haven't delved into, is that right?

MR HUNTER: To either allay concerns or raise them.

THE COMMISSIONER: Yes, I understand, thank you.

MR HUNTER: My question is accepting the limitations of the data, there would at least be an ability to see whether there was a discernible change before and after the decision?
A. Yeah, you could certainly have a look at the data and just ensure that there's no other changes and no other variables within the two sets of data that you're comparing. That would be the only caveat I'd put on it and that would give you some indication about whether there was any impact on the change, noting that it's data that you don't know what the ground truth is.

Q. Is there any other way that you can think of where there could be at least some degree of comfort gained, if indeed that's the outcome, that the use of - the change to ethanol from water hasn't been a decision of great forensic significance?
A. That's a tough question to ask. I mean start with a small study on a zero solution of blood samples and do a small study to begin with just to see if there's anything, particularly at that lower end. Where you would have - I would suggest that where you have a lot of samples, such as a pool of blood where there's a (indistinct) collection there's probably not too much of an impact there you would assume. You could reduce down and when you do your datasets have a look at samples that are at the lower level

perhaps. I think the quickest way is probably a small part of the study to begin with and then moving up from there.

Q. One of the things about the pilot study, can I ask you about this, this is based on some evidence we heard from Dr Bedowle yesterday. The process of actually taking the swab, that is the mechanical action of taking the swab, that is where you're collecting it, collecting the evidence, Dr Bedowle told us that that's something of an art and what I'm going to ask you then is whether there can be variations in the amount of DNA that is sampled depending upon the technique employed by the sampler?
A. You would anticipate some variation between individuals, potentially how many times do you rub, how much of the swab you put a sample on. I think you need to when you're doing the study or when you're training your scientists that you train them the same way so that they've all got good technique. I think it comes down to a training issue, and with the appropriate training can minimise some of that variation.

Q. But my point is that for the purposes of a study you would want to ensure that there was no variation or as little as possible, correct?
A. As little as possible, yeah. So you might have the same person do the swabbing or limit it to a small number of people, for instance, so you can minimise it that way. I think if you design the study right you can minimise some of those components. You might not get rid of it entirely but I appreciate your point.

Q. Can I ask you about a document that was shown to you by Mr Jones. This was a document under the hand of Liza Jane McMens. This was the cautionary note that was provided to the Queensland Police Service?
A. Yeah.

Q. About the use of ethanol and particular concern was raised with respect to porous or semi-porous surfaces?
A. Yes.

Q. Do you recall that document and being asked about it by Mr Jones?
A. Yes.

Q. You though have reviewed the techniques that are prescribed for scientific and scenes of crime officers with

the Queensland Police?
A. I have.

Q. And it's the case, isn't it, that I think it's CSE101 specifically says that swabs are to be used on nonporous surfaces but that other collection methods depending upon the surface are to be used for porous or semi-porous surfaces?
A. Yes. Does it have semi-porous surfaces? I think --

Q. No, you might be right. I may have misquoted that. Just bear with me. I think the only distinction was made between porous and nonporous?
A. That's correct, there was a table within that SOP that had a technique for porous and then nonporous.

Q. The alternative techniques include using a tape lift?
A. Yes.

Q. Or actually excising the area that contains the stain?
A. That's correct.

Q. The requirement or the suggestion to use 70 per cent ethanol was said to be for nonporous surfaces, correct?
A. That's correct.

Q. That was repeated several times during - throughout CSE101?
A. That's correct.

Q. So if that's been the prescription in the procedures since 2011, that's what I'm suggesting to you is the case, but if that's been the case then that would largely address the concern raised by Ms McMens when she cautioned the use of ethanol on porous and semi-porous surfaces?
A. I guess yes, however it comes down to definitions and that in between grey area I think that would I guess red flag or maybe cause some concern, such as concrete. I was shown before a photo of concrete where the blood had clearly seeped in, concrete, so is that porous or nonporous?

Q. That's an actual grey area as well as metaphorical. There are other problems with concrete as well when it comes to recovering, using DNA, correct?
A. That's right.

Q. Calcium ions in the concrete can inhibit or damage the DNA?
A. There are various inhibitors that can cause problems in downstream processes, absolutely. So I think, you know, whilst there is a protocol that quite clearly states between porous and nonporous, I think there is still a lot of crime scene examiner judgment and expertise around the best sampling technique that needs to be applied. And because you get those grey areas like plasterboard and those sorts of things where you might not have a clear-cut (indistinct) for it, so it will depend on how you use it, process it (indistinct) as well.

Q. Dr Bedowle also said that he didn't support the idea that scenes of crime and scientific officers should have an armoury, if you like, of different swabs and different wetting agents, that there should be a selection of - and this is my word, not his, an all rounder that gives you the best across all of the different substrates?
A. Okay.

Q. What's your position or take on that?
A. I think that swabbing will be good for some surfaces, some substrates. Tape lifting can also be good. I think there should be a generally accepted or it's useful, should I say, to have a general (indistinct) for this is the swab and this is the wetting agent that we use. But I do think that excising collections, tape lifting, swabbing, are all good choices, can be a good choice depending on the substrate and the biological material you're dealing with. You wouldn't want to have one lock in (indistinct) into one version of those.

Q. I'm not suggesting that. What I'm talking about is whether the crime scene examiners should only have a single type of swab and a single wetting agent as opposed to a choice?
A. I could support that.

Q. Do you accept that when one's looking for a swab then what one's looking for is an all rounder that gives you the best result across the spectrum or substrates and (indistinct words)?
A. That's usually the way these protocols are implemented.

Q. There's an enormous variety of swabs available, isn't there?

A. That's correct.

Q. And also quite a substantial variety of moistening agents as well?
A. There are some main ones but there are lots of options.

Q. My question to you though is where does one start? Let's say you are looking to validate a particular swab for use by crime scene examiners and a laboratory such as the one we have in Queensland. Where do you start?
A. You start with the main types of swabs. You could do some research to look at what literature says about in a similar environment with similar downstream DNA methodology, what works. So that can be useful. And then start there and test those. A pilot study is a useful way to do it. So you start off with a larger number of swabs and wetting agents, see what works the best and do a small study on those, and then tick maybe just the top (indistinct words) performers or whatever stands out, and then do a more detailed in-depth study of those. That would be quite useful.

Q. In terms of the sort of resources that would be involved in doing this, I'm particularly thinking about from the laboratory end, you'd expect that at least in the short to medium term there'll be quite a bit of work being done at the laboratory in terms of how its procedures might be done differently. What are the resource implication for the lab of participating collaboratively with the police in a validation role of swab and wetting agent?
A. Yes, it will take resources. There will be at least a portion of a scientist's time that needs to be allocated to the study and that might be - it depends on how the swabs come in or whatever you're testing, how that comes in and any pre work that has to be done and then they'll go into the DNA analysis (indistinct words) depends on how big the study is and what you're testing. I think there are some benefits for the laboratory, however, in improving the end to end DNA analysis process. What those are will depend on the size of the study.

Q. The size of the study is going to govern the reliability of the results surely. You can't have too few samples, otherwise you're not going to get reliable data, do you agree?
A. I agree.

Q. So I'm just trying to get some sort of sense from you about how long you would expect a process such as this to take, at least from the laboratory's point of view?
A. It might take from an end to end process, it might take two or three months. I guess it's not a full-time person though within that time, but that would just be an estimate.

Q. Lastly, can I move to a subject that hasn't been raised with you, at least not this time. I want to ask you about the subject of turnaround times?
A. Yes.

Q. And I wonder whether you would agree with this proposition, that turnaround times are particularly important when it comes to what I'll call bulk crime or in Queensland where that's P3?
A. Volume crimes.

Q. Volume crime, yes?
A. Yes.

Q. And that's because the longer it takes to identify an offender, the more offences they're likely to be committing, correct?
A. That's correct. Generally speaking in my experience dealing with police if they can't get a result from a volume crime in a very short space of time, then it's unlikely that that case will be investigated at a later date because that offender may have been identified at 100 more (indistinct words) in the meantime.

Q. Now you've held a role on the National Institute of Forensic Science Australia, correct?
A. Correct.

Q. Do you currently hold a role?
A. I sit on the ANZFEC, Australian and New Zealand Forensic Executive Committee. It's a small position by virtue of the fact that Forensic Science South Australia providing some funding to them.

Q. Were you on NIFFS, involved with NIFFS in 2012?
A. I was, yes.

Q. And are you aware of a paper that was published by NIFFS called the End to End Forensic Identification Process

Project, Volume Crime?
A. I am, yes.

Q. And can I suggest to you that in the introduction to that report it was observed by the authors about volume crime. It was said:

> *It is clear that expediency in the investigation of these crimes and action against these criminals is the key to having a significant impact on the crime rate.*

A. That's correct.

Q.

> *Delays in identification and investigation means offenders are likely to be committing further offences during that time.*

A. I agree.

Q. And so is it correct to say that, at least from the police perspective, if there's pressure when it comes to turnaround times, it's likely to be in the area of volume crime?
A. It would depend, I would suggest. In terms of turnaround times volume crime can be really important for the community, however if there is an unknown sexual predator out on the street that's committing sexual offences (indistinct words) context, that there could be an even higher priority for those. Similarly, if there was an unidentified murderer where there is no suspect (indistinct words) a higher priority.

Q. Of course, obviously those sorts of cases will be of prime importance, but I really meant in a general sense, that the focus on turnaround times is likely to be on volume crime because that's how you reduce volume crime, by identifying and stopping offenders, correct?
A. That's correct.

Might I just have a moment?

THE COMMISSIONER: Yes, of course Mr Hunter.

MR HUNTER: Those are the questions, thank you.

THE COMMISSIONER: Thank you. Mr Rice.

<EXAMINATION BY MR RICE: [3.35 PM]

Q. Professor, just a few questions about what I'll call the success rate analysis. If we take your report, the various appendices and associated spreadsheets containing primary data collectively, this presents as being an elaborate and time consuming exercise, but has it been?
A. How long - are you asking me how long did it take me to do this analysis?

Q. No, not really. I'm asking you whether taking your report and the appendices to the report, in association with the primary data provided by the laboratory, if you take those things collectively, that this has been an elaborate and time consuming exercise?
A. I don't know how --

THE COMMISSIONER: I'm not sure what you're asking, Mr Rice. Are you asking about the exercise in preparing the report or the exercise that the Professor recommends me undertaking?

MR RICE: The effort that's been put into the compilation of this, of the final report.

THE COMMISSIONER: You mean the effort put in to compiling the data in Queensland Health?

MR RICE: And converting it or transforming it into the appendices and the report.

THE COMMISSIONER: Yes.

MR RICE: I'm simply asking about the degree of effort that has gone into --

THE COMMISSIONER: Yes, all right. You go ahead, Mr Rice.

MR RICE: Professor, I'm really asking you about the degree of effort, as you apprehend it to be, in arriving at your report with its associated appendices.

THE COMMISSIONER: I think Mr Rice is referring to your assessment of the effort, time and effort that was involved

by everybody who had to do anything, including yourself, in order to arrive at the report that you've written, is that right, Mr Rice?

MR RICE: Yes, Commissioner.
A. I'm not sure I can comment on how many time it's taken Queensland Health to produce the data, I simply don't know. I can comment on how much time it took me to analyse it and produce a report if that's helpful.

Q. All right, give us not an exact figure, but some estimate or some indication of the time frame?
A. Twelve hours.

Q. Okay. Can you tell us whether this kind of data retrieval and analysis is engaged in by other laboratories as part of their ordinary business?
A. It's quite difficult, I understand, to put this data together, depending on the laboratory information management system that you have. Not all things are created equal and some laboratories have manual processes, so it would be extremely difficult for a laboratory to put this kind of data together that has a manual process. If you have a LIMS - or we've only just implemented an ability to extract success rate data within this laboratory, others would have varying amounts. I know Queensland Health has the Forensic Register which is probably one of the better LIMS perhaps for collecting this sort of data, but again depending on what question is asked, whether there's already an algorithm or a macro to collect that data, I don't know, so I don't know whether new systems have to be written, but it is very complicated and there's no, as I was saying before, it's not a case of a sample goes in and a result goes out and you just do a straight count. Samples can be split, it can be repeated, they can have major components, minor components, so collecting this data in a meaningful way is very difficult, I absolutely appreciate that.

Q. My question was whether, you are aware of whether this kind of exercise is being done by other laboratories, not in a Commission of Inquiry context, but as part of their ordinary business, do you know?

THE COMMISSIONER: Excuse me, Professor. Are you talking about the collation of data to look at success rates?

MR RICE: Yes.

THE COMMISSIONER: Thank you.
A. We are looking at success rates here. I can confirm that. In other laboratories I don't know, so I can't confirm that.

MR RICE: Would the ideal be to develop some kind of program making use of an information system such as LIMS to enable the data to be retrieved more easily?
A. That would be a very useful thing to do.

Q. I beg your pardon?
A. That would be very usefully, so I agree.

Q. To develop such a program obviously it would have to be resourced by some program or in conjunction with input from the scientists as to how to go about it?
A. That's correct.

Thank you, those are my questions, Commissioner.

THE COMMISSIONER: Thank you. There's nobody else I take it?

THE COMMISSIONER: Yes, Mr Jones.

<EXAMINATION BY MR JONES: [3.41 PM]

Q. Just a few questions, Professor. You're aware that the change to ethanol was in 2010, that is the QPS ethanol 70 per cent and the swab?
A. I believe that's what I've been told through the materials provided.

Q. And you're aware that the Queensland Health, the laboratory changed to the Forensic Register in 2017?
A. Okay, yes.

Q. Thereabouts, yep?
A. Yes.

Q. We're now in 2022. Are you able to express an opinion as to the ease or otherwise now to do an assessment of the damage done, if any, of the unvalidated change to the 70 per cent ethanol?

THE COMMISSIONER: You'd put it a different way, wouldn't you? It would be to assess whether any damage has have done and, if so, how much.

MR JONES: To assess whether any damages have been done and, if so, how much?
A. You'd need to compare the protocols and the methodology that was occurring. The issue is: are there any other variables? And so that's a concern and I guess the reticence I have is what else has changed during that time and if you see - and therefore if you see a difference, is that because of what else was changed, whether that's a good difference or a bad difference. So it could mask an issue or it could - an issue in that change, or it could exacerbate an issue in that change. Without knowing what the other variables are it's very hard to ascertain.

Q. All right. And, finally, you were asked some questions about the importance of turnaround time for volume crime. Whilst turnaround time is important, it should not be the focus to the detriment of the process or scientific methods?
A. Correct. Getting a good quality reliable result is really important and if it's a difference between turnaround times and not getting the result, I think you're better off getting a result, a good quality result for an investigation has to be the outcome.

Thank you. Thank you, Commissioner.

THE COMMISSIONER: Ms Hedge anything on your part?

MS HEDGE: No, thank you.

THE COMMISSIONER: Thank you, Professor, for your assistance throughout this Commission and also for your willingness to work urgently on some things that you've had to do?
A. My pleasure, Commissioner.

Q. Thank you, you're free to cut the link as soon as you wish?
A. Thank you very much.

<THE WITNESS WITHDREW

THE COMMISSIONER: Ms Hedge, what's next?

MS HEDGE: Next we're going to tender some material that hasn't been tendered yet, so a number of sheets of material. So that might come to me, and then I'll open the issue of STRMix review and call Dr Duncan Taylor, and that will be end of what's of today's hearing. So can I hand up this bundle of documents to be tendered. So this is a list --

THE COMMISSIONER: I take it there's no oral evidence to be led further, or is there?

MS HEDGE: There is. Dr Duncan Taylor.

THE COMMISSIONER: He's giving evidence, all right. Go ahead.

MS HEDGE: If I can hand up this document. It attaches a number of lists which have been distributed to the parties with leave to appear.

THE COMMISSIONER: Yes.

MS HEDGE: And there's exhibit numbers written on there which indicate that each list will have an exhibit number and then the things in the list will have the corresponding exhibit numbers.

THE COMMISSIONER: All right. So you've given copies of this to your colleagues, is that right?

MS HEDGE: Yes, electronically.

THE COMMISSIONER: Yes, with the exhibit numbers on them?

MS HEDGE: No, I believe not. Not the ones with the handwritten amendments.

THE COMMISSIONER: Yes. So that the exhibit numbers --

MS HEDGE: We can distribute it again with those numbers later this afternoon.

THE COMMISSIONER: Yes, and then you can upload the list with handwritten numbers or a list with those numbers on it so it becomes part of the record to save me reading it.

MS HEDGE: Yes, but they are effectively consecutive numbers from 236 onwards.

THE COMMISSIONER: Yes. You can do that in due course, thank you.

MS HEDGE: Thank you. Can I open then the --

THE COMMISSIONER: Go ahead, Ms Hedge.

MS HEDGE: Thank you, Commissioner. Commissioner, when Dr Kogios and Ms Baker finalised their overall review of the lab they were unable to complete one task that they considered necessary for their review to be considered entirely fulsome. That was a consideration of the use of STRMix within the laboratory, which you'd be aware is the DNA interpretation software used to interpret DNA profiles and obtain likelihood ratios.

They recommended in recommendation 27 of their report that the laboratory undertake a review that included a number of topics, including consistency of how STRMix is used with the laboratory Standard Operating Procedures and STRMix recommendations, consideration of how and when loci are dropped from the STRMix analysis, investigation of the laboratory's use of STRMix diagnostic data, consideration of how the number of contributors to a mixed profile is determined and whether that process is fit for purpose, an investigation of the appropriate stratification of the population within STRMix.

The Commission engaged Dr Duncan Taylor to perform this task between Dr Kogios and Ms Baker giving evidence and today. Dr Taylor, as you know, is the Chief Scientist of Forensic Statistics at Forensic Science South Australia and has given evidence earlier in the Commission in relation to validations conducted by the laboratory.

He conducted a review of the Standard Operating Procedures and manuals used by the laboratory for STRMix and had access to a number of recent case files that spanned P1, P2, P3 cases, as well as homicide and sexual assault cases and cases in which loci had been dropped for the purposes of STRMix analysis.

He concluded that in many areas the use of STRMix by the laboratory was appropriate. There were, however, areas

where the laboratory should clearly set out in their Standard Operating Procedure guidance to scientists about certain topics of interpretation, for example, how to drop a locus or when to drop a locus from STRMix, or how to treat certain stutter peaks, but that was recommended rather than seeing errors being made.

He also recommends some steps that could be taken to enhance the use of STRMix because that software does have some functionality that the lab doesn't currently employ.

However, in one area, the determination of the number of contributors, he identified a risk that the laboratory was operating below best practice. The number of contributors is determined by a reporting scientist when analysing a DNA profile and is their expert opinion or estimation as to how many persons' DNA is present in a mixed profile.

The risk of systemic overestimation in the Queensland laboratory arose for Dr Taylor in two ways. First, there were parts of the DNA Interpretation Standard Operating Procedure which showed a bias towards adding a contributor on very little extra information in a electropherogram and then, second, in the case files he reviewed, which was only 13 case files, he saw in that number seven particular samples where a profile was said to be a three person mixture when he personally would have identified it as a two person mixture. Now he does say that that is his opinion and that people can have different - reporting scientists can have different opinions, as you know, but in his view very little was necessary in those ones that he saw for Queensland Health scientists to add an extra contributor.

THE COMMISSIONER: That is to say, you're speaking about the terms of the Standard Operating Procedure or the parameters that were applied to STRMix?

MS HEDGE: The terms of the Standard Operating Procedure but also in particular cases what peaks on the electropherogram were used to add a contributor.

THE COMMISSIONER: What peaks were identified by the profiling scientists to conclude that there was a third contributor?

MS HEDGE: That's right.

THE COMMISSIONER: Which in his view, these peaks were too low and should be dismissed as other, having other significance, but not as evidencing the contribution of DNA by a third contributor?

MS HEDGE: That's right, and during his evidence today Dr Taylor will take us through one electropherogram to show --

THE COMMISSIONER: Why that's so.

MS HEDGE: -- what was enough for a scientist to add a contributor in the Queensland Health laboratory and why in his view that shouldn't have been done in that particular case.

THE COMMISSIONER: All right, thank you.

MS HEDGE: Dr Taylor was not able to review sufficient cases to understand whether that overestimation of contributors is systemic or widespread, because he could only review that certain number of profiles, but his concern about the risk led him to recommending a wider review and that review would cover 12 months of sexual assault cases in which contributors of three or more were identified, and all currently existing sexual assault cases where three or more contributors were identified on any sample to identify whether there's a system problem in this area.

Commissioner, overestimation of contributors can be highly significant in a particular case, particularly in sexual assault cases. 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 a intimate swab, like a high vaginal swab or an anal 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 have returned a third contributor or a fourth contributor to DNA on an intimate swab if that does not accord with what they have understand to have happened to them.

For that reason this particular issue of how STRMix is used is of particular concern for the administration of justice. This is the issue, of all the issues that Dr Taylor dealt with, this is the issue which will be the focus of the oral evidence that I call. I call Dr Duncan Taylor.

THE COMMISSIONER: Thank you. Dr Taylor, you can regard yourself as under your former affirmation.

<DUNCAN TAYLOR, called: [3.52 pm]

MS HEDGE: Thank you. You are Dr Duncan Taylor?
A. Yes.

Q. And you are the Chief Scientist Forensic Statistics at Forensic Science South Australia?
A. Yes, that's right.

Q. I assume you can hear me quite well?
A. Yes.

Q. Let me know if the sound or vision drops out on you. You've been asked to review the use of STRMix by the Queensland Health laboratory by the Commission?
A. Yes, that's right.

Q. And you've prepared a report which is dated 21 November 2022?
A. Yes.

Q. Can I put that on the screen, it is EXP.0003.0002.0001_R. That's the report that you prepared?
A. Yes, it is.

Q. Thank you. Can I hand up to you, Commissioner, a list of documents to be tendered which is the report and the non case file part of the brief that was provided to Dr Taylor, but none of the case files will be tendered. There's space for exhibit numbers there but I'm conscious that I - I'm not sure where we're up to from that --

THE COMMISSIONER: Don't worry about that. Why don't we --

MS HEDGE: We can provide one with numbers on it to the Commission and the parties.

THE COMMISSIONER: All right, let's do that. I'll mark

Dr Taylor's report Exhibit 254.

EXHIBIT #254 DR TAYLOR'S REPORT

THE COMMISSIONER: And otherwise the remaining documents will be marked sequentially after that number in accordance with a document you'll prepare and hand to your colleagues and we'll put on the files and upload to the website.

MS HEDGE: Thank you. We do also have a hard copy of Dr Taylor's report.

THE COMMISSIONER: Thank you, I'd like that.

MS HEDGE: That's the report and some of the key documents referred to in it. It's not just the report in that folder.

THE COMMISSIONER: Thank you.

MS HEDGE: Dr Taylor, we've said in the opening that you conducted a review of STRMix arranging a number of questions namely framed by Dr Kogios and Ms Baker in their review of the lab, is that right?
A. Yes, that's right.

Q. And can we turn to p5 of your report and if we expand online 107 to 131 the italicised section. These are the instructions that were given to you?
A. Yes, that's right.

Q. And you reviewed all of those things and set out your opinions about how procedures were or were not appropriate and how they could be improved in the report, is that right?
A. Yes, that's correct.

Q. Today we're going to deal only with one of them in oral evidence and that is the assignment of a number of contributors?
A. I understand.

Q. So can you tell us in a general sense what that means, what the assignment of a number of contributors is in terms of DNA analysis?
A. Yes. So when you're using a software like STRMix to analyse a DNA profile, the first step before you use STRMix

is to assign a number of contributors, so that would be a number of individuals you believe have contributed DNA to the sample that has ultimately then led to the DNA profile that you've obtained and that process is carried out in a general sense using expertise and knowledge of DNA profile behaviour and by interpreting the series of peaks and information that you see within a DNA profile.

Q. And is it possible for different scientists to have a different opinion about how much contributors there are to a DNA profile?
A. Yes, it is.

Q. And I probably should have put in the word reasonable there. Is it possible for more than one scientist to have different but both reasonable positions about how many number of contributors there are?
A. Yes, that is possible.

Q. And in the Queensland Health witness statements that you saw in the case files you reviewed, the number of contributors is stated in the statement?
A. Yes.

Q. And is there any level of certainty or uncertainty placed in the statements against that or is it stated as fact effectively?
A. I believe that in most cases the number was given as to how the profile had been interpreted. There were a number of instances where there was qualifying information about the presence of a potential low level additional contributor.

Q. All right. Can we turn to p8 of your report, please. And can we zoom in on the first paragraph starting at line 215. You can conclude here that:

> *There are some passages within the basics of DNA profile interpretation Standard Operating Procedure that if applied and written would lead to an bias towards overestimating the number of contributors.*

Yes, that's right.

Q. Can we just look at those quickly. And can we - can I turn to a different document. Can we turn to

FSS.0001.0012.0147. 0047.

OPERATOR: Sorry, could I have the whole number again?

MS HEDGE: FSS.0001.0012.0147.

OPERATOR: I apologise, there it is.

MS HEDGE: Thank you. This is the basics of DNA profile interpretation Standard Operating Procedure you were referring to, Dr Taylor?
A. Yes.

Q. Can we turn then to the page that ends in .0166, it's page 20. Could we zoom in on the part under the heading 16.1.8 reproducibility. Now in the second-last paragraph that we can see - sorry, third-last paragraph, the last sentence says:

> *There is no certainty that there is only one contributor to the low-level contribution and a contributor should be added.*

This is one of the parts that you found concerning about the Standard Operating Procedure?
A. This is one of the parts of that Standard Operating Procedure that if applied sort of strictly as written would lead to an over estimation of the number of contributors regularly.

Q. Can you tell us what you would propose should be said in that part of the Standard Operating Procedure instead of "a contributor should be added"?
A. I suppose in a general sense a lot of the reasons that you could potentially add a contributor to a profile are mentioned in this SOP and they are reasonable reasons for increasing the number of contributors. So these would be instances like peak imbalance or very high levels of stutter beyond what is reasonable to expect. In this particular guidance that's given the idea is if you see low-level contributor to a DNA profile but it appears there was only one low-level contributor and you don't have certainty or you don't see any evidence of an additional contributor but you're not certain that the low-level contribution has come from a single person, the suggestion here is to then add a contributor. So in a lot of cases

that won't be a reasonable thing to do, that would lead to an over estimate of the number of contributors. So really the best thing to do in that situation is if you can carry out a re-amplification of the DNA and perhaps amplify it with more DNA so that you can get a better understanding of the low-level contributor to that profile. But ultimately if there's no evidence of an additional contributor I would suggest that you wouldn't add one.

Q. So would it be your position that the Standard Operating Procedure shouldn't suggest that a contributor be added but rather that expertise is applied and for a scientist to decide in an individual case whether one should be added or not rather than a sort of blanket recommendation?
A. Yes.

Q. You said something else in there about re-doing another amplification. Generally if a scientist is uncertain about the number of contributors what would you recommend they do before assigning a number of contributors?
A. There is a number of actions that can be taken but probably one of the first would be to carry out a re-amplification of that sample and to generate another DNA profile from that sample. And that can be useful for a number of reasons. So if your concern in the original profile is that there are peak imbalances or potentially high stutter peaks, then by carrying out another amplification you can see whether or not those imbalances are repeated or even more extreme in the second amplification, which might then give you more comfort or further reason to assign that higher number of contributors, or you might find that on re-amplification those imbalances are no longer present, which suggests that perhaps the first time they were just stochastic effects and it's not correct to interpret a higher number of contributors. That would be the first main step that I would take.

Q. All right. Are there other analytical steps that can be taken, for example, concentration or other rework options rather than struggling with the interpretation and number of contributors just at the STRmix stage?
A. Yes, certainly if you can concentrate the sample that has a similar effect of potentially being able to add more DNA into the amplification reaction and at the result, at the end result of all of this you also have statistical

ways to approach the problem if you're still unsure of the number of contributors. Within STRmix you can express that uncertainty with the way that you analyse the sample.

Q. Right. Just explain to us that last point, is that the variable number of contributors function in STRmix?
A. That's right. So if after carrying out multiple amplifications you're still uncertain about the number of contributors, say for example you're not sure whether a profile has come from two or three people, you can analyse the profile within STRmix telling it that the profile can have originated from two or three contributors and then STRmix will handle that uncertainty probabilistically.

Q. If you did that would you then expect to see in a witness statement written for a court or in a report - I'm sorry, in a result reported to police it would say more than one number, so it might say two or three contributors and the likelihood ratio is this?
A. Yes, in some way you would express that uncertainty or the range of number of contributors that you've analysed the profile under.

Q. Is that functionality currently being used by the Queensland laboratory?
A. I don't believe so. So it is a function that would have to be validated before a laboratory implements it. I didn't see evidence of that in the SOPs that I looked at.

Q. Right. When was that created by the STRmix company?
A. I believe it was - it's been available for three years.

Q. To your knowledge is it used in other laboratories around Australia?
A. I'm not certain. It's certainly used in South Australia. I'm not certain about other laboratories in Australia.

Q. Right, thank you. We've looked at one part of the Standard Operating Procedure, there's one or two sections and a paper on mixture interpretation where you pull out particular examples that are set out in your report; is that right?
A. That's right.

Q. And you comment that if they're required strictly or literally then they could lead to a systemic bias towards

over estimating contributors?
A. Yes, that's right.

Q. Then a second part of your analysis of this topic was to review case files to see whether there was an overestimation of contributors in particular instances?
A. Yes.

Q. And you reviewed 13 case files?
A. Yes, that's right.

Q. And across those 13 there were seven or eight samples, is that right, some which came from one case file, but there were seven or eight sampled in which you identified a greater number of contributors were attributed by the Queensland laboratory than you personally would have attributed?
A. Yes, that's right. And to just pick up on the last thing you said there, it's probably important to point out that my review of these profiles is my opinion and whilst I have been reviewing DNA profiles and analysing them for 17 years, there are other forensic scientists who have been trained and have been reviewing profiles just as long or longer than I have, so I just want to stress that this is my opinion and it shouldn't be taken as the definitive truth on the number of contributors of these profiles.

Q. All right. I assume for some samples you're more confident that it should not have been a greater number of contributors than for others?
A. Yes.

Q. There would be some way the evidence of the extra contributor would be so low you don't really think that anyone else could have come to that reasonable conclusion, but there'd be others where there might be more reasonable differences of opinion, is that fair?
A. That's fair.

Q. Can we deal with one particular case that you've prepared a series of slides for us to explain how the over contribution or the overestimation occurs. Could I have on the screen EXP.0003.0003.0001_R. Can you see that, Dr Taylor?
A. Yes.

Q. You're identifying there's a particular sample which

comes from the case that was reported at section 5.10 of your report, that assists in identifying it for those with unredacted copies but it doesn't matter what the case is for the purposes of discussing this, does it?
A. No.

Q. But it's a sexual offence?
A. That's right.

Q. In fact you identify it as an alleged rape?
A. Yes.

Q. Let's turn to the next page then of that document. On the right-hand side we have the electropherogram, the first part of that. The top is the zoomed out version and the bottom is the zoomed in of the same loci; is that right?
A. That's right. Within PowerPlex 21 there are four different dye lanes that are used and those - put all together those make a DNA profile. Within the Queensland Health case files you have the entire profile in full panned out scale and then you have that same profile again given in this zoomed in scale. Just to make a little bit easier to talk about what I've done is broken up those two different scales of DNA profile and I've just showed one dye lane per page, where the top half of the page is the full scale profile and the bottom half of the page is the zoomed in profile on a dye lane by lane basis.

Q. Can you explain how you've annotated this to show us what peaks were used to add a third contributor to this profile?
A. Yes. So on this DNA profile which we see looks like a number of peaks on a graph where each peak is annotated with two pieces of information, the top one is what's called the allelic designation and that's usually a number like 14 or 15 or 16, or in the case of a gender determining locus it will be X or Y, and the second number is representative of the intensity of that peak and relates to the Y scale on the very left-hand side of the dye lane. What I've done is mark certain peaks in certain ways and when this DNA profile was being interpreted, because it's an intimate swab from a victim of an alleged assault, what a typical analysis would do is to assume that victim's DNA is present and then using that information assign a number of contributors to the profile to then go on to analysis. So in this case I've marked the alleles that correspond to the victim's reference profile with blue arrows. So what

you can see as you look across the profile is that quite often those peaks are small, are the shorter peaks in the DNA profile, indicating that the victim is a minor contributor of DNA to the sample. Now in some instances those blue arrows will also be pointing to a big peak. So, for example, we could look at the region D3S1358, which is the second region that we see there, and we have one blue arrow pointing to the 15 peak and one blue arrow pointing to the 17 peak. Now what this means is that the victim in this case has a 15 and a 17 but because they're a minor contributor you would expect that of that 15 peak that you see there only a very small portion of it is being donated by the victim and the rest would be donated by this unknown main contributor of DNA to the profile. So that's the blue arrows. The red arrows I've used to identify artefactual peaks in the profile, and the reason I've done this is that Queensland Health use what they call sub-threshold peaks in their interpretations or particularly in their assignment of a number of contributors, so that if you were to see a number of low-level peaks that are not labelled, that are below the limit of reporting but above the limit of detection, you can use those peaks to assign a number of contributors. However that's only if they are representative of allelic material or DNA in the sample. There's a number of reasons that you can get low-level sub-threshold peaks simply as an artefact of generating a DNA profile. In this case for this sample there's a number of those low-level peaks that have been caused by, are an artefact known as pull up. So I've marked those with the red arrows. So none of those smallish perturbations of the baseline would be used in assigning a number of contributors. Then once you take into account the peaks from the victim and then the larger peaks from the main contributor to the profile you're left with a number of other small peaks in the profile which originate from another type of artefact called a stutter. These occur at known positions and at roughly known heights in a DNA profile. Queensland Health, as do other forensic laboratories, have an understanding of how high those peaks should be and an interpretation threshold which they would use to designate that peak is no longer being able to be stutter. Now all those potential stutter peaks that fall below the thresholds that Queensland Health uses I've marked with a green box, and when those peaks in stutter positions fall above the thresholds used by Queensland Health I've marked that with a purple box. So you can see there in this first dye lane there's one purple box around

a 16 peak at D3S1358.

Q. All right, thank you. Just speaking for a second of the second contributor, so the first contributor is the victim, that's assumed because it's an endocervical swab, so an intimate inside of the body swab?
A. Yes.

Q. And that's the blue arrows?
A. Yes.

Q. And then there are some peaks that don't have a blue arrow but are quite large, for example the Y peak in the gender locus or in the second locus along, D1S1656, there's two peaks there, 15 and 15.3?
A. Yes, that's right.

Q. Are these peaks the second contributor, that is the alleged - assumed to be the alleged perpetrator?
A. Yes.

Q. Then you're saying that the purple box peak is the one in this dye lane that you assume has been used to assign a third contributor?
A. Yes, that's right.

Q. All right. Shall we go to the next dye lane then. On the next page please. On the next page there's no purple boxes, so no peaks for the purported third contributor?
A. That's right.

Q. But there are peaks both for the victim and for the second contributor clearly there?
A. Yes, that's right.

Q. And to the third dye lane then, next page. Sorry, operator, can we go to the next page please. Thank you. Again, no purple boxes, so no stutter peaks that are above the Queensland Health stutter threshold that you assume were used for that purpose but we do have a first and second contributor clearly available?
A. Yes, that's right.

Q. And then finally, thank you operator, next page, please. This is the fourth dye lane and in this dye lane there is one peak with a purple box which is at position - in the locus position D12S391 at 21?

A. Yes, that's right.

Q. And that's the other one that you assume - so across the four dye lanes there's these two peaks that are above the stutter threshold that you assume have been used to add a third contributor?
A. Yes, that's right.

Q. If we turn to the next page please, operator. These are the two peaks, these are the two ones with purple boxes across the four dye lanes?
A. Yes, that's right.

Q. And you set out there that using the Queensland Health stutter threshold you'd expect those stutter peaks to be a certain height and they are in the first case 148 rather than 123, and in the second case 80 rather than 68?
A. Yes, so this is using the Queensland Health stutter ratios or stutter thresholds for those loci and for the stutter types. So you might expect, as you said, a peak up to 123RFUs for a D3S1358 in that position and that locus, and you see one there at 148RFUs and for that second locus you might expect a peak up to 68RFU but you see a peak there at 80.

Q. Would you consider that a significant exceeding of the stutter threshold?
A. No, in this instance we're talking about one or two tens of RFUs. I would personally consider it a very mild, being very mildly above the threshold and would be very slight evidence of a third contributor. I would not consider it evidence of a third contributor.

Q. All right. So looking at those stutter peaks, your view is that it's not evidence of a third contributor, no evidence at all?
A. You could see it as very slight evidence of a third contributor but in my opinion it wouldn't be enough for me to invoke that third contributor.

Q. And not just not enough but far from enough for you to invoke that third contributor there, is that fair?
A. Yes, that's fair.

Q. Can we turn to the next page then, page 7 please operator. Can you explain to us, Dr Taylor, what this table is that you've presented?

A. Yes, this is one of the outputs of the STRmix program that has been used to analyse this DNA profile as a three person mixture, so this is taken from the Queensland Health case file. We can look at this table of results to tell us whether or not STRmix required those peaks that were above the stutter threshold to be considered as allelic in that third contributor, as in did STRmix think that there was enough evidence of imbalance from those two peaks that a third contributor was justified? So in this particular table what we see is four columns. The first column are the various regions or the loci that are involved in the calculation, and then the next three columns are the three columns - one column for each contributor and then the alleles that have been assigned to that contributor with greater than 99 per cent confidence. So if we look at that first contributor column, contributor 1, STRmix has assessed it as coming from 23.45 per cent, that contributor is making up 23.45 per cent of the profile that's seen. Because a contributor has been assumed in this analysis, that being the victim, they will be put into that first contributor position and in fact their profile is known with certainty because you're telling STRmix that this is the first contributor to the profile. So I suppose what we can do is then look at the second contributor column and we see here that STRmix has explained 75.67 per cent of the profile as coming from this second contributor, now this is an unknown contributor to STRmix, STRmix hasn't been given a reference for this person, but you can see as we saw looking at the profile itself, they make up a majority of the DNA profile. That's reflected in the fact that STRmix is able to assign a complete DNA profile, so all the alleles at every region, to that contributor with greater than 99 per cent confidence. We can now look at the third contributor column and we can see that this contributor has been assigned by STRmix as contributing very little to the profile, so less than 1 per cent, 0.88 per cent, and there are no alleles that have been assigned at greater than 99 per cent confidence at any region and that's signified by zeros. So specifically in this particular instance we would be looking at D3S1358 to see whether or not that 16 peak was imbalance, whether that stutter was high enough that it had to be explained by a third contributor by STRmix, and in this case it hasn't because it hasn't been assigned in this table, and similarly at D12S391 we had that 21 peak that was a slightly high stutter, and again STRmix hasn't required that to be explained by a third contributor by virtue that there's no 21 peak listed for

contributor three at that region. So you can use that STRmix table as I suppose further guidance or further evidence that you don't need a third contributor to explain this profile.

Q. All right. Would you expect a scientist to be looking both at this table as well as the program to make their decision about the number of contributors?
A. So this table is only produced after the STRmix analysis, so this table would be produced once the scientist has assigned three contributors, analysed the profile and obtained the STRmix output. But certainly having obtained the output they could then use that as - to further interrogate their understanding of the profile and then perhaps lead to further re-workings based on what they've obtained.

Q. Is this result, that is the assigning of a third contributor on those very mild exceeding of the stutter threshold in only two peaks across all loci, is that a manifestation of one of the biases that you saw in the Standard Operating Procedure?
A. Yes, I believe so. It's indicative of in those seven or eight examples that I do highlight in my report, this is indicative of the sort of level or very minor evidence of additional contributors. They're just being used to assign that higher number.

Q. All right. You don't know the case context of this case, you don't know what the complainant's statement says or anything like that? Don't tell me any of the information but do you have it?
A. I don't recall anything, no.

Q. So you don't know whether having a third contributor matters for the case is my point?
A. No.

Q. But can we talk generally about what the significance might be of a third contributor in a sexual assault case. So can we go back to your report at page 8 please. It's EXP.0003.0002.0008_R. Could we zoom in around lines 219 to 225. So you identify there the negative consequence to overestimation is to incorrectly fail to exclude and sometimes include with low-level support known donors of DNA?
A. That's right.

Q. Then if we can zoom in at the bottom of the page and the top of the next page as well if we can, operator. You note that there's been mention of the impact that the number of contributors might have in terms of the way the results are interpreted by stakeholders, and by that you mean police, prosecution, defence lawyers, juries, courts?
A. Yes, that's right.

Q. The example is an intimate swab from a rape victim, if the rape victim says that there was only him or herself and perpetrator involved but the result comes back as three person, that is inconsistent with the version of events given by a complaint; is that right?
A. Yes, that's right. So that's an example where irrespective of the strength of evidence that's provided in the likelihood ratios, when you compare a reference to an evidence sample, just the very fact of the number of contributors being higher than what might be expected by one of the versions of events can have an impact on the case.

Q. Right. And that is - that's not the case for the likelihood ratio, that is a change in the number of contributors may not change the likelihood ratio very significantly?
A. That's right, and in many cases it won't change the likelihood ratio really at all. So, for example, in the case that we just looked at, that profile example, if you analyse that profile as coming from two people, the likelihood ratio that you obtained if you were to compare it, the evidence profile against a reference that matched that major contributor, wouldn't significantly change whether it was coming from two people or three people. So the strength of evidence wouldn't change in that case but stating that it came from either two or three people could be impactful to the case itself.

Q. Now, the sexual assault example might be an easy example to understand, but this could be relevant to other sorts of cases as well, is that right?
A. It's possible, yes.

Q. For example, a murder case and if an extra contributor is added on a swab taken from the victim's body, perhaps, it might suggest there was more people there, more people involved?

A. Possibly, yes.

Q. Or blood on a window sill for a burglary?
A. Yes.

Q. All right. Now, can we turn then --
A. I'll just add something on that topic.

Q. Yes?
A. It's not quite as obvious for those sorts of scenarios that you've just brought up simply because in the environment, in external environments you do tend to have background DNA that tends to be present on items. So the impact of that number of contributor assignment is not as great because there are other reasonable expectations of DNA being around, but I take your point that it could have an impact, it just wouldn't be as great.

Q. All right. And so the distinction you're drawing is between a window sill and an intimate swab like a high vaginal swab where you would not expect background DNA, as you describe it, you'd only expect DNA from people who have been there, if I can put it like that?
A. Yes.

Q. All right. So is it fair to say then that a concern has arisen for you about whether there is systemic widespread overestimation of contributors by the Queensland laboratory in sexual assault cases?
A. I think that that's a risk.

Q. All right. And that risk arises both from the Standard Operating Procedures and other documents and also from the review of the case files?
A. Yes, that's right.

Q. All right. But you're not able to say definitively whether that risk is something that's manifested on a widespread or systemic scale because of lack of time. If you reviewed 10,000 cases you could tell us, is that fair?
A. Yes, that's fair, but also I feel it would be, ideally there would be more than one person making that determination so that there's no, I guess, interpretational preferences playing into those opinions. So if there was two people both independently carrying out an assessment that would be ideal.

Q. So can we go to the recommendation now. Can we turn to p9 of your report, the next page, and lines 258 to 271. Could we expand that paragraph. So this is your recommendation to determine whether the risk you have identified has in fact come to fruition at the laboratory in a widespread way?
A. Yes.

Q. Because the risk has come to fruition in particular cases that you've reviewed, is that right?
A. That's right.

Q. So those cases, the risk has come to fruition, but the point of the recommendation is to see whether it's systemic or whether those cases are just are an unfortunate sample which turned up lots of overestimation?
A. Yes, that's right.

Q. All right. So you recommend an external review for swabs taken over the previous 12 months?
A. Yes.

Q. And all other cases that are currently unresolved before the courts?
A. Yes.

Q. Or with police, yes. All right. You confine the review to those where there's three or more people?
A. Yes.

Q. And those are the ones where there's most likely risk of overestimation?
A. Yes, and the cases where that assignment of a number of contributors may have an impact on how the information was heard or is going to be heard in court.

Q. All right. And then you say that ideally there'd be two people review each of those cases to determine whether there is overestimation in the particular case?
A. Yes.

Q. And the purpose of this review would serve two purposes, is that right, one is that it would identify whether there's a systemic problem with overestimation because it would be a wide sample size?
A. Yes.

Q. And the second would be to prevent a miscarriage of justice in the particular case, to correct an error if there is one?
A. Yes, that's right.

Q. All right. Can we zoom in then on paragraph 275 to the bottom of the page. Assuming the review is done, as you recommend, if there's no systemic over-assignment of number of contributors, then your review still will have prevented miscarriages of justice in particular cases?
A. Yes.

Q. All right. But there should still be a consideration of how those results are reported so that the uncertainty, the level of uncertainty about the number of contributors is clearly stated, is that right?
A. That's right, and also - so, for example, in the case, in the profile example that I looked at before, if the assessment from the independent review was that it was reasonable to have assigned three people to that profile, then the impact of saying that that profile has originated from three people might be able to be couched in some sort of language used in the DNA report that indicates that one of those people, if present, is very minor and very trace amounts and then perhaps, perhaps that impact of simply stating that it's from three contributors and giving no other contextual information would be lessened.

Q. I see, thank you. And then if there is a systemic over-assignment that could effect, as you say at line 284, any case from the Queensland laboratory which would be a wide scope?
A. Yes.

Q. And so you recommend effectively asking stakeholders, that is defence, prosecution, police to identify cases in which a review would be requested by one of them, presumably for the benefit of the case that they're running?
A. Yes, so at that point if there was systemic over-assignment that information would be presented to stakeholders and simply because it's not reasonable to re-review every profile and every case that's been resubmitted, I think the best way forward would be for, the stakeholders having been given that information, to then bring to Queensland Health any cases or any profiles that they think may have been effected that they want a

reassessment of.

Q. Thank you. And can we finally deal with just over the page on p10 at line 288 to 291, you recommend an ongoing monitoring of the performance of this issue where Queensland Health might every few years generate a set of low level mixtures and carry out a blind assignment so that an issue such as this would be picked up before it became too widespread, is that a fair reading of your recommendation?
A. Yes, it's almost like an internal proficiency, regular proficiency test of the analyst's ability to interpret the DNA profiles. It also has other flow on effects. For example, if there happens to be a drift in the performance of any particular instrument, then that would also be picked up in this kind of an exercise. So it has benefits to doing this, to carrying out this sort of exercise on a semi regular basis.

Q. Okay. That's the end of my questions. Is there anything that you wanted to add to your review or recommendations about the number of contributors issue?
A. No.

Thank you. Thank you, Commissioner. I'm not sure whether anyone else has any questions.

MR HUNTER: No questions.

MR RICE: No questions.

THE COMMISSIONER: Nobody else? No. Thank you very much, Dr Taylor, for your assistance today and also for all the work that you've done, it's been most helpful and it's very valuable.
A. Thank you.

Q. You're free to cut the link as soon as you wish or to remain, if for some peculiar reason you want to?
A. Thank you.

Thank you very much.

<THE WITNESS WITHDREW

MS HEDGE: Commissioner, that's all of the evidence in the public hearings.

THE COMMISSIONER: Mr Clarke and Mr Hunter, before I release everybody else, or say the matter's concluded, what's the position?

MR CLARKE: We haven't been able to agree on a position and so my client requires the Commission to hear its application.

THE COMMISSIONER: All right. I can do that. Anybody who is not interested is free to leave or remain as they choose.

We might take a ten minute break before you start and, Mr Clarke, your colleagues might arrange for you to have some room at the front of the Bar table so that you're in a better position. All right we'll adjourn to around 10 to five and see how we progress then.

SHORT ADJOURNMENT

THE COMMISSIONER: Mr Clarke, I might ask Mr Hunter some things first.

Mr Hunter, it seems to me that as a general proposition any document that's tendered in the Inquiry should be published unless there's a reason not to publish it or there are some matters in it that ought not be published. Would you agree that there ought to be a reason? I'm not saying there's an onus of proof upon you, but I'd have to satisfied of that.

MR HUNTER: Yes.

THE COMMISSIONER: And then we come to the - I'll use the form of order that Mr Clarke has put forward and really insofar as I made an order of this kind earlier I guess QP numbers shouldn't be of interest to anybody and there would be a reason not to publish them, I suppose, would that be right?

MR HUNTER: Yes.

THE COMMISSIONER: Then we get to names of any person that might identify case files or investigations the subject of - the case files or investigations and that must be taken to be case files and investigations that are open.

MR HUNTER: Yes.

THE COMMISSIONER: Now, what would be the reason not to permit the publication of names that might identify investigations that are open?

MR HUNTER: Well the difficulty is that there have been materials tendered before you that, and we're not able to categorise this at the moment, but there is potentially material relating to hundreds of separate investigations, some of which have resulted in charges, some of which may not have, and a lot of them will relate to sexual offences, and so there's considerable sensitivity from the police point of view about the potential for the publication of names of people in circumstances where what's required to identify which matters do or do not relate to sexual offences and which matters are or are not sensitive is --

THE COMMISSIONER: Let's put sexual offences to one side, because they've got special considerations.

MR HUNTER: Yes. If there's been a charge they have special considerations.

THE COMMISSIONER: But if they've been charged there are special statutory considerations.

MR HUNTER: Yes.

THE COMMISSIONER: If nobody has been charged, then if the statute hasn't been engaged there are still matters of sensitivity involved that are similar to the statutory regime. So let's put that to one side. If we exclude sexual offence cases, then we're really dealing with other serious offences involving violence of a person generally, weren't we?

MR HUNTER: Yes.

THE COMMISSIONER: And in that category is there any sensitivity on the part of police in terms of potential harm to anybody or prejudice to their investigations?

MR HUNTER: The difficulty is at the moment we don't know which of the matters that have been placed before you may or may not have those sensitivities. I can think of two significant matters that - one of which is currently before

the courts, one of which is now about to be before the courts.

THE COMMISSIONER: Now we can exclude ones that are before the court because I understand Mr Clarke's draft would exclude, would not permit publication, relevant publication of matters in that category.

MR HUNTER: Well, the matter concerning the murder of Miss --

THE COMMISSIONER: That's a case where, so it seems from the newspaper reports, a prosecution, an actual prosecution is imminent. So let's put that to one side because we can identify that case. So cases that are currently the subject of prosecution, Mr Clarke doesn't seek any access to that at all. Fine. The particular case you're talking about can be excluded itself. So then we get to ongoing current investigations, because investigations that are not current in the sense that they're not going anywhere, they've concluded and nobody is doing anything, that can't justify any exclusion, so they're current investigations, and what's the sensitivity there in general and specifically?

MR HUNTER: Well I can't give you any specifics because we don't know which they are because of the way in which the material has been provided to you. It would involve an exercise of going back and matching data to particular cases to identify what they're about.

THE COMMISSIONER: So how do you suggest I proceed?

MR HUNTER: This is why the terms of any order should, we'd say, effectively put the onus on the applicant to, if there is some material that they wish to publish, to confirm with us whether it is or is not the subject of a current investigation and if it is not, well then their publication would not be in breach of the order. The alternative would be for us to go away and go through every document that we've provided to the Inquiry and sort them into different categories and that's a particularly onerous task.

THE COMMISSIONER: That's right, QPS has got a lot of work to do at the moment in relation to this Inquiry and other things that are similar, but --

MR HUNTER: The other sensitivity I suppose is this, and that's in the general sense, that any information that has been given to the Inquiry is likely to be incomplete insofar as it relates to a particular matter and so it's troubling to my client that there might be public discussion of, for example, forensic aspects of a particular matter in circumstances where not all of the relevant material has been placed before this Commission and is therefore not available to the applicant and can I give you an example of that.

Dr Wright's evidence or the reports about Dr Wright's evidence showed that because Dr Wright didn't have access to all of the material concerning the sample material from the suspect's vehicle, the publication resulted in the laboratory being unjustly criticised in respect of a failure to identify DNA in what were probably not blood samples. So that's a concern that we have as well.

THE COMMISSIONER: But that's not a legitimate concern in the sense that I'm not suggesting it's legitimate to - let me start again. That's not a legitimate concern of QPS because if The Australian decides to write a story and it turns out that the implications in that story or the imputations in it weren't justified for whatever reason, that's not something that the QPS can stand up here and say, 'We want to prevent that'. We all want to prevent it. The Australian wants to prevent it.

MR HUNTER: We're concerned that it might have an effect upon any prosecution that might ensue as a result of the ongoing investigation.

THE COMMISSIONER: Well, that's always a possibility generally, isn't it, in that anything's possible. You see, I thought the position of QPS was a concern that there are an identifiable category, there was an identifiable category of information, the publication of which might impinge on investigations by, you know, blabbing about who they're looking for or something of that kind, and I could understand that.

MR HUNTER: Our problem is that that may be the case, we just don't know at the moment, because of the way in which information was sought and provided to the Inquiry. We have provided, as you will appreciate, thousands of pages of documents concerning a Forensic Register or case files

and so forth and so some of them may be in that category, some of them may be not. The vast majority probably not, but there may be some in that category and for us to identify or determine that --

THE COMMISSIONER: Your client would have to at least go through a sufficient number of documents to be able to identify examples of the kinds of things that you could then demonstrate if published might prejudice an ongoing investigation or cause prejudice or harm to something. At the moment it's a non-specific fear, which I don't suggest for a minute is baseless, I take it your client knows its business, of course, but it would be difficult to justify a general non-publication that something might happen but we don't know what, which is the position at the moment. What can you do, what can you and your client do within a reasonable time frame to identify the kinds of things that you're worried about so that Mr Clarke and his client can address it? Because at the moment they really can't - I'll be hearing submissions from Mr Clarke that all of this is general, nothing has been identified, and journalists are very careful and matters of that kind.

MR HUNTER: Excuse me a moment?

THE COMMISSIONER: Yes, please.

MR HUNTER: What we were minded to suggest is that rather than have the QPS undertaking the exercise of sorting through these thousands of documents to identify --

THE COMMISSIONER: Yes, that would be oppressive.

MR HUNTER: That any order be premised upon the basis that before there's any complication, the applicant raises the particular documents with the respondent and the respondent can indicate whether there is any sensitivity or whether the matter relates to a current or a --

THE COMMISSIONER: And how quickly could your client do that? Because what you're saying is not without precedent in litigation in which a party who wants to be at liberty to do something, but there's a risk of prejudice, is obliged to notify their opponent of something to allow the opponent to apply in most cases to a court to enjoin them. Here what you're suggesting is that they notify you that they want to disclose something to allow you an opportunity

to seek an non-publication order from me, but there are sensitivities in that because you're asking journalists to ask the subject of a story to vet a story. Well you're not asking for that, you're asking them to notify you that something will be revealed, not the story, but a fact will be revealed, so it's not that bad. Is that what you're asking for?

MR HUNTER: It's something along those lines and if time constraints are a concern then any order --

THE COMMISSIONER: They will be, I'm sure.

MR HUNTER: Yes, any orders could contain within them a limitation period within you have to respond and then if there's no response well then it can be taken that there's no objection.

THE COMMISSIONER: That's fine as an interim measure but in the end something more certain will have to be arrived at so that - because this Commission will end and the order will remain in place, but there won't be a Commissioner to make a non-publication order.

Let me hear from Mr Clarke and see what the practical approach is. You can take it that I'm proceeding on the basis that the impetus is in favour of freedom to publish, whatever the applicable principle might be, and that QPS ought to show a reason why there ought to be a no publication in any particular case or according to some rule that we write down, but on the other hand you may be aware that I've got tens of thousands of pages of documents, hundreds of thousands of pages of documents and QPS, like Queensland Health, have been entirely open, as they're obliged to be, without redacting anything and so there is a real risk that something might be published by your client that unintentionally has a prejudicial effect. So within the time available, between now and when your client wants to write stories, it's not possible for them to go in and redact what they claim to be unpublishable, so what do you suggest? I have to be satisfied, but then again I'm not going to leave things open so that there's a risk of prejudice, so what do you suggest, Mr Clarke, have you got a proposition?

MR CLARKE: Commissioner, my principal submission is that framework really puts the cart before the horse. Rather

than taking a blanket ban and it be on either my client or another media outlet having to bear the onus of bringing what in essence would be an application for an exemption --

THE COMMISSIONER: No, no, no. The onus would be on Mr Hunter to establish that you ought not publish something.

MR CLARKE: And so the framework around that in an ideal world, in my submission, would go something like this. The order could be made to simply withdraw the non-publication order at some time in the future, perhaps seven days or however long the QPS requires to formulate a view as to which particular specific matters they wish to be the subject of particular non-publication orders and in my respectful submission that's the ordinary course and what ought to --

THE COMMISSIONER: What are you proposing, that what happens?

MR CLARKE: What I propose is that there be an order that the non-publication order no.12, which is the one currently in force, be withdrawn.

THE COMMISSIONER: Yes.

MR CLARKE: But it only be withdrawn in, say, seven days from now, or whatever period the QPS requires so that there's not then a gap where there's no publication, no non-publication order at all in force, and the QPS use that time to identify the particular matters or particular evidence, that's it's not just the identifiers that may be the subject of non-publication orders, there may be particular evidence as well, and bring an application before the Commission, and that could be done on the papers, to avoid the Commission have to be reconvened.

THE COMMISSIONER: We can be reconvene, although it's desirable for hearings to be live-streamed, we don't have to have the whole business re-established, we can have a hearing that's in public.

MR CLARKE: Yes, those hearings will be on evidence. So the ordinary course, in my submission, that you would follow, and indeed needs to be followed in order to obtain a non-publication order, to satisfy the Commission that a

non-publication order ought be made is on evidence. So the Commission would be provided with evidence as to why in this particular case the balance of factors --

THE COMMISSIONER: All right. Let me put it back to you so I understand what you're saying; are you saying that I ought to make some kind of non-publication order today, one that's not as wide as Order No. 12, and that I should do it on the basis that we will resume in a period of time, at which time I will vacate that order unless I'm satisfied that it, or some other order, should be made, is that the notion?

MR CLARKE: Yes, on the basis of material provided by --

THE COMMISSIONER: Yes, on the basis of - that's so. By whatever means - I'm not a court - so by whatever means one would expect an affidavit of some kind, but in any event, I'd be informed, and you would be informed in the first instance, of the reasons why a particular order is justified. So absent an application for an order, the status quo would be the order lapses at that point.

MR CLARKE: Yes, and it might be, Commissioner, if such an application is filed, that my client doesn't take any objection to those particular specific orders that are sought.

THE COMMISSIONER: That's right, when you've got factual basis for it.

MR CLARKE: That's right, yes.

THE COMMISSIONER: And the draft order you submitted limits the non-publication to information --

MR CLARKE: Can I talk to it, Commissioner?

THE COMMISSIONER: Go on.

MR CLARKE: You've got now three copies of the draft order?

THE COMMISSIONER: Yes. Which one do you want me to look at?

MR CLARKE: The one I handed up this morning with the yellow highlight, the wording of that, as with the yellow

highlight, is a copy and paste from the current version of Order No. 12.

THE COMMISSIONER: Yes, that's right.

MR CLARKE: What at that seeks to do, that addition of the yellow highlighted wording, it seeks to limit it to case files or investigations that are the subject of current proceedings, and current proceedings in that context refers to proceedings current as of today, 25 November 2022.

THE COMMISSIONER: So we can add the other one that was in the papers today because it;s

MR CLARKE: I don't think so, because that's not a --

THE COMMISSIONER: You don't submit so, you submit it's not.

MR CLARKE: I submit it's not.

THE COMMISSIONER: Why's that?

MR CLARKE: Because it's not a prosecution in the relevant sense, as captured by this order.

THE COMMISSIONER: No, no, it isn't, but - anyway, we'll deal with that separately.

MR CLARKE: That can be tweets, and if the Commission is minded to included that --

THE COMMISSIONER: Let's deal with that separately.

MR CLARKE: Yes. On an interim basis I'm sure I can seek instructions on that as an interim basis, but if you're noting that will be subject to --

THE COMMISSIONER: Well, everybody's going to be writing about that case, sop there's no secret about that case.

MR CLARKE: The only thing that's not being reported on is the fact it's bee referred to in this inquiry, because it can't be.

THE COMMISSIONER: Yes. Let's talk about that later because it may be a nothing. Right? So what you're --

MR CLARKE: Commissioner, can I ask you to then have a look at the other copies provided.

THE COMMISSIONER: Yes.

MR CLARKE: There are slightly updated versions of that. There's one which shows some mark-ups just to be able to show the Commission what has changed from the existing version.

THE COMMISSIONER: Yes.

MR CLARKE: Then there's a clean version. You'll note immediately number 3 is struck out, and that's because nothing in the operation of (indistinct) --

THE COMMISSIONER: They're all not current.

MR CLARKE: That's unnecessary. It's just on - it should be then further amended to say "until" and date - "until" --

THE COMMISSIONER: Yes, I understand that. Let me have a look at it from that point of view. I'm not sure that that will do it, but I'll see what Mr Hunter says about it. Mr Hunter, the idea is that there be a refrain on publication until you're in a position - until a time within which it would be regarded as reasonable for your client to have come back with some specific propositions. So the first thing I'd ask you, if you think is a practical way to proceed, is whether I make an order of that kind, whether that's a practical way to proceed in the interim while your client has a think about it, never mind about the terms of the order for the moment?

MR HUNTER: I'm trying to ascertain --

THE COMMISSIONER: We can't determine this, it doesn't look like we're going to work out a system today.

MR HUNTER: I'm trying to ascertain the scale of the task.

THE COMMISSIONER: Yes.

MR HUNTER: And we understand that it's limited to things that have been tendered.

THE COMMISSIONER: Yes.

MR HUNTER: Although we note that the Commission's website doesn't as yet contain all of the exhibits that have been tendered.

THE COMMISSIONER: That's right.

MR HUNTER: There are still some that are yet to be uploaded.

THE COMMISSIONER: Yes.

MR HUNTER: We're concerned that a seven-day timeframe, I realise that's one of the terms, we realise a seven-day time frame is onerous, particularly bearing in mind our final submissions are due.

THE COMMISSIONER: That's right. But you're not going to be doing the vetting.

MR HUNTER: I'm not, but there are processes internally that need to be adopted by - the submissions need to go through the hierarchy as it were.

THE COMMISSIONER: Yes.

MR HUNTER: And my instructing solicitor, who would be predominantly the person doing the vetting, is also involved in that process.

THE COMMISSIONER: But the vetting isn't about legal issues, it's about police operational issues.

MR HUNTER: That's right, but nonetheless, as I understand it that's a task that will largely be supervised and done by her.

THE COMMISSIONER: Yes.

MR HUNTER: So that's a concern that we have whether seven days is sufficient. I'm reminded that there's a lot of Queensland Health documents that are also in the same category, so it's difficult right now --

THE COMMISSIONER: But that doesn't matter because what

you're looking at is not to identify specific things that you don't want published, although you might do that just by the way, it's to identify the kinds of things that you don't want published that can justify an order in terms that specify those kind of things. Isn't that right, or not?

MR HUNTER: That can only be done by looking at a document, for example, that contains QP number and a name, and then going back to the investigator and trying to work out what's going on with that particular matter, whether there's sensitivity about it, whether it's ongoing or it's finalised. It won't be apparent just by looking at a document that it is or is not in the category, there will be need to be a check to see what that QP number, for example --

THE COMMISSIONER: But the QP number, for example, ought not be of any interest to be published.

MR HUNTER: Agree, but that's sometimes in the documents the only clue that we have, all we have a QP number and perhaps a name of a person from whom a swab was taken, and that won't assist us, just by looking at it, to determine who the defendant is, what the investigation relates to.

THE COMMISSIONER: Yes. So how's your client going to identify what it is that's dangerous to publish?

MR HUNTER: We have to cross-reference the specifics in each document in Q Prime, and identify which case it is.

THE COMMISSIONER: But you're speaking about specific cases, I'm speaking about police investigators who would say, because this is a new problem that's arisen for those particular police, they would sit down with a pile of documents that have been tendered that contain details, and they ought to see that, "Well, we can't have this kind of thing published because this might happen. For example, to take a hypothetical case, "We don't want anything published about warrants that we have applied for and that have been granted to us that we haven't served yet. We don't want any information published that we have received, DNA results in particular cases that we're still investigating." And those ideas would pop out to them, and they could be made the subject of general propositions.

MR HUNTER: That's right, but the point I'm making is that there's really a two-stage process. The first is to identify which are the cases that are referred to in the myriad of documents you have, Commissioner, and then speak to the police involved.

THE COMMISSIONER: Yes, but I'm talking about the notion that would appear to an investigator, an experienced investigator not involved necessarily in any of the cases, who would then say "Well, we don't want these kinds of things published" - rather than, it wouldn't be practical in the time that remains in this Commission for me to expect you to identify specific matters in all the documents. They'd have to be categories of matters and those sorts of things should become apparent, and I might think that it's better to err on the side of caution and make each category, you know, make them wider rather than narrower. I don't know, I haven't heard from Mr Clarke. But that kind of work wouldn't take days hunt.

MR HUNTER: Just bear with me, Commissioner.

THE COMMISSIONER: And the other thing, just before you consult with your colleagues, is this, we don't have to do this with specificity today. There'll have to be something done today, if I change anything that doesn't foreclose the position for your client.

MR HUNTER: I understand that. Just bear with me.

THE COMMISSIONER: Yes. I'm sorry, what I mean is we can come back on Monday, we can come back on the weekend, if necessary, but we can come back on Monday to reformulate the interim position. So it's not everything today.

MR HUNTER: I understand. That sounds like a more workable solution.

THE COMMISSIONER: What do you propose? Articulate it for me, please.

MR HUNTER: That to the extent that interim orders are needed today, you make them. We're not sure that an interim order is required, although we apprehend from submissions that were made by our colleague that an order is sought that will permit publication of documents that relate to the matter that's in the news this afternoon. I

will make separate submissions about that. But that you allow us sufficient time to review the material, put together an affidavit that will exemplify the categories of matters about which we have concerns. We think that that could be done probably by the middle of next week, the second half of next week. That you hear the matter, then perhaps - if it's Thursday or Friday it won't be me, I'll be in Sydney.

THE COMMISSIONER: Well, what about the case, I just can't remember the name of it, so I'm not being coy, but the case that was on the front page of The Courier some time today, don't worry about the case because it doesn't matter, what you're talking about is revealing contents of documents in relation to the case.

MR HUNTER: Well, the reporting that I've seen today has all been completely anodyne, all it does is report the fact he's been apprehended and reiterates publicly known matters such as the fact that he allegedly absconded from Australia within a very short period of murder, leaving behind family members.

THE COMMISSIONER: Yes, yes.

MR HUNTER: And that's the extent of it.

THE COMMISSIONER: But a journalist can find out anything he or she wants and publish it within the law, but you're concerned about not permitting publication of the contents of documents relating to that case for the moment.

MR HUNTER: For the moment, because --

THE COMMISSIONER: There might be nothing there about the case that everybody doesn't know about, I don't know.

MR HUNTER: As I understood the evidence, and it's been a while now, but as I understood it, it was to the effect that there were samples of - it turned out to contain the deceased's own DNA --

THE COMMISSIONER: Yes.

MR HUNTER: -- that were initially either no DNA or DIFP, and that when they were reworked came back as being a

complete match to her. I'm not certain of this, but I don't recall seeing anything about the punitive defendant and his DNA. But I don't want to be dogmatic about that. My concern really is that if the reports are true that this man is in custody in India, then presumably there will be proceedings brought to extradite him to Australia, and I don't pretend to have any familiarity with Indian extradition law, beyond the fact that I know we have a --

THE COMMISSIONER: The position at the moment is that nobody else in the room - there might be a journalist who does know this - but nobody else in the room knows what might be in the documents that are very interesting to write a story about, and your client is intensely interested in a case and wants to ensure it's not prejudiced. So in relation to that case, subject to what Mr Clarke says, it might be right not to exclude the use of the documents. They can talk about the case, but the use of the documents is another thing, until your client's had a chance to look at it, which it might do as a matter of priority, I guess.

MR HUNTER: Obviously we're concerned that - I don't know what submissions might be made in an Indian court about the prospects of a fair trial in this country, but we're concerned that anything reported here --

THE COMMISSIONER: I'm obliged to proceed so as not to impinge upon a fair trial in this country, so the Indians shouldn't be too worried about what I do, I hope.

MR HUNTER: I'm not suggesting anyone's concerned about what you might do, Commissioner, I'm more concerned about an argument being made about prejudicial --

THE COMMISSIONER: Yes, but that argument will be made no doubt, but it won't be because of anything - anyway, let's not go there because it's outside our control, it's in the future. Can we get down to detail then? The current order is that subject to limited exceptions nothing be published - references to QP numbers and names and contact details, and names of police operations, and details that may identify investigations, that is details that might identify the existence of an investigation by police that are found in documents are to be published. That seems to me to be very wide, but is that what you want until say Monday when you've got a clearer picture? I don't mean

you'll do your work by Monday, but your client will have had a chance to think about things and talk to you, and you can come back with something with some more detailed propositions.

MR HUNTER: Thank you.

THE COMMISSIONER: How does that sound, Mr Clarke? I know it's unsatisfactory, but on the other hand your client's had since September to complain about the order and hasn't.

MR CLARKE: Yes, that's so. Monday, I'm instructed, is fine. In respect of that particular example, I'm instructed that there isn't anything in the material, other than as described by my learned friend. But in terms of the interim position, just with respect to that case, and I don't purport to be an expert on extradition law in India either --

THE COMMISSIONER: Forget about that.

MR CLARKE: The current broad terms prevent the identification, not just the reporting of evidence before the Commission with respect to any particular --

THE COMMISSIONER: The current terms are - oh, I see, that are - names that are contained in documents must not be published.

MR CLARKE: That's so.

THE COMMISSIONER: No, I understand. It's because I did extempore.

MR CLARKE: Yes.

THE COMMISSIONER: All right. Well then, it has to be changed to the extent that you will - this governs everybody, of course, and it's been ignored. So there we are.

MR CLARKE: Well, it's been adhered to, as I understand it, names haven't been identified - in my --

THE COMMISSIONER: Well, I think the man who's been identified in India's been identified, I don't know if he's named in the documents or not. Anyway.

MR CLARKE: That's so. That's so, but Commissioner, what this limits is the publication of evidence given before this Commission with respect to that, it doesn't purport to extend beyond its bounds, and purport to regulate a publication of things in relation to cases or evidence outside the Commission. So that report, for example, all it does, and all that's missing is the sentence at the end of the report which says "And reader, this is FYI one of the cases that's been referred to in the inquiry", and that's absent.

THE COMMISSIONER: But that's not a case or detail in a document tendered during public hearings.

MR CLARKE: My understanding of the current form of the existing non-publication Order 12 is that in its effect it prevents the identification of cases before the Commission, and so a publication which said on the basis of, using the example we're talking about, if a media report was written about that and there was a sentence in it that said, "And reader, FYI this is a case that's been referred to in the Commission Inquiry", then that would offend this non-publication order, is my understanding of the effect of it.

THE COMMISSIONER: It's one way of reading it, and so you should be concerned about that, rightly. So what do you suggest I do?

MR CLARKE: Outside of --

THE COMMISSIONER: Just let me put this to you, all right?

MR CLARKE: Yes.

THE COMMISSIONER: I'll keep the current order in place until Monday afternoon, and subject to some kind of obviously rational exception in relation to this recent case that doesn't preclude your client feeling that there's any risk of contravening this order by writing whatever your client wants to write about the case, but not to reveal the contents of documents. How does that sound?

MR CLARKE: As an interim measure, that's acceptable.

THE COMMISSIONER: Interim measure, yes. So why don't you

draft something in relation to that last proposition and show Mr Hunter, and I'll wait while you do it, and I'll make the - I'll leave the order in place but on the understanding that at a time convenient to both of you we can reconvene in whatever courtroom I'm given to use, and we'll see where we stand. How's that?

MR CLARKE: Thank you, Commissioner. Monday afternoon I think is suitable to us.

THE COMMISSIONER: All right. 1I'll withdraw while you draft a third exception in paragraph 3 relating to that particular matter which ensures that the only thing you can't do is to reveal the contents of documents as contents of documents. Well, you understand what we're talking about, don't you?

MR CLARKE: Yes.

THE COMMISSIONER: All right. I'll adjourn until I hear from you.

SHORT ADJOURNMENT

THE COMMISSIONER: I understand you don't need me to do anything this afternoon, is that right?

MR CLARKE: Yes. Commissioner, I've taken further instructions and, yes, my clients just require some time to carefully review the evidence and that will take until Monday.

THE COMMISSIONER: Good. Now, Mr Clarke, Mr Hunter, I thought that I should tell you that one - the proposition that I think is applicable is this. I've compelled police to reveal documents for the purposes of this Inquiry. The full content of a particular document, say a case file, is not material to my Inquiry, there are particular parts of it that are particular to my Inquiry, and those are the parts that I require and in relation to which a question will arise whether it's in the public interest to restrain publication about those matters.

In relation to the rest of the document which is not relevant to my Inquiry, except that it is a case file and so one can't ignore that it's a case file that contains a matter, I don't think it's right to regard the fact that

those other parts of a document that have had to be disclosed as part of what I'm actually interested in fall within the same category as the information that I'm actually using. The information that I'm actually using prima facie ought to be available to the public as part of the nature of a Commission of Inquiry, but the information that I'm not using is not in the same category and consequently the power that I had to compel production of documents generally, including matters irrelevant to my Inquiry, can't be regarded as a de facto right to information process.

So insofar as, for example, evidence was given reliant upon documents that particular DNA tests in a murder investigation failed and then a particular DNA test in relation to the same murder investigation succeeded, and that there was a particular murder investigation, are matters that are central to the task of the Inquiry and ought prima facie be capable of publication. But they will be information in relation to that particular case that just happened to have been disclosed because it's impossible not to disclose it to me and those things might be of great public interest generally, but not because of my Inquiry. So I don't know that the same considerations apply to them.

I formed my final view about that, but that sounds right to me. So you might both bear that in mind in case it comes to a point where I have to make a decision.

And, Mr Clarke, thank you for the cases. And they do reflect the general proposition about open justice, but I don't think that they, those principles referred to by Justice McHugh, for example, are directly applicable to me because I'm not a judge and I'm not administering justice. I'm a Commissioner of Inquiry, an agent of the executive conducting an investigation, so the extent to which I have to proceed in a particular way depends upon the statute and the common law relating to fairness and so on, that apply to investigations conducted by the executive which are different from - different but in some way analogous to courts of law, but they're different, so the concepts are different.

So if it comes to argument you might take that into account and see whether there are principles that you find in the cases that pertain particularly to Commissions of Inquiry

as opposed to judges who are in a much more stringent requirement of openness.

Thank you. We'll adjourn then until - well, we'll adjourn, and if required we'll reconvene at a time that you fix.

AT 5.49 PM THE COMMISSION ADJOURNED