STATEMENT OF PAULA MICHELLE BRISOTTO

I, Paula Michelle Brisotto, care of Queensland Health Forensic and Scientific Service, Team Leader Evidence Recovery and Quality Team, Forensic DNA Analysis, do solemnly and sincerely declare that:

1. I am employed by Queensland Health Forensic and Scientific Service ('QHFSS').

2. I hold a Bachelor of Science from Griffith University, and a Master of Science in Forensic Science from Griffith University.

3. This statement is in response to Notice 2022/00338 and supplementary to my statement dated 25 November 2022.

4. In addition to those matters contained in my statement of 25 November 2022, I add:

   a. From the "*QPS_external Communication_Issues log_Current*" (**QPS Log**) spreadsheet, an entry dated 7 July 2008 refers to ethanol vs water, and a comment entered in response by Emma Caunt refers to a meeting with QPS on 16 July 2008 to discuss "many issues". I am uncertain what was meant by "many issues". A copy of the entry is below:

7/07/2008	Whilst delivering items to property point a scientific officer requested to speak to a scientist to discuss item prioritization. Also, sub-sampling was raised and since nothing has been formally discussed in DNA Analysis re tubes and holes in tubes and ethanol vs water etc it was difficult to field his questions. Should I have deferred to the Sampling/Liaison Managers in both instances?	IM	All	With hindsight this would probably have been the best thing to do. EJC will be meeting with QPS on 16th July to discuss many issues and will feedback to DNA analysis to prepare them for such queries.	EJC	Ongoing

   b. An entry dated 20 February 2012 in the QPS Log from Justin Howes advises Queensland Health (**QH**) would take the same ethanol (**EtOH**) swabs they would take to sample a syringe.

20/02/2012	Spoke to Vicky from Inala SOC who asked if a syringe was only required for trace on the depressor, would it need to come to QH? I said happy to take the item and that we would take the same EtOH swabs they would take, but we use a kit to examine syringes and would be	JAH

   c. An entry in the QPS Log dated 18 May 2012 from Adrian Pippia similarly comments on using ethanol swabs to sample an item:

[redacted] [redacted]

Paula Michelle Brisotto Witness

deceased male. It is further alleged that the victim has had a child as a result of the rape. Not reference samples have been obtained (no autopsy conducted) for the suspect. Unable to perform a reverse paternity given no biological children . Jay has informed me that the deceased has a mother and 2 sibling still alive.
I have discussed a familial calc with Jay and that due rules inheritance it would not provide the true DNA profile for the deceased suspect
15/03/2012 and that the best option for trying to obtain a profile for the deceased would be to obatin medical samples. If no medical samples are AAP

d. From my understanding, the draft document referred to in the previous statement titled "*Recognition, recording, recovery and storage of physical material for forensic purposes*" (refer to PB175 exhibited to my statement of 25 November 2022) became the Australian Standard AS 5388.1 – 2012 *Forensic analysis, Part 1: Recognition, recording, recovery, transport and storage of material*. I do not have access to AS 5388.1, however I understand the table referencing the use of 70% ethanol or distilled water to collect DNA in the field is present in the published version as it is in the draft version:

DNA	*Any material that requires DNA analysis should not be sealed in plastic bags for long term storage unless completely dry. Objects may be themselves collected or may be swabbed in the field with 70% ethanol or distilled water. Tapelifts may be a suitable alternative to swabs.*

5. I have also located the following documents:

a. an email from Lyza-Jane McMenz of QPS to Justin Howes and Cathie Allen dated 7 March 2008 (refer to **PB179** exhibited to this statement);

b. an email from Lyza-Jane McMenz of QPS to Emma Caunt dated 10 September 2008 (refer to **PB180** exhibited to this statement);

c. minutes of a meeting with QPS on 1 July 2008, which I did not attend (refer to **PB181** exhibited to this statement);

d. minutes of a meeting with QPS on 16 July 2008, which I did not attend (refer to **PB182** exhibited to this statement);

e. resolutions from a QHSS-QPS meeting (refer to **PB183** exhibited to this statement).

DNAIQ FOR MAXWELL

6. In relation DNAIQ for Maxwell, the validation was presented at the ANZFSS Symposium in 2012 and the validation reports were provided to or reviewed by NATA

[redacted]
Paula Michelle Brisotto

[redacted]
Witness

in the 2012 reassessment visit. The experimental design and conclusions put forward by the project team were endorsed by the Management Team at the time, which included me.

7. As per the Project #70 report "*Phase 1 Report - Verification of Promega DNA IQ for the Maxwell 16*",[1] the double elution implemented for the Maxwell Instruments increased the DNA yield.

8. The report states:

   a. under "*6.1 Experiment 1 – Suitability*":

      "*Suitability studies were carried out to compare DNA yields (ng) between manual DNA IQ™ and DNA IQ™ extraction on the Maxwell®16 using both the current in-house pre-lysis method and the Promega pre-lysis method.*"

   b. under "*7.1 Suitability*":

      "*The relatively low yield noted with the Promega pre-lysis method coupled with extraction on the Maxwell®16 MDx compared with the routine manual DNA IQ™ procedure was possibly due to the difference in elution volume (the manual method uses a "double elution" method resulting in 100µL of eluent, the standard Maxwell®16 MDx protocol results in a 50µL elution).*

      To improve yield values and bring this process in line with manual DNA IQ method small modifications were made to the published protocol in the Promega Technical Manual (refer section 5.2 above). This protocol was revised to include;

      - *combining Proteinase K and DTT into the initial extraction buffer before adding to each sample, and,*
      - *an increase in the final elution volume from 50µL to 100µL.*"

[1] FSS.0001.0001.0084

[redacted]

Paula Michelle Brisotto

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BONES

9. The bleach and ethanol cleaning process for equipment is listed in SOP 22857 "*Anti-contamination Procedure*".[2] SOP 22857 says:

"*Instruments in contact with exhibits/samples (including scalpel handles, forceps and scissors) are dipped in 0.5% w/v bleach, wiped with a rediwipe and then flamed in 100% ethanol between items.*"

10. The use of ethanol and bleach to clean bone equipment was not a move to a new process, rather a standard process utilised in the laboratory for equipment.

11. SOP 34300 "*Examination of post mortem and associated samples from deceased persons*"[3] for the examination of bones requires the equipment (including chisels) to be cleaned prior to and after sampling:

"*8.2.1 Chisels, hammers and chisel blocks*

Prior to and after use: Chisels, hammers and chisel blocks need to be thoroughly cleaned with bleach and ethanol. Viraclean can also be used.

Maintenance: If the chisel requires sharpening after use, wet the sharpening stone with water and sharpen tip, rinse with water, and dry. The chisels should be replaced with new ones if the metal surface becomes rusty or eroded, or if the tip can no longer be sharpened sufficiently. Note: To avoid injury, be very careful when handling sharp chisels."

12. The chisels have not been identified as a cause of concern, and an OQI relating to this issue is still underway.

13. A project currently in progress is Project #233 "*Bone Sampling and Demineralisation Protocol*". The experimental design is currently in draft; however it proposes use of a demineralisation protocol derived from the protocol used by the International Commission of Missing Persons (**ICMP**). The ICMP Standard Operating Procedure for Sampling Bone and Tooth Specimens from Human Remains for DNA Testing at

[2] FSS.0001.0053.1279, version 11.
[3] FSS.0001.0053.1054.

[redacted]
Paula Michelle Brisotto

[redacted]
Witness

the ICMP (reference ICMP.SOP.AA.136.2, dated 16 February 2015) states the following:

V. **Reagents and Supplies**

Required reagents include:

- Solution of water with 10% commercial bleach – to clean and sterilize saw blades to prevent contamination between samples;
- Absolute ethanol – to assist in drying samples;

- Wash grade ethanol (70% ethanol) – to clean saw blades to prevent rusting.

Y-STR PROCESSING

14. Y-STR was already a standalone project and was not linked to Project #181, nor did it rely on the outcome of Project #181.

15. An initial Y-STR project commenced in 2015 with Project #152. This was a partial validation. Project #189 aimed to complete the partial validation of Yfiler™ Plus, with a draft project plan dated May 2018. A project finalisation report for #189 was signed by the Management Team in April 2019, which closed the project as below:

> New purchases of equipment since the first in house validation experiments (QuantStudio™ 5 Real-time PCR system, ProFlex™ PCR system and 3500xL Genetic Analyzer) in conjunction with a new national consensus in both minimum validation requirements and recommendations for statistical interpretations of YSTR profiles indicate that further work beyond the scope of this project is required.
>
> Discussions between project members and the Senior Scientist for Quality and Projects resulted in the mutual agreement that this project should be finalised and a new project created to cover the new validation that will be performed.

16. Further validation work on Yfiler™ Plus is being performed under Project #206, currently underway with the project team consisting of Kylie Rika and Thomas Nurthen.

17. Detection of sperm is still widespread scientific practice, with other jurisdictions currently performing microscopy to detect the presence of sperm. It is currently still

the most accurate test for confirmation of the presence of sperm. According to the BSAG Method and Instrument Details spreadsheet,[4] all labs that responded do microscopy for semen and differential extraction including those that currently do Y-STR profiling.

18. I understand that at the recent ANZFSS Symposium held in September 2022, at least two submissions for presentations discussed the detection of spermatozoa microscopically, one each from ESR and FASS.

19. Y-STR profiles are not only found in spermatozoa cells, but all cells from a male donor. Y-STR profiles may also match several generations of males due to inheritance down the male lineage, therefore differential lysis and spermatozoa detection are of benefit due to the higher discriminatory power of autosomal STR typing. Y-STR profiling is considered additional to autosomal STR typing.

20. An additional relevant consideration is database matching. As per the experimental design for Y-STR's, the National Criminal Investigation DNA Database (**NCIDD**) is used to store and match autosomal DNA profiles only. The NCIDD Integrated Forensic Analysis (**NIFA**) is used for familial matching. Y-STR haplotypes can only be loaded to NIFA.

21. In November 2022, the submission of Project #181 was recommended for publication in the Australian Journal of Forensic Sciences. Below is the email Chelsea Savage received from the Australian Journal of Forensic Sciences on 9 November 2022, which she then circulated to me, Matthew Hunt, Allan McNevin, Emma Caunt and Kirsten Scott:

-----Original Message-----
From: Australian Journal of Forensic Sciences <onbeha[redacted]
Sent: Wednesday, 9 November 2022 12:35 PM
To: Chelsea Savage <[redacted]d.gov.au>
Subject: Australian Journal of Forensic Sciences - Decision on Manuscript ID TAJF-2022-0125.R1

This email originated from outside Queensland Health. DO NOT click on any links or open attachments unless you recognise the sender and know the content is safe.
08-Nov-2022

Dear Dr Savage:

Ref: Improving the Detection of Spermatozoa Microscopically from Routine Sexual Assault Examinations

[4] QHE.0106.0067.0001.

[redacted]....
Paula Michelle Brisotto

[redacted]
Witness

Our referees have now considered your paper and have recommended publication in Australian Journal of Forensic Sciences. We are pleased to accept your paper in its current form which will now be forwarded to the publisher for copy editing and typesetting. The reviewer comments are included at the bottom of this letter.

You will receive proofs for checking, and instructions for transfer of copyright in due course.

The publisher also requests that proofs are checked and returned within 48 hours of receipt.

Thank you for your contribution to Australian Journal of Forensic Sciences and we look forward to receiving further submissions from you.

Sincerely,
Associate Professor Daniel Franklin
Editor in Chief, Australian Journal of Forensic Sciences [redacted]

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author
The authors have addressed the issues raised satisfactorily, hence the manuscript should be accepted for publication.

3500xl VALIDATION

22. There were a number of projects that involved the assessment and/or validation of 3500xL, including Project #145, Project #177, Project #182 and Project #186 (refer to **PB184** exhibited to this statement).

23. Project #186 was commenced to combine the results from Projects #145 and #177 as a complete validation of 3500xL. I endorsed the final report along with the Management Team and the Managing Scientist between 20 September 2019 to 1 October 2019.[5] This project superseded Project #182, which was subsequently closed.

24. I did not endorse the report titled "*3500xL Genetic Analyzer Validation for Extracted Reference Samples Amplified with Powerplex 21*"[6] (FSS.0001.0026.0606, Exhibit 87.7) which was endorsed by the Management Team and the Managing Scientist between 2 and 3 July 2015 as I was on maternity leave at this time.

25. Project #230 was also commenced for the implementation of 3500xL PP21 Casework.

26. I provided feedback to the Decision Points circulated by Justin Howes.[7]

[5] FSS.0001.0006.4174.
[6] FSS.0001.0026.0606, Exhibit 87.7.
[7] WIT.0004.114.0012-00.13

[redacted] ...
Paula Michelle Brisotto

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Witness

OTHER

27. In October and November 2018 I experienced significant personal stress as a result of health issues. Around this time, I was referred to a haematologist for blood test results, which culminated in a bone marrow biopsy on 8 November 2018 as a well as a number of medical appointments. I had minimal time off work outside of attending day surgery or medical appointments, however understandably was quite anxious with concerns external to the workplace throughout this period.

TAKEN AND DECLARED before me at Brisbane in the State of Queensland this 30th day of November 2022.

[redacted].....

Paula Michelle Brisotto

[redacted].....

Witness ALLISON KATHLEEN LLOYD
C. Dec.

COMMISSIONER FOR DECLARATIONS
QUEENSLAND GOVERNMENT
Reg.No.: 107940
DEPARTMENT OF JUSTICE QUEENSLAND

[redacted].....

Paula Michelle Brisotto

[redacted]

Witness

EXHIBIT INDEX

Exhibit	Document Title	Pages
PB179	Email from Lyza-Jane McMenz of QPS to Justin Howes and Cathie Allen dated 7 March 2008	10-12
PB180	Email from Lyza-Jane McMenz of QPS to Emma Caunt dated 10 September 2008	13-19
PB181	Minutes of a meeting with QPS on 1 July 2008	20-25
PB182	Minutes of a meeting with QPS on 16 July 2008	26-31
PB183	Resolutions from a QHSS-QPS meeting	32-35
PB184	3500 CW Projects – Summary and Closure	36

[redacted]

Paula Michelle Brisotto

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PB179

From: [redacted]
To: [redacted]
Date: Friday, 7 March 2008 10:12 am
Subject: Swabs/Tubes

Hi Justin

I have informed Inspector Neville of the plan to go to "off deck" extraction and explained that the lysis buffer will be added directly to microcentifuge tubes. I have recommended the 4N6 system due to it being one of the only swabs available on the market that comes individually wrapped with a 2ml lock cap evaporative lid and is certified as Human DNA-, DNAse-, RNAse and PCR inhibitor free. I have sourced another tube that is individually wrapped that is free of pyrogen, RNAse, DNase and ATP individually packaged. Would 1.5ml or 2ml tube be more suitable? Can you pass onto me details of whom I need to liaise with in regards to validate the flocked swabs? I envisage that we could have this implemented in April if all goes well. We will not be able to get new labels for approximately 6months.

Kind regards

Lyza-Jane McMenz

Research Officer

Forensic Standards Unit

Forensic Services Branch

Quality Management Section

Queensland Police Service

Ground Floor, Headquarters

200 Roma Street

Brisbane

QLD 4000

' 07 [redacted]

; [redacted]

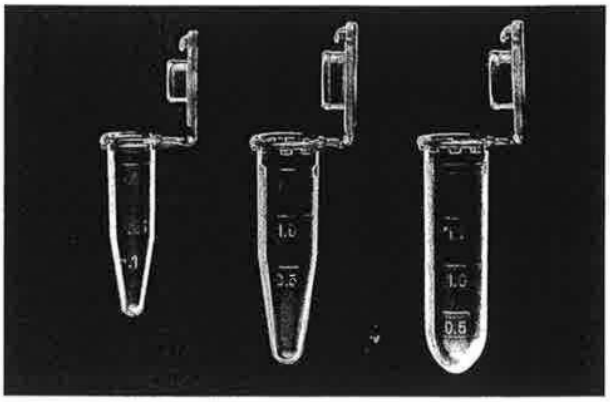
7 07 [redacted]

Safe-Lock Tubes

IVD conform

Product features

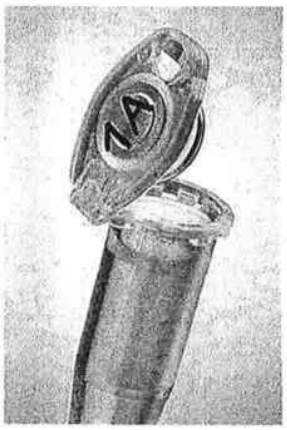
- A small hook on the hinged lid clips around the rim of the test tube
  - The lid hook prevents the tube from opening accidentally (e.g., during heating)
- Tubes can be autoclaved when open (121 °C, 20 min)
- Can be easily and single-handedly opened
- Frosted labeling surfaces
- Excellent mechanical stability during centrifugation:
  - up to 30,000 x g for 0.5 and 1.5 ml tubes
  - up to 25,000 x g 2.0 ml tubes
  - 70,000 x g possible in form-fitting rotor
- Graduation scale
- Safe-Lock Tubes are available in Eppendorf Quality, Eppendorf Biopur and PCR clean purity levels



- **Now even safer! Safe-Lock tubes (0.5 ml and 1.5 ml only) are rated up to 30,000 x g**

Description

The hinged lid on Eppendorf Safe-Lock microcentrifuge tubes eliminates any danger of leaks. Safe-Lock tubes ensure absolute safety when working with expensive or toxic samples, radioactive substances or DNA. All tubes have volume markings and labeling marking surfaces.



- A needle placed through the thin membrane in the middle of the lid allows the aerosol-free removal of biohazardous substances

More information on PCR tubes and plates begins at page 199.

Ordering information

Volume	Order no. 0.5 ml	Order no. 1.5 ml	Order no. 2.0 ml
Safe-Lock Tubes	**per 500 pcs.**	**per 1,000 pcs.**	**per 1,000 pcs.**
Colorless	0030 121.023	0030 120.086	0030 120.094
Amber (light protection)	0030 121.155	0030 120.191	0030 120.248
Blue	0030 121.139	0030 120.175	0030 120.221
Green	0030 121.147	0030 120.183	0030 120.230
Red	0030 121.120	0030 120.167	0030 120.213
Yellow	0030 121.112	0030 120.159	0030 120.205
Assorted colors*1	0030 121.708	0030 121.694	0030 121.686
Safe-Lock Tubes, Eppendorf Biopur	**per 50 pcs.**	**per 100 pcs.**	**per 100 pcs.**
Individually packaged	0030 121.570	0030 121.589	0030 121.597
Safe-Lock Tubes, PCR clean	**per 500 pcs.**	**per 1,000 pcs.**	**per 1,000 pcs.**
DNA-, DNase-, RNase-, PCR inhibitor-free	0030 123.301	0030 123.328	0030 123.344

*1 100 each of 0.5 ml tubes and 200 each of 1.5 and 2.0 ml tubes, includes colorless, blue, green, red and yellow.

PB180

From: <[redacted]ld.gov.au>
To: <[redacted]>
Date: 10/09/2008 11:11 am
Subject: RE: FW: blood swabs Ethanol v Water?

Sorry Emma,

No, 2 separate but related issues....I have tried to find the paper and wondered if QHFSS has a copy of this paper as I got the limited reference details of a QHSS court reference document that someone sent to me back in 2003.

Paragraph one relates to the e-mail correspondence that I have forwarded to you.

Hope that makes it a bit clearer.

Lyza-Jane McMenz

Research Officer

Forensic Standards Unit

Quality Management Section

Forensic Services Branch

(+61 +7 [redacted]

7 +61 +7 [redacted]

:[redacted]

From: Emma Caunt [[redacted]
Sent: Wednesday, 10 September 2008 10:42 AM
To: McMenz.Lyza-JaneM[OSC]
Subject: Re: FW: blood swabs Ethanol v Water?

Hi Lysa

Have you attached the wrong email to your comment as the two don't match up? Do you want me to try to find the paper mentioned in paragraph 2?

Emma

>>> <[redacted] 10/09/2008 10:11 am >>>

Hi Emma,

I am seeking your advice in relation to below. I was going to respond to the said officer that with visible stains there should be evidence of transfer. My thought is that perhaps they are letting the swab dry out when using 70% ethanol. I have spoken to other SOCOs who have been using the flocke swab with ethanol and they said they were still getting visible transfer. Perhaps this uptake of dry blood and surface types can be considered with testing the ethanol vs. water project.

I have a QHFSS 2003 Court Folder □ Reference Database Document, do you still utilise this list, if so could I get a current list? On this list is a paper that I cannot find, Pearson, K L et al. An evaluation of different solvents in the collection of skin cells for scientific analysis. (?? NIFS Publication? Year) Perhaps QHSS has a copy of this reference somewhere that I could get a copy of?

Thanks again for your help.

Lyza-Jane McMenz

Research Officer

Forensic Standards Unit

Quality Management Section

Forensic Services Branch

(+61 +7 [redacted]

7 +61 +7 [redacted]

:McMenz.Lyza-JaneM@police.qld.gov.au

From: Neville.DavidH[OSC]

Sent: Wednesday, 10 September 2008 9:16 AM
To: McMenz.Lyza-JaneM[OSC]
Subject: FW: blood swabs Ethanol v Water?

Can you ask QHFSS about this

From: Livermore.DarylG[NCR]
Sent: Wednesday, 10 September 2008 8:48 AM
To: Neville.DavidH[OSC]
Cc: McMenz.Lyza-JaneM[OSC]
Subject: RE: blood swabs Ethanol v Water?

That□s great.

So when sampling visible blood stains should the troops be concerned if there is no visible sample on the swab, or can we presume it has collected enough material?

D.G.LIVERMORE

Senior Sergeant [redacted]

Officer in Charge.

Scenes of Crime, Sunshine Coast District

Ph: (07) [redacted] Fax: (07) [redacted]

[redacted]

From: Neville.DavidH[OSC]
Sent: Tuesday, 9 September 2008 3:54 PM
To: Livermore.DarylG[NCR]
Subject: FW: blood swabs Ethanol v Water?

Daryl

I hope that this answers your question. See below.

From: McMenz.Lyza-JaneM[OSC]
Sent: Tuesday, 2 September 2008 11:54 AM
To: Neville.DavidH[OSC]
Subject: RE: blood swabs Ethanol v Water?

The question of ethanol vs water for collecting samples.

70% ethanol is traditionally used in biology as it has sterilization/anti-septic properties. 70% is the optimal concentration as the water helps the ethanol to penetrate through cellular membranes. In terms of forensic biological sampling it assists in minimising bacterial contamination. Scientifically, if sterile water is being used there is no reason to use one or the other. I am trying to get a copy of the reference paper that QHFSS base there procedures on. The only consideration is the ability for the sample to dry due to the fact that we are packaging the sample into a 2ml tube with a small hole for evaporation. In conjunction with Emma at QHFSS, I will organise to conduct a trial in FNR and CR testing the mould/bacterial growth rate, the project is yet to be developed and was discussed at a sampling meeting held a short while ago.

The extraction method used by QHFSS is such that only a small sample is required especially if the stain is a visible stain, i.e. blood fabric 0.5cm2 (up to 2 squares), less is best. When sampling blood the procedure states to use either water or ethanol. If there are drying issues use ethanol.

Lyza-Jane McMenz

Research Officer

Forensic Standards Unit

Quality Management Section

Forensic Services Branch

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7 +61 +7 [redacted]

:[redacted]

From: Neville.DavidH[OSC]
Sent: Monday, 1 September 2008 11:49 AM
To: McMenz.Lyza-JaneM[OSC]
Subject: FW: blood swabs Ethanol v Water?

Please provide advice in relation to this issue as a matter priority. I also need you to provide an update on

the rape kits and tape lift kits.

From: Livermore.DarylG[NCR]
Sent: Monday, 1 September 2008 9:33 AM
To: Crick.CharlesW[OSC]
Cc: Baker.PaulL[OSC]; Pilotto.AndrewT[SER]; Brand.John[NCR]; Neville.DavidH[OSC]; Carstensen.AnthonyL[OSC]
Subject: FW: blood swabs Ethanol v Water?

Gents,

Could it be we are looking for a visual stain when sampling blood as we always have done, but now don□t have to?

Bill,

Is it better to use the new swabs and Ethanol to collect a sample regardless of the fact there is no visible stain? Obviously the concern of the hunters and collectors is we are not getting a sample.

Does the ethanol actually extract the DNA better even though there is nothing to see; or should we be using water on blood?

Regards.

D.G.LIVERMORE

Senior Sergeant [redacted]

Officer in Charge.

Scenes of Crime, Sunshine Coast District

Ph: (07) [redacted] Fax: (07) [redacted]

[redacted]

From: Bland.JohnE[NCR]
Sent: Monday, 1 September 2008 8:59 AM
To: Livermore.DarylG[NCR]
Subject: RE: blood swabs

I had the same trouble at a job yesterday. It appears the ethanol is fine on smooth surfaces like glass but on concrete it doesn□t assist at all. Perhaps this could be the issue that A/Insp PILOTTO was referring to when he said his troops were having trouble getting enough blood on the new swabs.

From: Livermore.DarylG[NCR]
Sent: Monday, 1 September 2008 8:33 AM
To: OIC SOC Maryborough; OIC SOC Bundaberg; OIC SOC Gympie; OIC SOC Redcliffe; SOC Sunshine Coast
Cc: Brand.John[NCR]; Baker.PaulL[OSC]
Subject: blood swabs

We have had some trouble here trying to collect blood samples using ethanol. It seems the ethanol will not □wet□ the blood to collect a sample. We have had to resort to water for blood.

Has any one had similar problems? Perhaps the procedures will have to be reviewed.

D.G.LIVERMORE

Senior Sergeant [redacted]

Officer in Charge.

Scenes of Crime, Sunshine Coast District

Ph: (07) [redacted] Fax: (07) [redacted]

[redacted]

This footnote also confirms that this email message has
been checked for the presence of computer viruses.
****

****

****

Meeting with QPS regarding changes to workflow from 1 July 2008

Location: QPS Headquarters
Date: 17th July 2008
Attendees: VKI, JAH, CJA (FSS, DNA Analysis)
Michael Keller, Troy O'Malley, Dave Keatinge, Andrew Stanley, Lyndon Smallwood, Brad Hall (QPS, FSB)

Discussion Point	Information/Agreed outcome	Action (and by)
Sub sampled item packaging (in CS envelope?)	Samples in tubes will be submitted in crime scene envelopes. QPS looking at reducing size of envelope but window will remain.	
Will envelope details be photographed and envelopes discarded as per current V/C procedures?	Agreed FSS will photograph envelopes and discard packaging as per current volume crime swab procedures for all sub samples submitted (volume and major crime)	FSS to ensure current procedure expanded to include all relevant samples by 1 July 2008.
Will items like cig butts, food, i.e. small items that are not tape lifts or swabs be sub-sampled?	Cig butts will be submitted as whole items to FSS. Food will be sampled by QPS. FSS advised best approaches is swabbing for hard food items, sampling directly for soft food items. Syringes, sanitary pads, tampons, condoms and chewing gum will be delivered to FSS for examination and sampling. Spitting cases – if collected by SOCO, most likely will tape lift or swab, therefore phadebas not an option. If phadebas required, FSS to examine items in short term, QPS to introduce method. Agreed if area can be localised, will excise stain for FSS.	FSS happy to provide advice and assistance regarding sampling strategies. Senior Scientist will be allocated as the main contact person. FSS provide SOPs for phadebas testing. QPS Scientific to introduce phadebas testing.

Confirm sexual assault cases workflow – SAIKs examined by FSS, all other items examined by SCI (collected by SOCOs?)	SAIK submitted to FSS for examination. If negative results returned to QPS, scientific will prioritise, examine and submit sub samples from additional items. Confirmed that examination of SAIK includes all components, this is standard practice within lab. Agreed we would use case EXR to recommend further sub sampling. QPS advised they are hoping that Investigating officers will be informed of the new process at the scene by forensic officers.	FSS can refuse additional items for sexual assault cases, these should be examined by Scientific officers.
Items collected by I/Os examined by SCI not FSS	QPS advised that in the short term, these items will be examined by FSS while they assess capacity. Agreed large numbers are not expected and will be from major crime only. Most likely to be clothing collected by I/Os at secondary scenes and directly from suspects.	FSS will liaise with DNA Unit to prioritise testing of these items as per agreed procedures.
Triage – could QPS just submit the items that need examination? Does this simplify the allocation/triage process?	Forensic Officers will use judgement to identify critical samples for submission. Process in place for DNA Unit to review major crime cases with >30 items and volume crime cases with >5 items.	
Tapelifts – will post it tags be left on the tapelift?	At this stage, the tabs will be left on the tape lift for trace DNA kits used at scenes. Tape lifts from items examined in scientific labs will have tab removed. Agreed that alternative options such as use of double sided tape, or reducing the size of the tab will be explored for future batches.	
Feedback – through Quality management unit	Agreed to use existing feedback mechanism	

to flag inconsistencies in samples	through the Forensic Standards Unit.	
Destruction process for sub-samples – same as current V/C swab process? Sample is either consumed or stored, not returned to QPS property.	Process agreed to. No feedback to QPS required on whether sample has been consumed or any remains. Unused sample will be stored by FSS in line with existing procedures for volume crime swabs.	
Swabs – can they be broken off closer to swab tip?	Not at this stage. Agreed that FSS would manage this process. QPS to discuss changing break point with manufacturer when next batch ordered.	
Who will take responsibility for reworking decisions? Currently us, but have more awareness of sample context, case history etc.	Agreed to following: For major crime, FSS will use current reworking strategies such as concentration or clean up techniques on sub samples submitted. If resampling or pooling is recommended, this decision will be made by scientific officers in consultation with FSS scientist. For sexual assaults, FSS scientists will make decisions for reworking strategies for SAIKs and recommend additional sampling where appropriate. Volume crime – additional work not considered, limited reworking – "one shot, no result, bad luck"	
For samples in tubes, will the High and Low priorities for Major and Volume still be applied?	Yes Occasionally volume crime cases can be prioritised as HIGH if linked to major crime. In these cases, treated same as major crime	

	case with respect to reworking strategies.	
Multiple sub-samples from one item, how many so we profile, needs to be considered as part of the triage process. Also will we be able to see if sub samples have come from the same item?	Each sub sample will have it's own bar code as will each parent item. Parent bar code will be transferred through to AUSLAB via the clinical notes. This in addition to detailed sample description and location information will assist in determining when pooling of samples is appropriate. Discussed fingernail kits – agreed to keep one sample per digit. Can be pooled if required.	
Cold cases – need the DNA Unit to manage the prioritisation and liaison with Investigating Officers	Not discussed	
Do we have access to items if resampling is required? How do we manage this communication? Can we make recommendations?	QPS advised where possible that they will perform any resampling; however this will be assessed on a case by case basis through consultation between scientific officer and case scientist. May occur at FSS. Agreed to use case EXR to request additional sampling as trigger to start discussions.	
Cross over period of old vs new procedures. Unable to establish timeframes immediately for TAT until existing work is managed.	Not discussed.	
Quality – testing of kits prior to use	FSS agreed to test one sample per batch. Will be sent to lab at same time as distribution. FSS will provide feedback on results to QPS Quality management unit.	

Quality – environmental monitoring of QPS lab spaces	Agreed to perform monthly environmental monitoring at all 7 sites for a period of 4 months, then review. Samples to be taken prior to monthly deep clean. Agreed to a maximum of 4 swabs per site. QPS will create a FR number for each site and each sample will have it's own bar code. FSS will report results back through the interface.	Send FSS environmental monitoring SOP to Brad Hall. Send cleaning SOP to Brad Hall
Sampling experience and training – getting the best sample 1st time.	Not discussed	
Interface changes – case and item submission information.	Provided sexual assault and non-sexual assault questionnaires. Troy advised brief is not to include anything in FR enhancements that are not required for us to determine testing methodology. Therefore QPS will be responsible for anything to with interpretation of results such as enquiries about source of profile. Agreed to include the following additional information: Intensity of staining, washed/not washed, substrate (denim, leather, reflective jackets), dry/wet stain, presence of oil/dirt/vegetation/lubricant, fingerprinting.	FSS agreed to provide feedback to Forensic Standards Unit when forensic relationship fields are not used correctly, e.g. when all boxes are ticked. Troy to create additional fields in Forensic Register and provide to FSS to review. Will be transferred initially in clinical notes, to be included in generic interface enhancements.
Reporting framework – what will QPS report?	"Cradle to grave" statements from forensic officers including DNA results.	FSS will review current results and explanatory notes sent across interface and

	Advised they intend to expand this approach to other areas such as fingerprints.	provide suggested phrasing for inclusion in forensic officer statements.
Reporting framework – what will FSS report in statements? When will statements from scientists be required? How will we manage mixtures, results interpretation, statistics	Agreed that statistics, mixture interpretation, paternity results and any questions relating to quality or quantity of DNA will still be reported by FSS scientists.	Meeting with FSS, QPS and DPP scheduled for 27th June at 10am.
What evidence will SOCOs, SCI provide in court?	Will now provide evidence on sampling, sample selection, presumptive screening test results. FSS scientists will still be required if DNA is being questioned.	
Reporting framework – FSS to support moot court training?	Yes FSS provided short list of common questions used for moot court training. Agreed to assist with production of FAQ and standard responses. FSS offered assistance in moot courts.	
Liaison scientist position – role clarification, main contact point	Senior scientist at FSS will be appointed as main contact person for QPS to respond to any queries regarding sampling, reporting, feedback, training etc.	Contact details to be provided to QPS.

PB182

Minutes of meeting with QPS on 16th July 2008

Attendees: Emma Caunt, Justin Howes, Troy O'Malley, Lindon Smallwood, David Keatinge, Lysa McMenz

1. Strategies

I explained the strategies we have put in place to meet the requirements of the QPS under the new system. This included the new team structure, how the samples will be processed, i.e. as items and not cases. Also that we will be collating data to enable us to provide TATs in the future.

2. Primary site information

If a sample of fabric is submitted in a tube the primary site will state "Fabric Blood" if it is TMB +ve and "Fabric Cells" if it is TMB neg.
For a swab the primary site will state "Swab Blood" if it is TMB +ve and "Swab Cells" if it is TMB neg.
A batch number infers that the sample is being submitted in a tube.

3. Content of QPS statements

Discussion around content of QPS statements. Preliminary EXR results will not be reported as these are defined and accepted. The information that will be going into QPS statements will be limited to 9L profiles. The information in the statement will state that a record exists and that that record has come from QHFSS. They will be commenting on the fact that a record exists and not 'the fact of the matter of the record'. A definition of a full profile will be provided by the QPS in their glossary. With respect to any other types of DNA profiles, i.e. partials and mixtures, they will not be making any comment at all and will state simply something along the lines of 'a DNA result has been received but this result will need to be explained by a biologist'. If no profile is obtained then they will report the record of this fact.
The information regarding 9L profiles will consist of three clear elements '...item.....full profile match.....person...'. This information will automatically pull into the Forensic Register and will be copied and pasted into the statements. There will be no ability for this wording to be changed by the person writing the statement.
I have asked that we be provided with an example statement so that we can be aware of the content.

4. Case conferences

For 'old' cases, the arrangement for case conferences will remain as is.

For 'new' cases it has been agreed that case conference will no longer be required since items will already have been examined and prioritised by QPS.
There may be the occasion where the QPS will require our advice and they will call us as and when this is required.
Troy will speak to Patricia Holden about the case conferences that have been arranged for the 'new' cases.

5. SOCO Training

I asked whether this needs to be revised in the light f the changes. Dave Keatinge to speak to Pat O'Reilly and get him to call me about this.

6. Proposed testing of drying ability of new swabs – Water vs. EtOH

I suggested that we test some swabs to see if water takes longer to dry that ethanol once the swab has been put into the new tubes with the hole in the top. This may push the QPS towards using either water or ethanol rather than both. Since the holes in the tubes are rather small, there may be the risk that swabs wet with water will not dry. We may wish to progress this further to test the swabs wet with water and blood and ethanol and blood. Lysa to consider this and contact me.

7. Whole swabs

I stated that we were still receiving whole swabs rather than swabs in tubes and asked what we should be doing about these.
This shouldn't be happening, and if it does we should just put them in tubes and profile them.

8. Moot court training

They will be carrying out moot courts around presumptive testing and have been provided with a list of FAQ by VKI. They would like answers to these questions. Since Scientific and SOCO have experience of going to court, they only need questions relating to the science, combur testing and questions around blood and cells.
They will provide me with a statement and I will provide them with answers to the questions.

9. Assessment of labs / review of sampling techniques

Asked if they needed assistance with this. Difficult since labs are all over state. They will wait 2-3 months for the processes to be bedded in

and for some environmental monitoring results to come back before progressing this.
They may require some consultation for the new masters course that they are setting up.

10. Feedback mechanism and review of FERROs

To be done on an ad hoc basis as required.

11. Sampling issues

I raised some sampling issues and can provide further information if required.
Some key points are:
If any mistakes with regard to semen examinations are made, they should be flagged to QPS Quality Management straight away. They will contact Lindon Smallwood who will liaise with me.
If a swatch is sent in a tube from an AP+ve area, submit as cells. Any mistakes are the fault of the QPS if they haven't been sampled appropriately.
Some tape lifts have had two tubes submitted under one barcode. This is because the kits did contain two of everything. This shouldn't happen any more, but if it does, QPS are happy for the two tapes to be combined. They should be from the same area.

12. Hairs

I understood that SOC were recovering hairs into tubes and submitted for analysis without carrying out any examination for roots or RSM. I explained that many hairs would be submitted that would not be suitable to analysis if microscopic examination was not performed first. Troy explained that in SA they were obtaining profiles from DNA adhered to the outside surface of the hair and this was the DNA that the QPS were targeting. We discussed that placing the hair into the tube may not be the best submission method since longer hairs would not be fully immersed in the extraction buffer. Cutting the hair up into the tube would also not be appropriate as it would be difficult to get it into the tube due to static and that the hair would not stay in the bottom. Suggested that the best way forward would be to either swab the surface of the hair with the corner of a piece of filter paper or to submit the whole hair to us (wrapped in paper) with the advice that the QPS require the hair to be tested for DNA adhering to the hair. Lindon suggested that Scientific were examining some hairs to see if root are present. I offered to provide some training around assessing hairs for roots and RSM, since it is the RSM from which we obtain a profile. Lindon is going to progress this.

I have since discussed this with Cathie Allen who has suggested that it may be better (when looking for DNA on the outside surfaces of the hair) to stick the hair to tape and process as a tape lift.

13. Tricky items

I have had some call asking the best way to sample the more tricky items, this has resulted in the whole item being submitted for us to sample. I asked if they would require me to go into QPS to assist with the more tricky examinations. Not at this stage. They will call me to get advice about how to examine the item. If they decide to send the item in then they request that we let them know how we actually examined the item once we had it in front of us and what result was obtained. This will assist them to decide what to do in the future.
I was asked to provide feedback on QP0800362112 – knotted fingers of latex glove used to transport drugs.

14. Environmental sampling

These swabs will be submitted as 'swab head in tube' and will be submitted via property point as an ordinary case. Each lab will have its own UR number and will retain this number. Troy to notify me of what these numbers are.
Batch testing of tape lifts will be submitted in the same way.
Dave to send environmental cleaning procedure through to me to have a look at.

15. Analytical issues

Issues raised by AI:

Floppy post-it flag is much better than stiff post-it because the floppy one can be scrunched easier for immersion in 0.5ml of buffer.

Noted

1.5ml tubes for tapes and excised stains are better that 2.0ml tubes due to the increased vertical tolerance for sample size when immersing in 0.5ml of buffer. (1.5ml tubes have a more conical base, and 2.0ml tubes tend to be flat sided with a round or pointy bottom)

Lysa stated that she thought that the 1.5 ml tubes could not be used as they did not fit onto the platform. She is planning on outsourcing the kits so needs to know ASAP which tubes we require. AI to address this.

Please label with smallest barcode vertical so that we can scan it

Noted

DNA IQ as we have validated it and kit is manufactured for is for a sample to be 0.5 x 0.5 cm in size. Anything more than that reduces quality of results.

Noted

If using 4N6 swab, try to break near to swab head please. If not using 4N6 swab, break as close to swab head as possible.

They are trying to do this, but have had an issue where breaking the stick against the side of the tube caused the tube to split. Tory stated that he had been told that it only takes 20-30 secs for analytical to trim the sticks on the swabs and therefore they don't see this as a time issue for us. If we find that it is taking longer than this then we need to let them know.

16. Additional sampling issues

Cig butt recovered from scene on Friday, it was raining and item was wet. It was placed in a CSSE and was delivered on Monday. CSSE was stained – discuss item should have been dried or frozen.

EJC to send case number through to Lysa

Tape lift taken for touch DNA had hairs on it. Remove hairs from item before tape lifting.

SOC and Sci have been told to hand pick any hairs off of items before tape lifting. If any come off onto the tape lift after that – so be it.

If whole swab received post 1st July that it thought to be blood stained and there is no evidence from FR that TMB test has been done – do we TMB test it or just submit?

TMB test please, but also bring this to the attention of the QPS because this shouldn't be happening.

17. Is there anything else we can assist QPS with?

They requested being able to call somebody out of hours, especially at the weekends. Primarily to assist with any lab based issues. We will look into this but is not available at the moment.

QPS requested our support during this time of change. They have lots of people to train and these people are scattered over a large area. It will take time for the processes to become embedded. Please be patient.

18. Discussion with Michael Keller and Tony Carstenson

Michael and Tony expressed their concern over the time frames that we are giving. We explained that these are for the completion of the case. We had discussion around moving to item based timeframes as this is the more critical information. For a sexual assault case, for example, they want to know how long it will be for results to be reported back on the SAIK, not the SAIK, trousers, bedding and any other items.
We are happy to give time frames on items rather than cases, however we do require the QPS to be more specific when requesting such information.

Emma Caunt
24th July 2008

PB183

Justin

Resolutions from QHSS-QPS meeting:

The twenty three resolution items and their subsequent QPS status are outlined below:

✓ **Action 1**
Changes to procedures and training modules will be shared between QPS and QHSS scientists via the training coordinators in each area.
QPS status: Agreed to communicate any future changes to procedures relating to DNA by email to QHSS Forensic Biology Manager.

✓ **Action 2**
Swabbing should not be used as a sampling method for absorbent items, wherever possible, sampling involving secondary transfer should be avoided.
QPS status: Amendment to Scientific and SOC procedures have been submitted to FSQMS.

Action 3
QPS scientific to consider case context and potential evidence requirements prior to tape lifting items. If DNA is required, use small tape lifts. Large tape lifts for fibres etc. — if large tapelift, mention taken for fibres
QPS status: Tapelifting for DNA to be performed by scientific officers based on case information. Amendments to procedures have been submitted to FSQMS. Clothing sent to QHSS for LCN DNA to be packaged appropriately to maximise recovery.

✓ **Action 4**
QPS have ordered and will use flocked swabs with pointed tips for collection of very small samples.
QPS status: Flocked swabs found to be unsuitable as the tips were too large. Small tipped nylon spun swabs have been ordered. Swabs have been viewed by Manager Forensic Biology, QHSS who supported their use.

✓ **Action 5**
Control testing for screening tests of items in unstained areas should be performed especially where the item is mouldy or dirty, these do not have to be submitted to QHSS. Labelling of swabs should indicate whether item was mouldy.
QPS status: Forensic officers not to take samples of mould material on surfaces but to note on swab that blood/stain sample was taken from a mouldy/dirty surface.

Action 6
The description of the item should indicate whether the screening test on the area sampled was positive and whether the stain had the appearance of blood or not. The "TMB+ve" box should be selected on the Forensic Register and this will be transferred to QHSS in the AUSLAB Forensic Relationship field. This will indicate that the area sampled was TMB+ve. — report as "DNA" — can we say "possible presence of blood" if not done TMB?
QPS status: Modifications to FR have been completed enabling positive and negative presumptive test results to be recorded and sent to AUSL:AB QHSS. Modifications to procedures have been submitted to FSQMS.

Action 7
In cases where the description indicates a positive TMB screening test result but does not visually have the appearance of blood, QHSS scientists will not perform

(is this to be written/noted by QPS? — if appears as blood

additional screening tests and will submit directly for DNA profiling if the item is prioritised as a relevant item for testing.
QPS status: As per resolution.

• time of rxn
• whether progressed as per tube C

Action 8
Duplication of Acid Phosphatase (AP) screening to cease immediately.
QPS status: Modifications to FR have been completed enabling positive and negative AP presumptive test results to be recorded and sent to AUSLAB QHSS. Modifications to procedures have been submitted to FSQMS. QHSS staff will not duplicate testing where a test result is recoded on AUSLAB.

Action 9
QPS Scientific to complete polilight (crimelite ?) validation and implement as primary screening method where possible following training sessions scheduled for the 21st, 22nd June 2006.
QPS status: Validation completed but polilight will not be used as the primary screening method but will often be considered as the first screening method in a range of options. The susceptibility of false negatives precludes its use as the primary screening method.

Action 10
QPS and QHSS to continue to share validation data and results on the use of crime-lights and the polilight. QHSS to send observer to training sessions scheduled for the 21st, 22nd June 2006.
QPS status: QHSS observers did not attend on 21/22 June. QHSS received training session on 20 June 2006.

Action 11
QPS scientific officers will continue to screen items using either polilight and/or acid phosphatase (AP) prior to submitting to QHSS.
QPS status: As per resolution.

Action 12
On these items, QPS to provide accurate details of positive AP reaction times and mark precise areas that were positive. Positive controls must also be used to test reagents as stated in SOP. The "AP+ve" box should be selected on the Forensic Register and this will be transferred to QHSS in the AUSLAB Forensic Relationship field.
QPS status: Modification to Forensic Register completed to provide AP pos and neg data and time of reaction to AUSLAB. Modification to procedures submitted to FSQMS.

Action 13
Items collected by Scenes of Crime Officers from sexual assault cases not attended by QPS Scientific Officers will be submitted to QHSS without screening.
QPS status: Scientific officers may screen items taken by scenes of crime officers on a case by case basis depending on Regional investigative requirements and timeframes.

Action 14
If tape lifting is required based on the case history, such as the detection of potential contact DNA, QPS will perform tape lifting prior to screening the item using AP.
QPS status: Tapelifting for DNA to be performed by scientific officers based on case information. Amendments to procedures have been submitted to FSQMS.

Action 15

Items that can be easily transported to QHSS will be submitted without sub-sampling, these include underpants, clothing, bed sheets, and towels.
QPS status: As per resolution. Clarification in procedures may be required.

Action 16

On these items, QHSS will then attempt to confirm the presence of spermatozoa and not repeat the AP screening. QHSS to review and adjust Exhibit Report results to reflect changes to procedure.
QPS status: As per resolution.

Action 17

QHSS will perform further AP screening if case information changes or initial testing fails to confirm presence of spermatozoa and further spot testing is required. Exhibit reports will be updated and transferred to the Forensic Register to indicate when further testing was required.
QPS status: As per resolution.

Action 18

Items that cannot be easily transported to QHSS such as mattresses, flooring, carpets, car seats, rugs, quilts and doonas will be screened and sub sampled by QPS prior to submission at QHSS.
QPS status: List in resolution not exhaustive and will be considered on case by case basis.

Action 19

QPS Quality Management Unit to develop a process for QHSS scientists to provide feedback on items requiring corrective actions.
QPS status: QHSS feedback mechanism available through email system to FSQMS Manager.

Action 20

QHSS and QPS to continue to audit and review results each quarter to assess whether proposed changes have been effective and to identify and address potential training issues. Troy O'Malley will provide information to Brad Hall, Darren Pobar and Vanessa Ientile to review.
QPS status: As per resolution.

Action 21

Troy O'Malley to ensure sample description for each item transferred to AUSLAB includes **SOC** if collected by a Scenes of Crime Officer or **SCI** if collected by a Scientific Officer.
QPS status: Modification to Forensic Register completed with indication to AUSLAB that exhibit taken by scientific officer.

Action 22

QPS Scientific to use "Admission/Intell" box to indicate top priority items based on forensic value to be tested within a case. Notification will be received once the case has been allocated to a scientist at QHSS, for Scientific Officer to review items. This will be displayed in the AUSLAB Forensic Relationship field. These items will be tested by QHSS first.
QPS status: Modification to Forensic Register completed to include 'crucial exhibit' box for trial use by scientific officers. Exhibits ticked crucial will

automatically be tested. Admission/intell box available for all forensic officers to prioritise exhibits for QHSS.

Action 23

QPS/QHSS to develop process for identifying electronic solution to notify when items are no longer required for testing. This may require introduction of a new option on the Forensic Register to be imported in the AUSLAB Forensic Relationship field. It is anticipated that this will be introduced by the 1st August 2006.

QPS status: Modification on Forensic Register completed. 'No longer required' box available to forensic officers.

PB184

3500 CW Projects – Summary and Closure

Project 145 – 3500xL Validation – This project had separate experimental designs and final reports for Direct Amplification FTA, Extracted Reference and Casework 3500xL validations. At the completion of this project the 3500xL was successfully validated for the analysis of Direct Amplification FTA and Extracted Reference samples. The Casework 3500xL validation was not accepted based on the inability to determine the number of contributors to a mixture as a result of the poor spectral separation. This project has been finalised and CLOSED.

Project 177 – 3500 CW WEN – This project was intended to assess whether the updated PowerPlex®21 System and PowerPlex®5-Dye Matrix standards had improved the spectral separation issues seen in initial 3500xL Casework validation (Project# 145). The results of this project were inconclusive, and further investigation and experimentation was required. This further work is to be conducted under Project #186. This project has been CLOSED.

Project #182 – PP21 WEN CW 3500xL validation - This project was commenced to combine results from Projects #145, #177 and 186 into one document as a complete validation document for Casework PP21 on the 3500xL. Experiments will be referenced in this document so that the source project is clear. This has been superseded and has been CLOSED.

Project #186 – Assessment of 3500xL Analysis of Casework PP21 – This project was created to perform further experiments to determine appropriate analytical and reporting thresholds (LOD and LOR) for DNA profiling to maximise allele detection and avoid/reduce interpretational ambiguity. The final results of this project will be incorporated into Project #182.