Report for QIS OQI as of 28/06/2022 11:00:11 AM

Report for QIS OQI -

20351 No Title Provided

OQI Details

Status	Closed Approved
Subject	CWIQEXT20080402_01 was found to have a partial minor DNA profile present in the extraction positive control [redacted]). This partial minor DNA profile matches alleles present in samples [redacted] (position 25), [redacted](26) [redacted] (27), [redacted] (28), [redacted] (31) [redacted] (32). These samples are from a sexual assault case and the profile from these samples is the same. This profile also matches profiles from four separate volume crime cases located on this extraction batch.It appears as though the contaminating profiles have not only contaminated from right to left across the plate but also from left to right. Part of the investigation into this event has been researched by the Extraction Audit Team and a word document with all the details is being drafted and sent to the receiver of this OQI so that it can be included in the investigation part of the OQI process.
Source of OQI	Audit
Date Identified	08/08/2008

OQI Creator Contact Details

Creator	Kylie RIKA
Organisational Unit/ s	Intelligence
Service/ s	
Site Location/ s	Coopers Plains

Investigator/ Actioner Contact Details

Actioner	Allan MCNEVIN
Organisational Unit/ s	Analytical
Service/ s	
Site Location/ s	Coopers Plains

Investigation Details

Investigation Completed	09/12/2008 **Root Cause Type** Procedure/Method/Process
Investigation Details	This OQI relates to samples [redacted] (positive extraction control), 320110714, [redacted] to have likely been contaminated by one or more of samples [redacted] Additionally sample [redacted] was investigated. All of the above samples were extracted on the same extraction batch CWIQEXT20080402_01. During the investigation, the stored lysate (i.e. lysed material retained after removal from the para-magnetic resin during the automated DNA IQ extraction process) and the stored substrates (i.e. the material originally submitted for DNA extraction processed through the initial off-deck lysis steps of the initial extraction

process) for all 13 samples were re-extracted. These results were analysed using GeneMapper ID-X software with a peak detection threshold of 20RFU to gain the most information. The extraction of the stored lysate for each of the 13 samples showed results consistent with that obtained from the initial extraction process. From these results, it can be concluded that the contamination of samples [redacted] by one or more of samples [redacted], or [redacted] must have occurred prior to or during the separation of the lysis solution and the para-magnetic resin. The re-extraction of the stored substrate gave differing results for samples [redacted]. These samples showed single source profiles consistent with one of the contributors to the two -person mixtures observed after the original extraction. The other contributor was consistent with the profiles obtained from samples [redacted] and [redacted](the same profile for these samples was obtained from the original extraction, the stored lysate and re-extraction of the stored substrate). The results show that for samples [redacted] & [redacted] there was no contamination of the substrate during the manual processing on initial extraction (off-deck lysis procedure), and that contamination by one or more of samples [redacted]& [redacted] (due the 10 to 100 fold higher quantification values observed for these samples) has occurred between this step in the procedure and the lysis removal step noted above. The re-extraction of the stored substrates for samples [redacted] showed no DNA profile, so no further conclusions could be drawn. The re-extraction of sample [redacted] yielded a different DNA profile to that obtained from the original extraction and the stored lysate. However when the original profile was re-analysed at 20RFU threshold, peaks consistent with the re-extracted sample were observed, indicating that the re-extracted substrate has yielded the true profile and the original extraction was contaminated between the same steps as sample 346792908 noted above. For sample [redacted], extraction of the stored lysate and re-extraction of the stored substrate yielded the same DNA profile as the initial extraction. This shows that a contamination event of this sample is unlikely and common alleles with the contaminating profile is con-incidental. The potential steps at which contamination may have occurred are: 1. During the transfer of the lystate obtained from manual lysis into the deep-well plate via the use of the STORstar. However this is unlikely as staff are trained to perform such pipetting steps with due diligence and care. This is also unlikely in the case of samples [redacted] as there is at least a full column physical separation between the sample wells and the proposed contaminating samples. Due to character space limitations, investigation is continued in Action below.

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Action Details

Action Complete 09/12/2008 **Action Fix Type** Changed Process **Investigation Title**

Action Description cont'd 2. Seepage of sample into an adjacent well during cold storage of the lysed material in the deep-well plate. After the cessation of processing and the carrying out of investigations, it was noted in one instance that a heavily blood-stained lysate had condensed on the underside of the adhesive seal used to seal the stored plate. This had seeped across into an adjacent well. This was possibly due to insufficient application of the adhesive seal to the interstitial barrier. This mechanism is only considered likely for the contamination of sample [redacted] by sample [redacted] 3. During the removal of the adhesive seal. It was noted during Audit 8227 that condensation on the underside of the adhesive seal was not removed after centrifugation. This mechanism is

considered most likely due the varied multiple-well nature of the contamination events investigated. 4. Operator error during the manual addition of DNA IQ para-magnetic resin during the start of the automated extraction procedure (i.e. incorrect pipetting procedure), however this is unlikely as staff are trained to perform such pipetting steps with due diligence and care. This mechanism is only considered possible for the contamination of sample [redacted] by sample [redacted] 5. During the mixing of the deep-well plate (containing 1.5mL of buffers and resin within a 2.2mL well) on the extraction platform DPC shaker. This had not been observed, however has been proposed a possible mechanism for adjacent well contamination during close scrutiny of the automated procedure. This mechanism is only considered possible for the contamination of sample [redacted] by sample [redacted]. 6. During the lysis removal from the para-magentic resin to the storage plate. This procedure occurs twice during the automated extraction protocol (fresh disposable tip for each step). If there was dripping of the lysate containing unbound DNA and this was to drip from one well to another well this may account for the contamination event. A similar mechanism may occur if a bubble forms at the end of the pipette tip and bursts whilst in the vicinity of another well. This mechanism is only considered possible for the contamination of samples [redacted] due to the directional movement of the 8-tip arm. Contamination of samples [redacted] via this mechanism is unlikely. Action: As a result of previous OQI's raised and concerns identified around the automated DNA IQ extraction process, the extraction of samples using the automated DNA IQ procedure was halted on the 28-7-2008. Prior to this, Audit 8227 had been commissioned and carried out. A number of areas for improvement were identified through the audit, and these have been implemented or are under investigation as outlined in OQI's 20367, 20368 and 20369. After the cessation of the automated DNA IQ extraction protocol, a review of all batches processed through this protocol was carried out by a specially commissioned team. A number of potential contamination events were identified and each is to be investigated on batch-by-batch basis. Additionally, careful review of results obtained from samples processed through the automated DNA IQ extraction procedure prior to reporting will be carried out. Every DNA result obtained from these samples will be interpreted with caution. Modifications have been made to the automated DNA IQ extraction procedure (including the use of an alternative to the adhesive seal and an alternative resin mixing procedure). This modified procedure is undergoing extensive verification and approval from the DNA Analysis management team must be obtained prior to re-introduction. The contamination events and concerns and improvements etc. that surround the automated DNA IQ extraction procedure have been discussed at various departmental and team meetings.

Task Details

No Tasks found

Follow-up And Approval

Follow-up Status	Accepted
Follow-up Status Comment	14/04/2009 10:42:25 AM Helen GREGG: Hi Helen I was wondering if you, or delegate, could accept the follow-up on the above OQI. Kylie Rika is away on mat leave and I need it to be closed out to print for a casefile. Thanks Justin Howes

Approver	
Approval/ Rejection Date	14/04/2009
Approval/ Rejection Comment	14/04/2009 11:20:48 AM Paula TAYLOR: All changes to the automated process and validation of the new set-up will be detailed in a final report. Acceptance of results is made by reviewing the results and assessing a number of factors as per the Forensic Reporting and Intelligence Team checklist, which includes, but is not limited to, the comparison of all other results from samples processed alongside these results, to detect whether the integrity of each sample can be verified. Retesting can be conducted on identified samples which may confirm information in the original results. Where the integrity of the results cannot be confirmed, the results will be reported as a quality control failure.

Associations

No Associations found

Records

No Records found

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