

Report for QIS OQI as of 28/06/2022 10:39:15 AM

Report for QIS OQI -**19330 No Title Provided****OQI Details**

Status	Closed Approved
Subject	FTA Evidence sample 333993604 was partial profile after initial processing, when extracted displayed a mixed DNA profile, upon re-extraction a single source profile was observed consistent with the initial profile
Source of OQI	Suggestion
Date Identified	21/04/2008

OQI Creator Contact Details

Creator	Allan MCNEVIN
Organisational Unit/ s	Analytical
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	21/04/2008	Root Cause Type	Procedure/Method/Process
Investigation Details	<p>During the reading of Genotyper batch GEN9REF20080211_05, it was noted that lab number 333993604 showed a partial mixed DNA profile. The DNA extract of 333993604 was then re-amplified and a mixture was confirmed. At the same time, previous run results for 333993604 were reviewed. It was shown that 333993604 had been processed through the FTA punching process and given a single source profile (Genotyper batch GEN9REF20080128_02). The result from GEN9REF20080211_05 resulted from an extraction of the FTA sample. The FTA sample 333993604 was then re-extracted under barcode 333802806 and yielded a single source profile consistent with one of the mixture contributors and the original FTA processing profile obtained from 333993604. The original profile obtained from FTA processing for sample 333993604 (Genotyper batch GEN9REF20080128_02) was then analysed at lowered peak height RFU thresholds, with no evidence of a mixture present. Re-analysis of original FTA & results obtained after re-extraction (barcode 333802806) using lowered peak height RFU thresholds showed no evidence of a mixture. Therefore the mixture was confined to the first extraction of this sample. The second contributor to the mixed DNA profile was then worked out and searched against the staff database. No matches were found. When searched against other profiles obtained</p>		

from the same extraction batch (FTAEXT20080205_01) a match was found with sample 333941730. As both FTA samples (333993604 and 333941730) were extracted, quantified and amplified on the same batches, further investigation was carried out. Due to the vagaries of pipetting order and the particular DNA concentrations of the samples in question, the contamination of one sample with another must have occurred prior to the addition of DNA extracts to the initial amplification reaction. In order to determine which step in the process (BSD punching, MPII DNA IQ extraction, re-capping and decapping of extracts at quantification stage, MPII preparation of Quant and decapping of extracts prior to amplification or at any of the workflow handling - storage, removal and re-storage of the extracts) is more likely to be when contamination has occurred, a consideration of how much of DNA extract 333941730 would be needed to be transferred into 333993604 to cause the level of contamination that was visualised. With the help of senior scientist Justin Howes, the separation of mixture components and an assessment of the mixture ratio was made. The approximate mixture ratio is 1:1, or at the most conservative value (i.e. the least amount of DNA extract 333941730), 2:1 where the mixture would consist of twice the amount of DNA from 333993604 as from 333941730. The DNA extract 333941730 was quantified at 1.71 ng/ul, this is approximately 20x the concentration 333993604. Given that the method of dual elution that is done with the routine method of DNA IQ extraction performed at FSS DNA Analysis yields a final extract volume of 100µL, to display a mixture ratio somewhere between 1:1 and 2:1, approximately 2.5-5µL of DNA extract 333941730 would have to have been transferred to DNA extract 333993604. This is a very unlikely scenario, especially if considering droplet or aerosol formation. Therefore the determination of exactly where in the process the contamination occurred is not possible as each scenario appears to be as unlikely as the next.

Performed By Allan MCNEVIN

Action Details

Action Complete Title	21/04/2008	Action Fix Type	Resources
			AUSLAB specimen notes and batch audit entries were made during the investigation phase. The issue was discussed at an Analytical team meeting on two occasions. A written report outlining the investigation (including some EPG screen shots to show mixture and allow for easier visualisation) was sent to the management team for discussion. A review of the DNA IQ extraction protocol is being undertaken as this is the newest part of the processing to ensure that there is no source of potential errors with this processing.

Task Details

No Tasks found

Follow-up And Approval

Follow-up Status	Accepted
Follow-up Status Comment	<u>21/04/2008 4:52:01 PM Allan MCNEVIN:</u> Investigation OK - source of OQI was not meant to be suggestion - internal problems would be a better description
Approver	Cathie ALLEN
Approval/ Rejection Date	25/04/2008

Approval/ Rejection Comment	<u>25/04/2008 12:00:00 AM Catherine ALLEN:</u>
	No comment was recorded

Associations

No Associations found

Records

No Records found

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