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| To:  | Environment Agency  | From:  | Envireau Water |
| Ref: | P:\TE KMA Monitoring 2018 (2335)\40 - Reporting\Duplicates\TN2.docx                           | Pages: | 2              |
| Re:  | KMA water quality results – review of blank and duplicate data – Environment Agency questions | Date:  | 26/01/2018     |

## 1. Introduction

This technical note has been prepared by Envireau Water in response to questions and additional notes from the Environment Agency in an email to Third Energy on 23<sup>rd</sup> January 2018.

The questions and notes relate to a technical note prepared by Envireau Water (KMA Monitoring Data - Duplicates & Blanks) that was prepared by Envireau Water in response to comments raised by the Environment Agency in EPR Compliance Assessment Report 402444/0298598.

## 2. Environment Agency Questions

The Environment Agency questions are presented in blue italics, followed by the Envireau Water responses in normal text.

*It is sensible that you are submitting samples of the two batches of the distilled water to a different laboratory, for comparison. When is this due to happen, and which laboratory is being used?*

The intention is to submit samples to Jones Environmental Laboratory (JEL, who have carried out the previous analyses) and Socotec (formerly ESG), for analysis next week.

*Has a laboratory been identified that can carry out the additional sublation step for anionic surfactants?*

Envireau Water has made contact with ALS, RPS and Socotec, all of whom also use a range of specialist sub-contractor laboratories. None of these laboratories have adopted the additional sublation step recommended by NATA and the feedback we have received is that there has never been a commercial need for them to do so.

However, the NATA guidance also states that the additional sublation step is only critical where the laboratory cannot demonstrate no interferences are present from the specific matrix (e.g. groundwater, surface water, etc.).

Socotec has taken the approach to validate groundwater and surface water matrices to show that no false positives are observed using their technique, which is performed using a test kit from Merck. The method is analogous to ISO 7875-1 – Spectrometric method for determination of anionic surfactants by measurement of the methylene blue index (MBAS) in aqueous media.

Consequently, it has been decided to send samples of the two batches of the distilled water to Socotec for analysis of anionic surfactants in the first instance.

*For anionic surfactants are you sending samples to the additional laboratory from now on? What date will that start? Which laboratory is being used? Has the current laboratory made any comment regarding the method used?*

If the Socotec analysis on the distilled water samples is successful, then 'real' samples from the next planned sampling round in February would also be submitted for analysis alongside real samples submitted to JEL. If the analysis on the distilled water samples is not successful, then Envireau Water will continue to look for an alternative laboratory.

JEL perform anionic surfactant analysis using a HACH test kit, which is also based on ISO 7875-1. JEL are aware of the potential for false positives but have not taken any further steps to avoid these as there has never been a commercial need to do so.

### 3. Environment Agency Notes

The Environment Agency notes are presented in blue italics, followed by the Envireau Water responses in normal text.

*Table 1 of the technical note erroneously has the anionic surfactant level for the 14th of December 17 blank as 0.7 mg/l rather than 0.4 mg/l.*

Envireau Water has checked back through the laboratory test certificates for samples taken on 14/12/17. The correct value for anionic surfactants in the blank sample on 14/12/17 is 0.7 mg/l. It appears that the value was incorrectly reported (a typo) in the monitoring report Ref: P:\Third Energy KMA (1996)\40 - Reporting\Operational Data\Round 34 - 05-06\_12\_17\Report r1 05-06\_12\_17.docx

*Page 6 of the technical note doesn't include the 20 – 38 mg/l duplicate COD result for the 14th of December 17.*

Page 6 of the technical note should have included the 20 – 38 mg/l duplicate COD result for the 14/12/17. As stated on Page 7 of the technical note, given the inherently tricky nature of the COD analysis and that the discrepancies between primary and duplicate samples are around 50%, rather than orders of magnitude, these discrepancies do not impact the overall veracity of the analyses. Envireau Water will continue to monitor this parameter for further instances of poor analytical reproducibility.

*Do you have an explanation for the nitrate discrepancy?*

Reanalysis of water samples from 14/12/2017 confirms that both the primary and duplicate samples contain approximately 21mg/l nitrate (as NO<sub>3</sub>). In this instance, the discrepancy between the original primary and duplicate sample can only be attributed to an analytical or laboratory reporting error. JEL has confirmed that that the QA/QC data (for replicate samples of known concentration) is within acceptable limits. Envireau Water will continue to monitor this parameter for further instances of poor analytical reproducibility.

Envireau Water  
26/01/2018