METHOD STATEMENT

Determinand:
Determination of Suspended and Ashed Suspended solids including Settled Suspended Solids (1 hour), Part Settled Suspended Solids (30 minutes) and Neutralised (~pH 7) Suspended Solids

Matrix:
Sample Type: Final effluents, trade discharges and crude sewage samples

Principle of Method:
Suspended matter is removed from a measured volume of sample by filtration under reduced pressure through a pre-treated, pre-weighed glass fibre filter paper and determined gravimetrically after washing and drying at 105 ± 5°C. If ashed suspended solids are required, this is followed by ignition at 450°C and weighing the residue.
The sample may be pre-treated by settling the solids for 1 hour after adjusting the pH to 6.5 - 7.5 pH units (see method WWC4).

Sampling and Sample Preparation:
Samples are normally received in 1L pet bottles.
Samples are stored at 3±2°C until ready for analysis. Samples should be shaken before analysis to ensure that any subsample is as homogeneous as possible.
Details of sample pre-treatment for Yorkshire Water settled and neutralised suspended solids are found in method WWC4.
Samples are stable for 7 days (Coventry In House Data).

Interferences
Interferences can occur when substances such as oil or dissolved solids are erroneously counted as suspended solids.

Performance of Method:

Range of Detection:
Suspended Solids: 2.4 mg/l upwards
Normal reporting level for Suspended Solids is 2.4mg/l.
Nominal reporting limit for Ashed samples is 3.8mg/l

Limit of Detection:
Suspended Solids: 2.384 mg/l.
Ashed samples: 3.77mg/l
The statistically obtained limit of detection was generated using 200mls of sample. If a smaller volume is used the reporting limit should be adjusted accordingly.

Recoveries of Compounds, Bias and Uncertainty of measurement:
Suspended solids

	Low Standard	High Standard	Final Eff	Final Low Spike	Trade	Trade Low Spike	Crude	Crude Low Spike
Concentration mg/l	33.1	463.5	2.0	33.4	10.0	32.8	360.4	930.0
Total Standard Deviation, mg/l	1.8	25.5	0.8	2.4	1.8	1.9	21.3	48.0
Recovery %	94.6	92.7	-	94.9	-	87.7	-	91.9

Ashed Solids

	AQC	Final	Trade	Crude
Ash mg/l	18555.46	-0.14	0.89	79.46
SD mg/l	1235.00	0.94	0.88	6.58

Note: As the majority of the suspended solids within the samples were volatile at 450°C, the ashed solids results approximate to 0.0mg/l, giving artificially high %RSD values during validation testing. The absolute standard deviation for the samples were all below 5mg/l and as ashed solids is the residue from the volatile suspended matter, the performance of both methods are fundamentally linked

Uncertainty of measurement:

± 20.7%

References:

Suspended, Settleable, and Total Dissolved Solids in Waters and Effluents 1980. ISBN 011 751957X.
Wakefield Solids Instrument Interfacing Manual (Version 1.0)