METHOD STATEMENT

Determinand:
pH value

Matrix:
Sample Type: sludge and soil samples at 20℃

Principle of Method:
The pH of the sample is equal to Log10 1/[H+] and is measured directly on the sludge or on an aqueous extract of soil using a pH probe that has been previously calibrated using solutions of a known pH.
The pH value of liquid digested sludge is used to monitor digester performance. The pH value of sludges and soils is generally used to assess the application rate of sludge for disposal to land.

Interferences:
Gross suspended matter, oil or grease may cause interference by masking part of the electrode surface. Solids are dispersed in the sample prior to taking the pH reading.
Above a pH of 12 the electrode response may not be linear for pH values. Also, if high sodium concentrations are present, the response for pH may not be perfectly linear above pH 10. It is unlikely that either of these cases will be encountered for the samples analysed by this method.

Performance of Method:
Range of Application:

The pH probe is calibrated using buffers at pH4, pH7 and pH10, which restricts the calibrated range of application to pH 4-10. However, due to the linear response of the pH probe within a larger range, results may be reported for pH values in the range pH 1-13 provided additional checks at these pH values are carried out.
Normal Reporting Limit: To the nearest 0.1 pH units

Limit of Detection:

Not applicable

Recoveries of Compounds, Precision and Bias

Spiking Recovery: Spiking is not applicable for pH

pH	Low Standard	High Standard	Liquid AQC	Soil AQC	Sand	Loam	Clay	Sludge
pH Value, pH Units	4.02	10.05	7.06	7.32	7.48	6.47	6.10	7.49
Total Standard Deviation, pH Units	0.02	0.02	0.02	0.03	0.04	0.06	0.04	0.10
Bias, %	0.021	0.045	0.059	0.005	-	-	-	-
Uncertainty, %	±0.061	±0.082	±0.094	±0.061	-	-	-	-

Date of Testing: February 2014

References:
Determination of the pH value of sludge soil, mud and sediment; and lime requirement of soil (1977). Methods for the examination of waters and associated materials HMSO - ISBN 0117512524.