EVALUATION OF MEASUREMENT UNCERTAINTY (MU)

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Evaluation of measurement uncertainty (MU) was calculated at the 95% confidence interval, coverage factor k = 2 using batch control sample results. The following MU values are derived from as mentioned batch control samples ranging from 10 to 100 times the limit of reporting (LOR). As analyte results decrease and approach the LOR, estimated MU will increase. At concentrations

< 5xLOR, MU will be reported as the LOR concentration. i/s indicates insufficient data for MU Evaluation.

Microbiological measurement uncertainty (MU) is evaluated by analysis of cleint unknowns and PT samples by a minimum of two analysts and calculated from the standard deviation of the reproducibility of the final results which is then used to evaluate the uncertainty associated with the method.

			Water	Water	Soil
Method Number	Method Description	Test/Analyte	Relative MU % unless stated otherwise.	Relative MU % unless stated otherwise.	Relative MU % unless stated otherwise.
AN101	**pH soil sludge sed water**	pH	0.2 pH units		0.2 pH units
AN106	**Conductivity and TDS by Calculation**	Conductivity	3.3		7.8
AN113	**Total Dissolved Solids**	TDS	17.2		
AN114	**Total Suspended Solids**	TSS	10.1		
AN119	**Turbidity**	Turbidity	8.7		
AN122	**Exchangeable cations and Cation Exhange Capacity by Sum**				
		Na			10.6
		K			11.3
		Ca			7.8
		Mg			11.1
AN135	**Alkalinity in Aqueous Solution**	Total Alkalinity	10.6		
AN140	**Acidity**	Acidity	17.2		
AN141	**Fluoride (ion selective)**	Fluoride	20.0		11.5
AN142	**Fluoride - soils**	Fluoride			22.2
AN183	**BOD**	BOD	7.8		
AN183	**Oil and Grease and hydrocarbons Water - Gravimetric**	Oil & Grease	11.5		
AN214	**Acid Neutralising Capacity (ANC) ASS**	ANC BT			7.5
AN216	**Net Acid Generation (NAG)**	NAG			13.4
		pH ox			12.4
		EC ox			12.8
AN240	**Redox Potential**	Eh	1.4		
AN217	**Chromium Reducible Sulphur (CRS)**	Cr_s			15.4
AN218	**TPA ANC SPOCAS**	TPA			21.3
		Cap			18.6
		Mgp			14.4
		Sp			17.7
AN219	**TAA SPOCAS**	TAA			11.6
		Ca KCl			16.5
		Mg KCl			15.6
		S KCl			23.5
AN248	**Oxidised Nitrogen forms AA NOx**	Nitrate/Nitrite-N	10.2		10.8
AN272	**Chemical Oxygen Demand DA**	COD	15.7		
AN273	**Total Organic Carbon DA**	TOC			16.3
AN274	**Chloride DA**	Chloride	8.5		9.8
AN277	**Nitrite DA**	Nitrite	6.5		14.7
AN278	**Reactive Phosphorus DA**	Reactive P	12.3		
AN279	**Total Phosphorus DA**	Total P	14.6		13.1
AN280	**Ammonia DA**	Ammonia N	8.3		
AN288	**TKN DA**	TKN	19.0		20.5
AN312	**Metals Cold Vapour - Mercury**	Hg	12.5	13.0	
AN312	**Metals Cold Vapour - Soils - Mercury**	Hg			8.8

AN318	**ICP MS**		**Soluble**	**Total**	
		Arsenic	15.9	16.6	
		Beryllium	16.3		
		Bismuth	16.3		
		Cadmium	13.1	13.1	
		Chromium	15.3	13.9	
		Cobalt	15.6	16.6	
		Copper	16.5	16.6	
		Nickel	17.4	16.3	
		Lead	10.3	10.3	
		Selenium	16.0	19.6	
		Silver	15.1		
		Uranium	11.7	11.5	
AN320	**Metals ICP OES**		**Soluble**	**Total**	
		Aluminium, Al	4.8	4.5	16.3
		Antimony			19.9
		Arsenic			6.4
		Barium	7.0	7.5	13.7
		Boron	7.4	7.5	9.4
		Cadmium			7.7
		Calcium	4.8	10.2	15.0
		Chromium			6.5
		Cobalt			13.8
		Copper			10.0
		Iron	8.3	9.4	11.5
		Lead			6.2
		Indium	11.5		
		Lithium	16.1	19.8	
		Magnesium	3.6	4.8	20.1
		Manganese	9.8	10.3	9.8
		Molybdenum			10.7
		Nickel			6.6
		Potassium	6.4	12.3	13.7
		Phosphorus	14.1	12.6	
		Selenium			14.3
		Silicon	7.9		
		Sodium	8.4	9.3	25.0
		Sulfur	8.2	9.1	
		Vanadium	7.6	7.8	
		Zinc	10.4	10.5	10.0
	Metals ICP OES - Ultra Sonic Nebuliser				
		Arsenic	14.5	14.3	
		Antimony	17.2	15.3	
		Berrylium	13.8	13.4	
		Cadmium	14.2	11.6	
		Chromium	9.5	9.5	

		Cobalt	10.8	11.7	
		Copper	14.0	10.9	
		Lead	11.1	10.4	
		Molybdenum	11.3	12.6	
		Nickel	13.5	12.6	
		Selenium	19.2	21.1	
		Tin	15.7	16.4	
		Vanadium	11.3	10.7	
AN701	**Heterotrophic (Std or Total) Plate Count- Pour Plate Technique**	Heterotrophic Plate Count	0.24 log10 org/mL		
AN735	**E.coli and Faecal Coliforms by Colilert-18 (Defined Substrate Technology)**	Coliforms	0.37 log 10 org/100mL		
		E. coli	0.38 log 10 org/100mL		
		Thermotolerant Coliforms	0.20 log10 org/100mL		
AN750	**Enterococci- Enterolert (Defined Substrate Technology)**	Enterococci	0.26 log10 org/100mL		