


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p><b>UKAS</b> TESTING 4012</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p><b>AWE Plc</b></p> <p>Issue No: 017    Issue date: 25 February 2021</p>	
	<p><b>AWE</b> Aldermaston Reading Berkshire RG7 4PR</p>	<p><b>Contact: Mr Ray Rogers</b> Tel: +44 (0)118 982 5780 Fax: +44 (0)118 982 5796 E-Mail: enquiries@awe.co.uk Website: www.awe.co.uk</p>
<p><b>Testing performed at the above address only</b></p>		

### DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>ENVIRONMENTAL SAMPLES CLEARANCE/DECOMMISSIONING SAMPLES</p> <p>Water, raw and trade effluents</p> <p>Soils, sediments, sand, brick, concrete, plaster and dust (including tarmac dust), vegetation</p> <p>Soils, sediments, vegetation</p>	<p><u>Radiochemical Testing</u></p> <p>Sample preparation</p> <p>Aqueous Tritium Analysis</p>	<p>Documented In-house methods:</p> <p><b>AWE/MAS/RCG/EAT/GPC/OP/414</b> Preparation of water samples for Gross alpha/beta and Radiochemistry</p> <p><b>AWE/MAS/RCG/EAT/SH/OP/413</b> Preparation of Soil, Sediment and Vegetation Samples for Gross alpha/beta and Radiochemistry (including weighing, drying, grinding, ashing and sieving of samples, as required)</p> <p><b>AWE/MAS/RCG/EAT/SH/OP/405</b> Ashing and Furnace operations</p> <p><b>AWE/MAS/RCG/EMWC/LSC/OP/444</b> Analysis via liquid scintillation counting'</p>



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<p>ENVIRONMENTAL SAMPLES CLEARANCE/DECOMMISSIONING SAMPLES (cont'd)</p> <p>Water, raw and trade effluents Soils, sediments, sand, brick, concrete, plaster, tarmac as dust, vegetation</p> <p>Water, raw and trade effluents Soils, sediments, sand, brick, concrete, plaster, tarmac as dust, vegetation Density range : 0.6 g/ml to 1.6 g/ml</p> <p>Water, raw and trade effluents and aqueous extracts</p>	<p><u>Radiochemical Testing</u> (cont'd)</p> <p><b>Screening:</b></p> <p>Gross alpha activity (relative to <sup>241</sup>Am) Gross beta activity (relative to <sup>137</sup>Cs)</p> <p><b>Quantitative analysis:</b></p> <p>Gamma Emitting radio-nuclides (Energy range: 59 keV - 1840 keV)</p> <p>Tritium (<sup>3</sup>H)</p>	<p>Documented In-house methods:</p> <p><b>AWE/MAS/RCG/EAT/GPC/QUAL/534</b> Gross Alpha/Beta QM Process Document <b>AWE/NAS/RCG/EAT/GPC/OP/331</b> Operation of Gross Alpha/Beta Counters <b>AWE/MAS/RCG/EAT/GPC/OP/519</b> Cali bration of the Gross Alpha/Beta Counters</p> <p>By proportional counting</p> <p><b>AWE/ MAS/L3/RMS/GS/BEGe/PD/001</b> Validation and Process Document <b>AWE/MAS/L3/RMS/GS/BEGe/OP/003</b> Operation of the BEGe Gamma Spectrometry System <b>AWE/MAS/L3/RMS/GS/BEGe/OP/004</b> Procedure for the calibration of the BEGe gamma spectrometry system</p> <p>By high resolution gamma spectrometry</p> <p><b>AWE/MAS/RCG/EAT/LSC/QUAL/410</b> Tritium Determination QM Process Document <b>AWE/MAS/RCG/EAT/LSC/OP/465</b> Operation of the Liquid Scintillation Counter <b>AWE/MAS/RCG/EAT/LSC/CAL/471</b> Calibration of the Liquid Scintillation Counter</p> <p>By liquid scintillation counting</p>



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<p>ENVIRONMENTAL SAMPLES CLEARANCE/DECOMMISSIONING SAMPLES (cont'd)</p> <p>Waters and Effluents Soils, sediments, sand, brick, concrete, plaster, tarmac as dust, vegetation</p>	<p><u>Radiochemical Testing</u> (cont'd)</p> <p><b>Quantitative analysis:</b> (cont'd)</p> <p>Uranium isotopes : <math>^{238}\text{U}</math>, <math>^{235}\text{U}</math>, <math>^{234}\text{U}</math></p> <p>Plutonium isotopes : <math>^{239+240}\text{Pu}</math>, <math>^{238}\text{Pu}</math></p>	<p>Documented In-house methods:</p> <p><b>AWE/MAS/RCG/EAT/AS/QUAL/467</b> Radiochemistry QM Process Document</p> <p><b>AWE/MAS/RCG/EAT/AS/OP/463</b> Procedure for Operating the EMG Alpha Spectrometer</p> <p><b>AWE/MAS/RCG/EAT/AS/OP/391</b> Determination of actinides in environmental samples</p> <p>By alpha spectrometry</p>
<p>HUMAN URINE</p> <p>Urine</p>	<p>Quantitative analysis:</p> <p>Tritium (<math>^3\text{H}</math>)</p>	<p><b>MER-OPS-00299442</b> Dosimetry Services Operating Procedure – Tritium in Urine</p> <p><b>AWE/MAS/RCG/EAT/LSC/OP/465</b> Operation of the Liquid Scintillation Counters</p> <p><b>AWE/MAS/RCG/EAT/LSC/CAL/471</b> Calibration of the Liquid Scintillation Counters</p> <p>By liquid scintillation counting</p>
<p>MICRON SIZED PARTICULATE SAMPLES</p> <p>Nuclear Forensic Samples including acidic solutions and air filters</p>	<p><u>Radiochemical Analysis</u></p> <p>Peak jumping measurement of Uranium isotope ratios (<math>\text{U}^{234}</math> to <math>\text{U}^{238}</math>)</p> <p>Quantitative analysis of gamma emitters in the energy range 45keV – 1.8MeV</p>	<p>Documented in-house method using thermal ionisation mass spectrometry (TIMS)</p> <p>Documented in-house method using HPGe gamma spectrometry</p>



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SOILS	<u>Radiochemical Testing (cont'd)</u> <u>Explosives</u> Octahydro-1,3,5,7-tetranitro-1,3,5,7 tetrazocine (HMX) <u>2,4,6-Trinitrotoluene (TNT)</u> <u>Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)</u> <u>Pentaerythritol tetranitrate (PETN)</u>	Documented in house method (METH/185) using Exactive LCMS
END		