


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p><b>UKAS TESTING</b> 1314</p> <p>Accredited to ISO/IEC 17025:2005</p>	<p><b>ALS Environmental Ltd</b> <b>Coventry</b></p> <p>Issue No: 115      Issue date: 16 May 2018</p>	
	<p>Torrington Avenue Coventry West Midlands CV4 9GU</p>	<p>Contact: Ms C Peacock Tel: +44 (0)2476 856458 Fax: +44 (0)2476 856575 E-Mail: <a href="mailto:claire.peacock@alsglobal.com">claire.peacock@alsglobal.com</a> Website: <a href="http://www.alsenvironmental.co.uk">www.alsenvironmental.co.uk</a></p>
<p>Testing performed by the Organisation at the locations specified</p>		

### Locations covered by the organisation and their relevant activities

#### Laboratory locations:

Location details	Activity	Location code
<p><b>Address</b> ALS Environmental Ltd Torrington Avenue Coventry West Midlands CV4 9GU</p> <p><b>Local contact:</b> Ms C Peacock</p>	<p>Water Microbiology, Environmental Chemistry, Occupational Hygiene &amp; Environmental Monitoring Analysis Support Functions: Quality Management including document control, auditing and quality control</p>	A
<p><b>Address</b> ALS Environmental Ltd Sparrowgrove Waterworks Road Otterbourne Hampshire SO21 2SW</p> <p><b>Local contact:</b> Ms C Peacock</p>	<p>Water Microbiology, Environmental Chemistry, Support Functions: Quality Management including document control, auditing and quality control</p>	O
<p><b>Address</b> ALS Environmental Ltd Unit L Dundyvan Enterprise Park Coatbridge North Lanarkshire ML5 4AQ</p> <p><b>Local contact:</b> Mr J Mace</p>	<p>Water Microbiology Support Functions: Quality Management including document control, auditing and quality control</p>	C



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**Site activities performed away from the locations listed above:**

Location details	Activity	Location code
Waste Water Treatment Works Water Treatment Works	Sampling and on site testing	B
Customer Sites requiring Gas sampling	Sampling of Landfill gases Sampling of Biogenic gases	B
Customer Sites requiring Waste water sampling	Sampling of Ground, Surface and Trade effluent sampling	D
Customer Sites requiring sampling for Legionella analysis	Sampling of Drinking Water (non-regulatory), Process Water and Recreational water	D

**This schedule is ordered as follows:**

Section 1  
ISO 17025 + DWTS  
Microbiology and Cryptosporidium  
Drinking Water Sampling

Section 2  
ISO 17025 + MCERTS (waters)

Organic Chemistry  
Inorganic chemistry  
Waste Water Sampling

Section 3  
ISO 17025 only  
Asbestos  
Inorganic chemistry Soils  
Inorganic chemistry Waters  
Organic chemistry Soils  
Organic chemistry Waters  
Microbiology

Section 4  
ISO/IEC 17025 + DWTS/DWQR Microbiology Coatbridge

Microbiology

**Note: Accreditation to MCERTS automatically confers an equivalent accreditation to ISO 17025.**



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<b>SECTION 1</b>			
WATERS	<p><b>Microbiology and Cryptosporidium</b></p> <p><u>Microbiological Tests</u></p> <p>Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614). The testing is in accordance with the Drinking Water Testing Specification (<b>DWTS</b>)</p> <p>Enumeration:</p>	<p>Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water " unless stated otherwise</p>	
Drinking Water, Ground Water, Surface Water	Coliforms presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A, O
Drinking Water, Ground Water, Surface Water	<i>Escherichia coli</i> presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A, O
Drinking Water, Ground Water, Surface Water	Enterococci, presumptive and confirmed	<b>W7</b> based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation	A, O



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WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Drinking Water, Ground Water, Surface Water	Sulphite reducing clostridia, including <i>clostridium perfringens</i> presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	A, O
Drinking Water, Ground Water, Surface Water	Total aerobic micro-organisms at 22°C, 37°C & 30°C	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	A, O
Drinking Water, Ground Water, Surface Water	Cryptosporidium	Documented procedures <b>CRYM1, CRYM2, &amp; CRYM3</b> FiltaMax <sup>®</sup> and FiltaMax Xpress <sup>™</sup> , Immuno fluorescent staining for identification by microscopy based on "The Microbiology of Drinking Water" Part 14 (2010)	A
	<u>Biological Tests</u>		
Drinking Water, Surface Water	Algae	Method W44 using microscopic examination	A
Drinking Water, Surface Water	Zooplankton (including veligers)	Method W46 using macroscopic examination	A
Surface Water	Chlorophyll Phaeophytin	Method W45 by Spectrophotometry	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests</u>		
	Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614). The testing is in accordance with the Drinking Water Testing Specification ( <b>DWTS</b> )	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water " unless stated otherwise	
Drinking Water, Surface Water, Ground Water	Turbidity	Method OCM1 Turbidimeter	O
Drinking Water, Surface Water, Ground Water	Electrical Conductivity	Method OCM2 by manual technique	O
Drinking Water, Surface Water, Ground Water	pH	Method OCM3 by manual technique	O
Drinking Water, Surface Water, Ground Water	Colour	Method OSM4 by manual technique	O
Drinking water from customer taps and service reservoirs	Sampling for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614)	Methodology meeting the requirements of the Drinking Water Testing Specification	B
	<u>Sampling for:</u> Chemical, Microbiological and Cryptosporidium analysis	In house method POT1	B
	On site Chemical Testing for: Total Residual Chlorine Free Residual Chlorine Temperature	In house method POT 3	B



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<b>SECTION 2</b>			
WASTE WATERS	<b>Organic Chemistry Waters</b> <u>Chemical Tests</u>	Documented In-House Method to meet the requirements of the Environment Agency <b>MCERTS</b> Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer and controlled waters), Treated Sewage	Chloroform Benzene Trichloroethene	<b>GEO 56</b> using Headspace GCMS	A
Trade Effluent (to sewer and controlled waters), Treated Sewage	Phenols (high and low level): phenol	<b>GEO 18</b> using GCMS	A
Treated Sewage	tris(2-chloroethyl)phosphate tris(2-chloropropyl)phosphate	<b>Method 326</b> using GCMSMS	A
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Pyridine	<b>GEO 62</b> using liquid – liquid extraction and GCMS	A
Trade Effluent (to sewer), Treated Sewage	Acid Herbicides: 4-Chloro-2-Methylphenol 2,4-Dichlorophenol 2,4,6-Trichlorophenol 4- Chlorophenoxyacetic Acid MCPP (Mecoprop) MCPA 2,4- DP (Dichlorprop) 2,4-D Bromoxynil 2,4,5-TP (Fenoprop) Pentachlorophenol 2,4,5-T MCPB 2,4-DB loxynil	<b>GEO 73</b> using SPE and GCMSMS	A



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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency <b>MCERTS</b> Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer), Treated Sewage	Pesticides: 1,2,4-TCB Dichlorvos Aldrin Isodrin Endrin Dieldrin alpha-HCH beta-HCH gamma-HCH Atrazine Simazine Chlorfenvinphos Diazinon cis-Permethrin trans-Permethrin Total Permethrin (sum of cis and trans) Cyfluthrin Cypermethrin Hexachlorobenzene Propetamphos Triazophos alpha-Endosulphan beta-Endosulphan op-DDE pp-DDE op-DDT pp-DDT pp-TDE	GEO 47 using liquid – liquid extraction and GCMSMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<b>Inorganic Chemistry Waters</b> <u>Chemical Tests (cont'd)</u>	Documented In-House Method to meet the requirements of the Environment Agency <b>MCERTS</b> Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	<u>Metals:</u> Aluminium Cadmium Chromium Cobalt Copper Iron Lead Manganese Nickel Zinc Total Phosphorus	<b>WAS049</b> using ICP-OES	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	<u>Metals:</u> Aluminium Antimony Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Nickel Tin Zinc	<b>WAS060</b> using ICP-MS	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	pH	<b>WAS039</b> using Manual and automated pH probe	A





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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency <b>MCERTS</b> Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent (cont'd)	
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Colour Scan	<b>WAS027</b> using UV/Vis spectrophotometry	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Suspended Solids	<b>WAS006</b> using gravimetric analysis	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	BOD	<b>WAS001</b> using BOD robot and oxygen probes	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	COD	<b>WAS040</b> using closed digestion with HACH and Palintest colorimetric analysis	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Total Mercury	<b>WAS013</b> using Cold vapour fluorescence	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Nitrogen total	<b>WAS022</b> Continuous flow with UV/persulphate oxidation	A
Treated Sewage	Cyanide: total, free and complex	<b>WAS018</b> Continuous flow with UV digestion where required	A
Treated Sewage	Turbidity	<b>WAS066</b> Turbidimeter	A
Treated Sewage	Phenols Monohydric colorimetric	<b>WAS019</b> Continuous flow	A



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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency <b>MCERTS</b> Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent (cont'd)	
Treated Sewage, Untreated Sewage	Ammonia, Total Oxidised Nitrogen (TON)	<b>WAS036</b> using Konelab discrete analyser	A
Treated Sewage	Ammonia	<b>WAS067</b> using Konelab discrete analyser	A
Treated Sewage	Soluble Reactive Phosphorus (orthophosphate)	<b>WAS036</b> using Konelab discrete analyser	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Controlled Water)	Total & Dissolved Metals: Aluminium Phosphorus Chromium Iron Manganese Cobalt Nickel Copper Zinc Arsenic Cadmium Antimony Lead Tin	<b>WAS076</b> by ICPMS	A



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<p>WASTE WATERS (cont'd)</p> <p>Waste Water Treatment Works</p> <p>Water Treatment Works</p> <p>Trade effluent to controlled water</p> <p>WASTE WATERS</p> <p>Waste Water Treatment Works and Water Treatment Works</p> <p>Untreated sewage Treated sewage effluent Trade Effluent to controlled water</p> <p>Untreated and Treated Sewage Effluents</p>	<p><b>Waste Water Sampling and on site testing</b></p> <p><u>Chemical Tests</u> (cont'd)</p> <p>On-site measurement of:</p> <p>Total chlorine Free chlorine</p> <p>Sampling</p> <p>For:</p> <p>Chemical Testing</p> <p>Automated sampling (UWWTD)</p> <p>For:</p> <p>Chemical Testing</p>	<p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard – sampling and chemical testing of untreated sewage, sewage effluent and trade effluent</p> <p>OSM 11 using colorimetry (meter)</p> <p>Method OSM 05 using manual spot sampling</p> <p>Method UWW 01 using automated composite samplers</p>	<p>B</p> <p>B</p> <p>B</p>



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<b>SECTION 3</b>			
<u>Bulk ID</u>	<b>Asbestos</b>		
ASBESTOS IN BULK MATERIALS including materials and products suspected of containing asbestos	Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite	HSG 248:February 2005 by Documented In-House Method <b>Method 70</b> using stereo-microscopy, polarised light optical microscopy and dispersion staining	A
Asbestos in soils (screen and ID)			
ASBESTOS IN SOILS (fibre screening and identification)	Asbestos Fibre Screening and Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite	Documented In-House Method <b>Method 70</b> using stereo-microscopy, polarised light optical microscopy and dispersion staining	A
ATMOSPHERIC POLLUTANTS: AMBIENT AIR	Analysis		
Filter Papers	Density of Airborne Fibres	Documented In-House Method 72 based upon HSG 248:2005	A
Washings Collected using Frisbee Deposition Gauges	Particulate Matter	Documented In-House Method 74 by Gravimetry Based on Vallack Protocol	A
Filter Samples	Inhalable & Respirable Particulate Matter	Documented In-House Method 75 by Gravimetry Based on MDHS 14/4:2014	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<u>Bulk ID (cont'd)</u>	<b>Asbestos (cont'd)</b>		
Filter Samples	PM <sub>10</sub> or PM <sub>2.5</sub> Particulate Matter	Documented In-House Method 76 by Gravimetry Based on BS EN 12341:2014	A
SOILS	<b>Inorganic Chemistry Soils</b> <u>Chemical Tests and Physical Tests</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Soil	Total Cyanide	<b>Method 14</b> distillation followed by discrete analyser based on 'MEWAM', 1988 Method ISBN 011 752 219 8	A
Soil	Thiocyanate: Water Soluble	<b>Method 16a</b> by spectrophotometry based on SCA Method 100, Thiocyanate ISBN 011 751 934 0	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOILS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate (cont'd)	
Soil	Phenols: Total Steam Distillable	<b>Method 40a</b> by Distillation followed by colorimetry based on 'MEWAM', 1981 Method and EPA Method 9065A	A
Soil	Loss on Ignition	<b>Method 337</b> by Gravimetry based on Methods for the Collection and Analysis of Samples from National Grid Sites Version 1.0 Sept 2006	A
Soil	Sulphur: Elemental	<b>Method 51</b> by microwave extraction and HPLC	A
Soil	pH	<b>Method 39</b> by electrometric measurement by EC robot/manual probe based on BS 1377:Part 3:1990, Method 9	A
Soil	Sulphate: Water Soluble Chloride: Water Soluble	<b>Method 335</b> by ion chromatography based on Methods for the Collection and Analysis of Samples from National Grid Sites Version 1.0 Sept 2006	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOILS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate (cont'd)	
Soil	Organic Matter	<b>Method 36</b> by titration based on BS 1377:Part 3 ISBN 058 018 370 X	A
Land (a component part of which is Soil), Sediment, Sludge	Total solids Loss on ignition	<b>CON 10</b>	A



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<b>WASTE WATERS</b>	<b>Inorganic Chemistry Waters</b>		
	<u>Chemical Tests and Physical Tests</u>		
Land Leachate, Trade Effluent (to sewer), Treated Sewage	Anionic detergents (MBAS)	<b>WAS020</b>	A
Land Leachate, Trade Effluent (to sewer), Treated Sewage	Nonionic detergents	<b>WAS032</b>	A
Land Leachate, Surface water, Trade effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Ammoniacal nitrogen	<b>WAS036</b>	A
Land Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Chloride	<b>WAS036</b>	A
Land Leachate, Trade Effluent (to sewer & controlled waters), Treated Sewage, Groundwater, Surface Water & Process Water	Cyanide: Total & Free	<b>WAS018</b>	A
Land Leachate, Trade Effluent (to sewer) Treated Sewage, Groundwater, Surface Water & Process Water	Cyanide: Total excluding iron cyanides	<b>WAS018</b>	A
Land Leachate, Trade Effluent (to sewer) & Treated Sewage	Cyanide complex (by calculation)	<b>WAS018</b>	A





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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Total nitrogen	<b>WAS022</b>	A
Trade Effluent (to sewer) , Treated Sewage, Untreated Sewage	Kjeldahl (by calculation)	<b>WAS022</b> (by calculation)	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage , Untreated Sewage, Recreational & Clean Process Water	Nitrate (Oxidised Nitrogen - Nitrite)	<b>WAS036</b> (by calculation)	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Nitrite	<b>WAS036</b>	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Orthophosphate	<b>WAS036</b>	A
Ground Water, Land Leachate Prepared Leachate, Trade Effluent (to sewer), Treated Sewage	Phenol, monohydric	<b>WAS019</b>	A
Ground Water, Prepared Leachate, Land Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage	Thiocyanate	<b>WAS034</b>	A
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Sulphide	<b>WAS033</b>	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Total Oxidised Nitrogen	<b>WAS036</b>	A
Ground Water, Surface Water, Land Leachate, Trade Effluent (to sewer), Treated Sewage	Chromium VI	<b>WAS031</b>	A
Groundwater, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Process & Recreational Water	Sulphate	<b>CON 27</b> by ion chromatography	A
Groundwater, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Bromide Chloride	<b>CON 27</b> by ion chromatography	A
Process & Recreational Water	Nitrate Nitrite TON (by Calculation)	<b>CON 27</b> by ion chromatography	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage	Ammoniacal Nitrogen	<b>WAS055</b>	A
Surface Water, Groundwater, Prepared Leachate, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Biochemical Oxygen Demand	<b>WAS001</b>	A



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**ALS Environmental Ltd**  
**Coventry**

**Issue No: 115 Issue date: 16 May 2018**

**Testing performed by the Organisation at the locations specified**

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Surface Water, Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Fluoride	<b>WAS029</b>	A
Ground Water, Land Leachate, Treated Sewage, Process & Surface Water	Electrical conductivity	<b>WAS039</b> by manual and automated techniques	A
Groundwater, Land Leachate, Prepared Leachate, Trade Effluent (to sewer) , Treated Sewage, Untreated Sewage, Recreational, Process & Surface Water	pH	<b>WAS039</b> by manual and automated techniques	A
Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Sulphate	<b>WAS036</b>	A
Ground Water, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Solids: Suspended : Non-volatile (Ash)	<b>WAS006</b>	A
Surface Water, Process Water and Recreational Waters	Suspended Solids	<b>WAS006</b>	A
Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Total organic carbon	<b>WAS005</b>	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational, Process & Surface Water	Alkalinity	<b>WAS039</b> by automated techniques	A
Surface Water, Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Chemical Oxygen Demand	<b>WAS040</b>	A
Ground Water, Treated Sewage	Oxygen; Dissolved	<b>WAS052</b>	A
Trade Effluent (to sewer and controlled waters), Treated sewage effluent	Free Formaldehyde	<b>WAS030</b> using spectrophotometer	A
Ground Water, Trade Effluent (to sewer), Treated Sewage	Ammonia	<b>WAS067</b>	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Surface Water, Process Water & Recreational Water	<u>Metals:</u> total and dissolved Aluminium Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Molybdenum Nickel Phosphorous	<b>WAS049</b> ICP-OES	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Surface Water, Process Water & Recreational Water	<u>Metals:</u> total and dissolved Potassium Silver Sodium Thallium Tin Titanium Vanadium Zinc	<b>WAS049</b> ICP-OES	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>Metals:</u> total and dissolved Strontium Sulphur Calcium Hardness Magnesium Hardness Total Hardness	<b>WAS049</b> ICP-OES	A
Surface Water, Trade Effluent (to sewer), Treated Sewage, Recreational Water & Process Water	Colour	<b>WAS065</b>	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Trade Effluent (to sewer and controlled waters), Treated Sewage	Colour Scan	<b>WAS027</b>	A
Ground Water, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational Water & Process Water	Turbidity	<b>WAS066</b>	A
Prepared Leachate, Surface water, Untreated Sewage & Trade Effluent	<u>Total and Dissolved Metals</u> Aluminium Antimony Barium Beryllium Boron Cadmium Chromium Cobalt Copper	<b>WAS060 ICPMS</b>	A
Prepared Leachate, Surface water, Untreated Sewage & Trade Effluent	<u>Total and Dissolved Metals</u> Iron Lead Lithium Manganese Molybdenum Nickel Phosphorus Selenium Strontium Thallium Tin Titanium Vanadium Zinc	<b>WAS060 ICPMS</b>	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Prepared Leachate, Surface water & Untreated Sewage	<u>Total and Dissolved Metals</u> Arsenic Uranium	<b>WAS060</b> ICPMS	A
Ground Water, Land Leachate, Treated Sewage	<u>Elements:</u> total and dissolved Aluminium Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Lithium Manganese Mercury Molybdenum Nickel Phosphorus Selenium Silicon Strontium Thallium	<b>WAS060</b> ICPMS	A
Ground Water, Land Leachate, Treated Sewage	<u>Elements:</u> total and dissolved <u>Tin</u> <u>Titanium</u> <u>Uranium</u> <u>Vanadium</u> <u>Zinc</u>	<b>WAS060</b> ICPMS	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Ground Water, Land Leachate, Surface Water Prepared Leachate, Treated/Untreated Sewage Effluent & Trade Effluent	<u>Elements:</u> total and dissolved Tellurium	<b>WAS060</b> ICPMS	A
Recreational & Process Water	Arsenic Selenium	<b>WAS060</b> ICPMS	A
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Trade Effluent (to Sewer), Recreational Water, Process Water (Clean & Dirty)	Total & Dissolved Metals: Lithium Beryllium Boron Sodium Magnesium Aluminium Phosphorus Potassium Calcium Titanium Vanadium Chromium Iron Manganese Cobalt Nickel Zinc Arsenic Selenium Strontium Cadmium Barium Lead	<b>WAS076</b> by ICPMS	A
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Recreational Water, Process Water (clean), Trade Effluent (to Sewer)	Total & Dissolved Metals: Molybdenum Copper	<b>WAS076</b> by ICPMS	A





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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Trade Effluent (to Sewer)	Total & Dissolved Metals: Tin Antimony Tellurium Thallium Uranium	<b>WAS076</b> by ICPMS	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Controlled Water)	Total & Dissolved Metals: Lithium Beryllium Boron Sodium Magnesium Potassium Calcium Titanium Vanadium Selenium <u>Strontium</u> Molybdenum Tellurium Barium Thallium Uranium	<b>WAS076</b> by ICPMS	A
Prepared leachates, Land Leachate, Process Water	Total Mercury	<b>WAS013</b> using Cold vapour fluorescence	A
Groundwater, Surface Water	Total and Dissolved Mercury	<b>WAS013</b> using Cold vapour fluorescence	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Sewer), Prepared Leachate, Ground Water, Land Leachate, Recreational Water, Process Water and Surface Water	Total Dissolved Solids @ 180°C	<b>WAS010</b> by Gravimetry	A



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SOILS	<b>Organic Chemistry Soils</b> <u>Chemical Tests and Physical Tests</u>		
Soil	Solvent Extractable Matter: (with boiling point > 190 °C) Cyclohexane Toluene	<b>Method 43</b> by Soxhlet extraction and gravimetry	A
Soil	Volatile Petroleum Hydrocarbons: C5-C10 benzene toluene ethylbenzene o-xylene m/p-xylene MTBE	<b>Method 304</b> by GC-MS/FID	A
Soil	Volatile Petroleum Hydrocarbons: Total VPH >C5-C10 Aliphatic/aromatic speciation. Banding of aromatic fraction: >C5-C7 >C7-C8 >C8-C10 Total aromatics Banding of aliphatic fraction: >C5-C6 >C6-C8 Total aliphatics	<b>Method 304</b> by GC-MS/FID	A



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SOILS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Soil	<u>VOCs:</u> Vinyl chloride 1,1-Dichloroethene Methylene Chloride (DCM) Trans-1,2-Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene Chloroform Bromochloromethane 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon tetrachloride 1,2-Dichloroethane Benzene Trichloroethylene 1,2-Dichloropropane Bromodichloromethane Dibromomethane Cis-1,3-Dichloropropene Toluene Trans-1,3-Dichloropropene 1,1,2-Trichloroethane 1,3-Dichloropropane Tetrachloroethylene Dibromochloromethane 1,2-Dibromoethane Chlorobenzene Ethylbenzene 1,1,1,2- Tetrachloroethane m/p xylene o-Xylene Styrene Isopropylbenzene Bromoform 1,1,2,2-Tetrachloroethane	<b>Method 327</b> by headspace GC-MS based on USEPA Method 8260/624	A



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SOIL (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Soil(cont'd)	VOCs: (cont'd) 1,2,3-Trichloropropane n-Propylbenzene Bromobenzene 1,3,5-Trimethylbenzene 2-Chlorotoluene 4-Chlorotoluene Tert-Butylbenzene 1,2,4-Trimethylbenzene Sec-butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene 1,2,3 Trichlorobenzene	<b>Method 327</b> by headspace GC-MS based on USEPA Method 8260/624 (cont'd)	A
Soil	Hydrocarbons, >C6 - C40 (to include banding)	<b>Method 317</b> by solvent extraction and GC-FID based on CEN/TC 292/WG5	A
Soil	Extractable Petroleum Hydrocarbons: Total EPH C10-C44 Banding: >C <sub>10</sub> to C <sub>12</sub> >C <sub>12</sub> to C <sub>16</sub> >C <sub>16</sub> to C <sub>21</sub> >C <sub>21</sub> to C <sub>35</sub> >C <sub>21</sub> to C <sub>40</sub> >C <sub>35</sub> to C <sub>44</sub>	<b>Method 317EPH</b> by GC-FID	A



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SOILS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Soil	Aliphatic/aromatic speciation. Banding of aromatic fraction: >C <sub>10</sub> to C <sub>12</sub> >C <sub>12</sub> to C <sub>16</sub> >C <sub>16</sub> to C <sub>21</sub> >C <sub>21</sub> to C <sub>35</sub> >C <sub>21</sub> to C <sub>40</sub> >C <sub>35</sub> to C <sub>44</sub> Total Aromatics	<b>Method 317EPH</b> by GC-FID	A
Soil	Banding of aliphatic fraction: >C <sub>10</sub> to C <sub>12</sub> >C <sub>12</sub> to C <sub>16</sub> >C <sub>16</sub> to C <sub>21</sub> >C <sub>21</sub> to C <sub>35</sub> >C <sub>16</sub> to C <sub>35</sub> >C <sub>21</sub> to C <sub>40</sub> >C <sub>35</sub> to C <sub>44</sub> Total Aliphatics	<b>Method 317EPH</b> by GC-FID	A
Sludge	Volatile Fatty Acids	<b>CON 17</b>	A
Soil	<u>SVOCs:</u> Anthracene Acenaphthene Acenaphthylene Benzo(a)anthracene Benzo(a)pyrene Chrysene Fluoranthene Fluorene Phenanthrene Pyrene Benzo(b)fluoranthene Benzo(ghi)perylene Benzo(k)fluoranthene Dibenz(a,h)anthracene Indeno (1,2,3-cd)pyrene Naphthalene	<b>Method 316</b> by GC-MS based on USEPA Method 8270/625 and USEPA method (SW8-46) 3510a	A



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SOILS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Soil	Phenols: Cresols Xylenols Trimethyl phenols Naphthol Resorcinol Phenol Total Phenols (sum of above)	<b>Method 322</b> by HPLC based on Methods for the Collection and Analysis of Samples from National Grid Sites Version 1.0 Sept 2006	A
WASTE WATERS	<u>Chemical Tests and Physical Tests</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water, Treated Sewage	<u>Substituted Urea Herbicides:</u> Chlortoluron Diuron Isoproturon Linuron Methabenzthiazuron Monolinuron Monuron	<b>GEO 37</b> by LC	A



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<p>WASTE WATERS (cont'd)</p> <p>Ground water, Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>Phenoxy Acid Herbicides and Benzonitrile Herbicides:</u>            Ioxynil            2,4,5-T            Mecoprop            Bromoxynil            Dicamba            Dichlorprop            2,4-DB            MCPB            2,4-D            2,3,6-TBA            MCPA            Benazolin            Bentazone            Clopyralid            Trichlopyr            Fenoprop            Fluoroxypyr</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 20</b></p>	<p>A</p>



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water, Trade effluent (to sewer), Treated Sewage	Pentachlorophenol	<b>GEO 20</b>	A
Ground water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Organotin Compounds: Di-n-butyltin Tri-n-butyltin Triphenyltin	<b>GEO 24</b>	A
Ground water, Land Leachate, Prepared Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Phenols: phenol 2-chlorophenol o-cresol m/p-cresol 2-nitrophenol 2,4-dimethylphenol 3,5-dimethylphenol 2,4-dichlorophenol 4-chlorophenol 2,6-dichlorophenol 4-chlor-3-methylphenol 2,4,5-trichlorophenol	<b>GEO18</b> by GC-MS	A
Surface water, Trade Effluent (to sewer), Treated Sewage	Acid Herbicides: 4-Chloro-2-Methylphenol 2,4-Dichlorophenol 2,4,6-Trichlorophenol 4-Chlorophenoxyacetic Acid MCPP (Mecoprop)	<b>GEO73</b> using SPE and GCMSMS	A





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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, Trade Effluent (to sewer), Treated Sewage	Acid Herbicides (Cont'd): MCPA 2,4- DP (Dichlorprop) 2,4-D Bromoxynil 2,4,5-TP (Fenoprop) Pentachlorophenol 2,4,5-T MCPB 4-n-Nonyl Phenol 2,4-DB Ioxynil 4 Tert Octyl Phenol	<b>GEO73</b> using SPE and GCMSMS	A
Ground Water, Land Leachate, Surface water, Treated Sewage, Untreated Sewage	Mecoprop	<b>GEO 49</b> using GCMS	A
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	<u>Alkyl (nonyl) phenols:</u> Tert-octylphenol	<b>GEO 51</b> using GC-MS	A
Land Leachate, Treated Sewage	VOCs (Boiling point range: -30° - 220 °C)	<b>GEO 32</b> , Qualitative identification of non-target compounds using GC-MSD (TIC)	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Land Leachate, Treated Sewage	SVOCs (Boiling point range: 100 ° - 500 °C)	<b>GEO 40</b> , Qualitative identification of non-target compounds using GC-MSD (TIC)	A
Ground Water, Land Leachate, Surface water, Trade Effluent (to sewer)	<u>Pesticides:</u> 1,2,4 trichlorobenzene 1,2,3 trichlorobenzene dichlorvos dichlobenil EPTC mevinphos tecnazene propachlor 2,4 D-methyl trifluralin chlorpropham 2,4, D-ethyl phorate alpha-HCH hexachlorobenzene 2,4 D-isopropyl dimethoate simazine atrazine propazine beta-HCH propetamphos diazinon propyzamide gamma-HCH Triallate	<b>GEO 47</b> by SPE and GC-MS-MS	A



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<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Surface water, Trade Effluent (to sewer) (cont'd)</p>	<p><u>Chemical Tests and Physical Tests</u> (cont'd)</p> <p><u>Pesticides:</u> (cont'd)            pirimicarb            2,4 D-n-butyl            2,4-D-iso-butyl            pirimiphos methyl            Terbutryn            Fenpropidin            Ethofumesate            Fenitrothion            Malathion            PCB52            Cyanazine            Chlorpyrifos            Fenpropimorph            Fenthion            parathion ethyl            Triademefon            Aldrin            Pendimethalin            chlorfenvinphos            isodrin            heptachlor epoxide            op'-DDE            cis-chlordane            PCB101            trans-chlordane            alpha endosulphan            flutriafol            pp'-DDE            op'-TDE            Dieldrin</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 47</b> by SPE and GC-MS-MS</p>	<p>A</p>



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water,	<u>Pesticides</u> (cont'd): Endrin PCB 118 pp'-TDE op'-DDT pp'-DDT PCB 138 terbuconazole diflufenican PCB180 phosalone coumaphos azinphos methyl azinphos ethyl cis-permethrin trans-permethrin cyfluthrin cypermethrin pentachlorobenzene Trietazine beta endosulphan triazophos PCB 153 Carbophenothion propiconazole PCB 28 parathion methyl alachlor ametryn prometryn heptachlor	<b>GEO 47</b> by SPE and GC-MS-MS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>SVOC:</u> Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(ghi)perylene Benzo(k)fluoranthene Bis(2-chloroethoxy)methane Bis(2-chloroisopropyl)ether Bis(2-chloroethyl)ether Bis(2-ethylhexyl)phthalate Butylbenzylphthalate 4-Bromophenyl-phenylether Carbazole Chrysene 2-Chlorophenol 2-Chloronaphthalene 2-methylphenol 4-Chloro-3methylphenol 4-Chlorophenyl-phenylether Dibenz(a,h)anthracene 1, 2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Diethylphthalate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate 2,4-Dichlorophenol 2,4-Dimethylphenol</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 40</b> using GC-MSD</p>	<p>A</p>



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<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage (cont'd)</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>SVOC:</u> (cont'd) 2,4-Dinitrophenol 2,6-Dinitrotoluene Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachloroethane Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnaphthalene Naphthalene Nitrobenzene N-Nitroso-di-n-propylamine 2-Nitrophenol 4-Nitrophenol Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 40 (cont)</b></p>	<p align="center">A</p>



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<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Prepared Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>VOC:</u> Chloromethane Chloroethane Bromomethane Vinyl Chloride Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane MTBE Trans-1,2-Dichloroethene 1,1-Dichloroethane Cis-1,2-Dichloroethene Chloroform Bromochloromethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1-Dichloropropene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Tetrachloroethene Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m&amp;p-Xylene Bromoform Styrene 1,1,2,2-Tetrachloroethane o-Xylene 1,2,3-Trichloropropane</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 32</b> using purge and trap GC-MSD</p>	<p>A</p>



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<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Prepared Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage (cont'd)</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>VOC:</u> (cont'd)            Sec-Butylbenzene            p-Isopropyltoluene            1,2,4-Trimethylbenzene            1,3-Dichlorobenzene            1,4-Dichlorobenzene            1,2-Dichlorobenzene            n-Butylbenzene            1,2-Dibromo-3-Chloropropane            1,2,4-Trichlorobenzene            Benzene            Carbon Tetrachloride            1,2-Dichloropropane            Trichloroethene (TCE)            Dibromomethane            Bromodichloromethane            Cis/Trans-1,3-Dichloropropene            Toluene            1,1,2-Trichloroethane            Hexachlorobutadiene            Naphthalene            1,2,3-Trichlorobenzene            Bromobenzene            2-Chlorotoluene            n-Propylbenzene            4-Chlorotholuene            1,3,5-Trimethylbenzene            Tert-Butylbenzene            Isopropylbenzene</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 32 (cont'd)</b></p>	<p>A</p>





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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage	Total Volatile Petroleum Hydrocarbons (VPH) C5-C10, including aromatic/aliphatic fractionation and quantification according to carbon banding, typically: >C5-C7 >C6-C8 >C8-C10	<b>GEO 45</b> using GC-FID and GC-MS-FID	A
Drinking Water, Prepared Leachate, Treated Sewage	Total Extractable Petroleum Hydrocarbons (EPH) C10-C44, including aromatic/aliphatic fractionation and quantification according to carbon banding, typically: >C10-C12 >C12-C16 >C16-C21 >C21-C44 >C10-C16 >C16-C24 >C24-C44	<b>GEO 46</b> using GC-FID	A



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<p>WASTE WATERS (cont'd)</p> <p>Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p><u>PAHs:</u> Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)Anthracene Chrysene Benzo(b)Fluoranthene Benzo(a)Pyrene Dibenz(ah)anthracene Indeno(123-cd)Pyrene Benzo(ghi)Perylene Benzo(k)Fluoranthene</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p><b>GEO 19</b></p>	<p align="center">A</p>



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	MTBE Chloroform 1,1,1 Trichloroethane 1,2 Dichloroethane Carbon Tetrachloride Benzene Trichloroethene Bromodichloromethane Toluene 1,1,2,Trichloroethane Tetrachloroethene Dibromochloromethane Ethylbenzene m&p Xylene o Xylene Styrene Bromoform 1,1,2,2 Tetrachloroethane	<b>GEO 56</b> using Headspace GC/MS	A
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	Volatile fatty acids	<b>CON 17</b>	A
Drinking Water, Prepared Leachate, Treated Sewage	Total Petroleum Hydrocarbons (C6-C40)	<b>GEO 35</b>	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	Hexane Extractable Compounds: BifenoX Cypermethrin Endosulphan (Total) alpha-Endosulphan beta-Endosulphan Endosulphan Sulphate	GEO79 - by liquid - liquid extraction and GCMSMS NCI	A
Surface water, saline water and groundwater	Hexane Extractable Compounds: HBCDD(Total) alpha-HBCDD beta-HBCDD gamma-HBCDD	GEO80 - by liquid - liquid extraction and LCMSMS	A
Surface water, saline water and groundwater	Organic compounds: Atrazine Bentazone DEHP Dichloroprop-p Diuron Isoproturon Cloridazon Mecoprop Metribuzin Pentachlorophenol PFOS	GEO82 - by HRAM LCMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater (cont'd)	Organic compounds (cont'd): Simazine PFOA Metamitron Quinoxifen Sulfosulfuron	GEO82 - by HRAM LCMS	A
Surface water, saline water and groundwater	VOCs Dichloromethane trans-1,2-Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Toluene 1,1,2-Trichloroethane Tetrachloroethene Ethylbenzene m,p-Xylene o-Xylene Total xylene Naphthalene	GEO85 – by Headspace GCMS	A



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<p>WATERS (cont'd)</p> <p>Surface water, groundwater trade effluent, treated sewage effluent &amp; landfill leachate</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p>VOCs Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane MTBE trans-1,2-Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene 2,2-Dichloropropane Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane cis-1,3-Dichloropropene Toluene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p>GEO76 – by Headspace GCMS</p>	<p>A</p>



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<p>WATERS (cont'd)</p> <p>Surface water, groundwater trade effluent, treated sewage effluent &amp; landfill Leachate (cont'd)</p>	<p><u>Chemical Tests and Physical Tests (cont'd)</u></p> <p>VOCs (cont'd) 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m,p-Xylene o-Xylene Styrene Bromoform Isopropylbenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane Bromobenzene n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene</p>	<p>Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate</p> <p>GEO76 – by Headspace GCMS</p>	<p>A</p>



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WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	Organic Compounds: Aclonifen Alachlor <i>Cyclodiene Pesticides (WFD sum of 4)</i> Aldrin Dieldrin Endrin Isodrin Anthracene Benzo(a)Pyrene Benzo(b)Fluoranthene Benzo(k)Fluoranthene Indeno(1,2,3-cd)-pyrene Benzo(ghi)perylene Cybutryne <i>DDT - Total WFD</i> pp-DDE pp-DDD (TDE) op-DDT pp-DDT Diflufenican Fluoranthene <i>Sum Heptachlor &amp; Heptachlor epoxide (cis &amp; trans)</i> Heptachlor cis-Heptachlor Epoxide trans-Heptachlor Epoxide Hexachlorobenzene Hexachlorobutadiene	GEO78 – by liquid – liquid extraction (GEO77) and GCMSMS EI	A





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WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater (cont'd)	Organic Compounds: (cont'd) <i>Hexachlorocyclohexane – Total WFD</i> alpha-HCH beta-HCH gamma-HCH delta-HCH epsilon-HCH Quinoxifen Chlorfenvinphos Chlorpyrifos Pentachlorobenzene <i>PBDEs – Total WFD</i> BDE 28 BDE 47 BDE 99 BDE 100 BDE 153 BDE 154 Terbutryn TBT Trifluralin <i>Trichlorobenzene – Total WFD</i> 1,3,5-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene	GEO78 – by liquid – liquid extraction (GEO77) and GCMSMS EI	A



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WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	Organic compounds Dichlorvos Diclofenac MCPA Pirimicarb Simazine Cybutryne Sulfosulfuron Triclosan	GEO83 – by on-line SPE and LCMSMS	A
Groundwater and Surface Water	Metsulfuron-methyl	GEO83 – by on-line SPE and LCMSMS	A
Surface water, saline water and groundwater	Steroids: Estrone 17-β-Estradiol 17-α-Ethynylestradiol	<b>GEO 75</b> by SPE & GCMSMS	A



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WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Landfill and Biogenic gases	<u>Sampling and on line analysis</u>	Documented In-house procedures	
Sampling from Boreholes	Carbon Dioxide Methane Oxygen	COM 7 using a GA 5000 multi gas analyser	B
WASTE WATERS	Sampling For:		
Ground Water	Chemical Testing	Waterra Powerpack PP1 pump using procedure COM 05	D
Surface Water	Chemical Testing	Spot sampling using procedure COM 06	D
Drinking Water (non-regulatory), Process Water and Recreational water	Legionella testing	Using procedure COM 12	D
Trade Effluent from interceptors	Chemical Testing	Spot sampling using procedure COM 13	D
Sludge (digester feed, Liquid to land and Cake to land)	Microbiology Testing	Using procedure SLU 01	B



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WATERS	<b>Microbiology</b> <u>Microbiological Tests</u>	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water 2002" unless stated otherwise	
Drinking Water, Ground Water, Process Water, Recreational Water, Surface Water	Total aerobic micro-organisms at 22°C, 37°C & 30°C	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	A
Drinking Water, Ground Water, Surface Water	<i>Salmonella</i> spp, detection and confirmation	<b>W2</b> based on "The Microbiology of Drinking Water", Part 9 using membrane filtration, followed by traditional or protein profiling confirmation	A
Drinking Water, Ground Water Process Water, Recreational Water, Surface Water	Enterococci, presumptive and confirmed	<b>W7</b> based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation	A



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WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Drinking Water, Ground Water, Process Water, Surface Water	Sulphite reducing clostridia, including <i>clostridium perfringens</i> presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	A
Drinking Water, Ground Water, Process Water, Surface Water	Coliforms presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A
Drinking Water, Ground Water Process Water, Surface Water	<i>Escherichia coli</i> presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A
Drinking Water, Ground Water Process Water, Surface Water	<i>Pseudomonas</i> spp, presumptive and confirmed	<b>W9</b> by membrane filtration	A
Drinking Water, Ground Water, Process Water (including High Purity & DI Waters used for endoscope rinsing), Recreational Water, Surface Water	<i>Pseudomonas aeruginosa</i> , confirmed	<b>W11</b> based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation	A
Recreational Water	Enumeration of Coliforms and <i>Escherichia coli</i> - presumptive	<b>W26</b> based on "The Microbiology Recreational and Environmental Waters", using membrane filtration	A



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WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Soil, Sludge and Sediment	<i>E coli</i> (per g dry weight)	<b>W24</b> based on "The Microbiology of Sewage Sludge, 2003", Parts 1-4, using membrane filtration	A
Soil and sludge	<i>Salmonella</i> spp (per g dry weight)	<b>W2</b> based on "The Microbiology of Sewage Sludge", Part 4 with traditional or protein profiling confirmation	A
	Identification and Enumeration:		
Drinking Water, Process Water, Recreational Water	<i>Legionella</i> spp <i>Legionella pneumophila</i> serogroups 1 and 2-15	<b>W5</b> based on BS 6068-4.12:1998 (ISO 11731:1998) with traditional or protein profiling confirmation	A
Process Water	Coliforms presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	O
Process Water	<i>Escherichia coli</i> presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	O
Process Water	Enterococci, presumptive and confirmed	<b>W7</b> based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation	O



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**Issue No: 115 Issue date: 16 May 2018**

**Testing performed by the Organisation at the locations specified**

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Process Water	Sulphite reducing clostridia, including <i>clostridium perfringens</i> presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	O
Process Water	Total aerobic micro-organisms at 22°C, 37°C	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	O
Process Water (High Purity & DI Waters used for dialysis & endoscope rinsing)	Total aerobic micro-organisms at 22°C for 7 days	<b>W38</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	A
Process Water (High Purity & DI Waters used for endoscope rinsing)	Total aerobic micro-organisms at 30°C for 5 days	<b>W38</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	A
	<u>Biological Tests</u>		
Process Water	Algae	Method W44 using microscopic examination	A
Process Water	Zooplankton (including veligers)	Method W46 using macroscopic examination	A



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<b>SECTION 4</b>			
WATERS	<b>Microbiology</b> <u>Microbiological Tests</u> Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614) & the Public Water Supplies (Scotland) Regulations 2014 (SI 364). The testing is in accordance with the Drinking Water Testing Specification ( <b>DWTS</b> )	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water " unless stated otherwise	
Drinking Water & Ground Water	Total aerobic micro-organisms at 22°C (3 day) & 37°C (2 day)	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
Drinking Water, Ground Water & Surface Water	Enterococci, presumptive and confirmed	<b>W7</b> based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation	C
Drinking Water	Clostridium perfringens presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	C
Drinking Water	Total Coliforms presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	C





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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u>		
	Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614) & the Public Water Supplies (Scotland) Regulations 2014 (SI 364). The testing is in accordance with the Drinking Water Testing Specification ( <b>DWTS</b> )	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water " unless stated otherwise	
Drinking Water	<i>Escherichia coli</i> presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	C
Drinking Water	<i>Pseudomonas aeruginosa</i> , presumptive and confirmed	<b>W11</b> based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation	C
Drinking Water	<i>Pseudomonas</i> spp, presumptive and confirmed	<b>W9</b> by membrane filtration	C
Drinking Water	Sulphite reducing clostridia presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	C



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water" unless stated otherwise	
Process & Recreational Water	Total aerobic micro-organisms at 22°C (3 day) & 37°C (2 day)	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
Process Water	Enterococci, presumptive and confirmed	<b>W7</b> based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation	C
Process Water	Clostridium perfringens presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	C
Process & Recreational Water	Total Coliforms presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	C
Process & Recreational Water	<i>Escherichia coli</i> presumptive and confirmed	<b>W10</b> based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	C



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water" unless stated otherwise	
Process & Recreational Water	<i>Pseudomonas aeruginosa</i> , presumptive and confirmed	<b>W11</b> based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation	C
Process Water	<i>Pseudomonas spp</i> , presumptive and confirmed	<b>W9</b> by membrane filtration	C
Process Water	Sulphite reducing clostridia presumptive and confirmed	<b>W8</b> based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	C
Recreational Water	Total aerobic micro-organisms at 37°C (1 day)	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
Process Water	Total aerobic micro-organisms at 30°C (2 day)	<b>W1</b> based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
END			