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ISO/IEC 17025:2005

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

Scientific Analysis Laboratories Ltd
Issue No: 049 Issue date: 22 December 2011

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>STACK GASES FLY ASH SOILS SEDIMENTS (liquid and solid matrix) VEGETATION EFFLUENT DUST CHEMICALS WATERS - SURFACE WATER, GROUND WATER and POTABLE WATER (Non-Regulatory) BIOLOGICAL MATERIALS including mussels and blood FOODS (Fatty Materials and Edible Oils)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Poly Chlorinated Biphenyls (PCBs) (cont'd):</p> <p>Who 12 PCBs: Pentachloro, BZ #105 Pentachloro, BZ #114 Pentachloro, BZ #118 Pentachloro, BZ #123 Hexachloro, BZ #156 Hexachloro, BZ #157 Hexachloro, BZ #167 Heptachloro, BZ #189 Tetrachloro, BZ#81 Tetrachloro, BZ#77 Pentachloro, BZ#126 Hexachloro, BZ#169</p> <p>Total PCB (Tri-Hepta)</p>	<p>Documented In-House Method SOP 11 based on USEPA Method 8082 using Gas Chromatography - High Resolution Mass Spectrometry and labelled internal standards</p>
<p>STACK GASES AMBIENT AIR SOILS SEDIMENTS (liquid and solid matrix) VEGETATION EFFLUENT WATERS - SURFACE WATER, GROUND WATER and POTABLE WATER (Non-Regulatory) BIOLOGICAL MATERIALS including mussels and blood FOODS (Fatty Materials and Edible Oils)</p>	<p>Semi-Volatile Organic Compounds (SVOC) with boiling points between 180 - 550 °C</p> <p><i>The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the individual compounds they can analyse using this method.</i></p>	<p>Methods Developed and Validated according to In-House Method SOP 12. Using one or more of the following techniques: Solvent Desorption GC-MS Direct Injection GC-MS (With or Without Prior Extraction) SIR/SIM/Scanning GC-MS TOF GC-MS</p>
	<p>Volatile Organic Compounds (VOC) with boiling points between -50 to 220 °C</p> <p><i>The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the individual compounds they can analyse using this method.</i></p>	<p>Methods Developed and Validated according to In-House Method SOP 12. Using one or more of the following techniques: Purge and Trap GC-MS Solvent Desorption GC-MS Thermal Desorption GC-MS Direct Injection GC-MS (With or Without Prior Extraction) SIR/SIM/Scanning GC-MS TOF GC-MS</p>



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SOILS, SEDIMENTS (Liquid and Solid Matrix), WATERS Raw and Potable (Non-Regulatory) (cont'd)	<u>Chemical Tests</u> (cont'd) Semi-Volatile Organic Compounds <u>EPA 625 Suite:</u> Phenol Bis (2-chloroethyl) ether 2-Chlorophenol 1,3-Dichlorobenzene Nitrobenzene Isophorone 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-chloroisopropyl) ether 2-Methylphenol 3/4 Methylphenol Hexachloroethane 2-Nitrophenol 2,4-Dimethylphenol Bis (2-chloroethoxy) methane 2,4-Dichlorophenol 1,2,4-Trichlorobenzene Naphthalene 4-Chloroaniline (p) Hexachlorobutadiene 4-Chloro, 3-methylphenol 2-Methylnaphthalene Hexachlorocyclopentadiene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 2-Chloronaphthalene 2-Nitroaniline Dimethyl phthalate 2,6-Dinitrotoluene Acenaphthylene Acenaphthene 3-Nitroaniline (m) 2,4-Dinitrophenol Dibenzofuran 2,4-Dinitrotoluene 4-Nitrophenol Diethyl phthalate Fluorene 4-Chlorophenylphenyl ether 4-Nitroaniline Azobenzene 4-Bromophenylphenyl ether Hexachlorobenzene	Documented In-House Method SOP12E using GC-MS



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SOILS, SEDIMENTS (Liquid and Solid Matrix), WATERS Raw and Potable (Non-Regulatory) (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Semi-Volatile Organic Compounds <u>EPA 625 Suite:</u> (cont'd)</p> <p>Pentachlorophenol Phenanthrene Anthracene Carbazole Dibutyl phthalate Fluoranthrene Pyrene Butyl benzyl phthalate Benzo (a) anthracene Chrysene Bis (2-ethylhexyl) phthalate Di-octyl phthalate Benzo (b) fluoranthrene Benzo (k) fluoranthrene Benzo (a) pyrene Indeno (123cd) pyrene Dibenz (ah) anthracene Benzo (ghi) perylene</p> <p>Volatile Organic Compounds <u>EPA 624 Suite:</u></p> <p>Dichlorodifluoromethane Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethylene Methylene Chloride 1,1-Dichloroethane Trans-1,2-Dichloroethylene MTBE 2,2-Dichloropropane cis-1,2-Dichloroethylene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene Benzene 1,2-Dichloroethane Trichloroethylene</p>	<p>Documented In-House Method SOP12E using GC-MS</p> <p>Documented In-House Method SOP12I and SOP 12J using GC-MS</p>



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SOILS, SEDIMENTS (Liquid and Solid Matrix), WATERS Raw and Potable (Non-Regulatory) (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds EPA 624 Suite: (cont'd)</p> <p>1,2-Dichloropropane Dibromomethane Bromodichloromethane cis-1,3-Dichloropropene Toluene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethylene 1,3-Dichloropropane Chlorodibromomethane 1,2-Dibromomethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m+p-Xylene o-Xylene Stryene Bromoform Isopropylbenzene 1,1,2,2-Tetrachloroethane Bromobenzene 1,2,3-Trichloropropane 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 Tertiary Amyl Methyl Ether</p>	<p>Documented In-House Method SOP12I and SOP 12J using GC-MS</p>



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ATMOSPHERIC POLLUTANTS AND EFFLUENTS - AMBIENT AIR	<u>Chemical Tests</u> (cont'd)	
Molecular Sieve Tubes	Nitrous Oxide (N ₂ O)	Documented In-House Method SOP12R using Thermal desorption and GC-MS
ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES and AMBIENT AIR		
Carbon tubes	Siloxanes: Hexamethyldisiloxane Hexamethylcyclotrisiloxane Octamethyltrisiloxane Octamethylcyclotetrasiloxane Decamethyltetrasiloxane Decamethylcyclopentasiloxane	Documented In-House Method SOP12S using GC-MS
Carbon tubes	Speciated VOC's: Pentane Isopropyl alcohol Methyl acrylate Chloroform Tetrahydrofuran Cyclohexane Carbon tetrachloride 2-Methoxy ethanol Heptane Trichloroethylene Ethylacrylate Methylcyclohexane Octane Tetrachloroethylene Nonane Styrene Cyclohexanone Decane Dodecane	Documented In-House Method SOP12Q using GC-MS
Carbon tubes	Dichloromethane (DCM)	Documented In-House Method SOP12T using GC-MS



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ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES and AMBIENT AIR (cont'd)	<u>Chemical Tests</u> (cont'd)	
FILTERS - Cellulose Ester Membrane & Treated Pads (MCE filters)	Fluoride	Procedures Manual Inorganic Section 12 Using ISE analysis
Treated XAD tubes	Aldehydes: Formaldehyde Acetaldehyde Acrolein Butyraldehyde Isobutyraldehyde Crotonaldehyde Isovaleraldehyde Hexanal Heptanal Furfural Valeraldehyde	Documented In-House Method SOP12U using GC-MS
Carbon/TENAX Filters	BTEX/VOC: Benzene Styrene Naphthalene Ethanol Acetone MTBE Hexane MEK Ethyl Acetate Isobutanol Isopropylacetate Butanol 1-Methoxy-2-propanol MIBK Toluene Butyl Acetate Ethylbenzene 1-Methoxy-2-propyl acetate m+p Xylene o-Xylene 1,3,5-Trimethylbenzene 1,2,4-Trimethylbenzene 1,2,3-Trimethylbenzene	Documented In-House Methods SOP12F and SOP12G using GC-MS



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ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES and AMBIENT AIR	<u>Chemical Tests</u> (cont'd)	
ADSORBENT BADGES	Sevoflurane Halothane Isoflurane	SOP 12N by GC-MS
Treated XAD tubes (phosphoric acid treated)	Triethylamine	Documented In-House Method SOP12X using GC-MS
FILTERS - MCE	Sum of phenanthrene carboxylic acids [colophony]	Documented In-House Method SOP12O using GC-MS
XAD tubes	Polynuclear Aromatic Hydrocarbons (EPA 16): Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Flouranthene Pyrene Benz (a) anthracene Chrysene Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (123cd) pyrene Diben (ah) anthracene Benzo (ghi) perylene	Documented In-House Method SOP12P using GC-MS
XAD tubes	Phenols: Phenol 2-Methylphenol (o-Cresol) 3/4-Methylphenol (m+p-Cresol) 2,6-Dimethylphenol (Xylenol) 2,5-Dimethylphenol (Xylenol) 2,3-Dimethylphenol (Xylenol) Cresol Xylenol	Documented In-House Method SOP12P using GC-MS
ATMOSPHERIC POLLUTANTS AND EFFLUENTS - AMBIENT AIR		
Anasorb C300 Passive Sampling Tubes	Mercury	MDHS 16/2 using CV-AFS analysis (Inorganic Procedures Section 22)



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<p>LANDFILL GASES</p> <p>Composite sorbent tube (tenax, carbon and molecular sieve)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>1-pentene 1,1-dichloroethane Dichloroethylene 1,2-dichloroethylene 1,3-butadiene 1-propanethiol Benzene Chloromethane Carbon tetrachloride Dimethyl sulphide n-butyl mercaptan Trichloroethylene Vinyl chloride monomer</p>	<p>Documented In-House Method SOP12Y using GC-MS</p>
<p>SOILS</p>	<p>Organochlorine Pesticides:</p> <p>Alpha-HCH HCB Gamma-HCH (Lindane) Beta-HCH Heptachlor Aldrin Isodrin Heptachlor Epoxide Cis-Chlordane Trans-Chlordane Alpha-Endosulphan p,p-DDE Dieldrin Endrin p,p-DDD p,p-DDT</p> <p>Dichlorvos Mevinphos Trifluralin Dimethoate Diazinon Pirimiphos-Methyl Malathion Fenitrothion Chlorpyrifos Parathion Clofenvinfos Carbofenthion Azinphos Methyl</p>	<p>Documented In-House Method SOP12C using GC-MS</p> <p>Documented In-House Method SOP12D using GC-MS</p>



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COLLECTION SUBSTRATES (Filters), I.O.M CASSETTES and PUF's, including EMFAB filters	<u>Physical Tests</u> Particulate Weights	Documented in House Method SAL Organic SOP # 14 (Based on MDHS 14-3)
ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES		Documented In-House Methods based on the following national, international and other recognised standards
Filter Papers and Rinse Solutions	Weighing of Particulate Matter	Documented In-House Method SAL Organic SOP # 14 to BS EN 13284-1:2002, MID 13284-1
Sorbent tubes (Carbon)	<u>Chemical Tests</u> Total Petroleum Hydrocarbons	Documented In-House Method SAL SOP 6M using GC FID
Sorbent tubes (Carbon)	Volatile Organic compounds Benzene Toluene Ethyl benzene m,p and o Xylene Styrene Naphthalene Ethanol Acetone MTBE Hexane MEK Ethyl acetate Isobutanol Isopropyl acetate Butanol 1-Methoxy-2-propanol MIBK Butyl acetate 1-Methoxy-2-propyl acetate 1,3,5-Trimethyl benzene 1,2,4-Trimethyl benzene 1,2,3-Trimethyl benzene	BS EN 13649:2002 using solvent extraction and GC MS analysis (SOP 12F and 12G)



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ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Methods based on the following national, international and other recognised standards
Impinger solutions (Toluene) Filters (coated with 1-(2-methoxyphenyl) piperazine and 1-(2-pyridyl) piperazine)	Isocyanates: 1,6-hexamethylene diisocyanate 2,4-toluene diisocyanate 2,6-toluene diisocyanate 4,4'-methylene(bis) phenylisocyanate isophorone diisocyanate dicyclohexylmethane diisocyanate	HSE MDHS 25/3 using HPLC analysis (SOP 15)
Impinger Solutions (sodium hydroxide or water)	Fluoride Chloride Nitrite Nitrate Bromide Phosphate Sulphate Chlorine Bromine	US EPA Method 26 using Ion Chromatography analysis (Inorganic Procedures Section 11)
Impinger Solutions (water)	Hydrogen Chloride	BS EN 1911:2010 using Ion Chromatography analysis (Procedures Manual Inorganic Section 11)
Impinger Solutions (sodium hydroxide)	Hydrogen Fluoride	BS ISO 15713:2006 (modified) using Ion Chromatography analysis (Procedures Manual Inorganic Section 11)
Impinger Solutions (hydrogen peroxide)	Sulphur Dioxide	BS EN 14791:2005 using Ion Chromatography analysis (Procedures Manual Inorganic Section 11)
Impinger Solutions (sulphuric acid)	Ammonia	In-house method using colorimetric analysis (Procedures Manual Inorganic Section 14)



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Filters Probe rinses (nitric acid) Impinger Solutions (nitric acid/hydrogen peroxide)	Trace elements (heavy metals): Arsenic, Antimony, Cadmium, Cobalt, Chromium, Copper, Manganese, Nickel, Lead, Thallium, Vanadium, Beryllium	BS EN 14385:2004 Using microwave and HF digestion followed by: ICP-MS analysis (Procedures Manual Inorganic Section 21)
Filters Probe rinses (nitric acid) Impinger Solutions (nitric acid/hydrogen peroxide)	Trace elements (heavy metals): <i>The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the individual elements they can analyse using this method.</i>	BS EN 14385:2004 Using microwave and HF digestion followed by: ICP-MS analysis (Procedures Manual Inorganic Section 16)
Filters probe rinses (nitric acid) Impinger Solutions (nitric acid/hydrogen peroxide, sulphuric acid/potassium permanganate, nitric acid/potassium dichromate)	Trace elements (heavy metals): Arsenic, Antimony, Cadmium, Cobalt, Chromium, Copper, Manganese, Mercury, Nickel, Lead, Thallium, Vanadium, Beryllium	MID 14385 (BS EN 14385:2004, BS EN 13211:2001 and BS EN 1483:2007) Using microwave and HF digestion followed by: ICP-MS analysis (Procedures Manual Inorganic Section 21) AFS analysis (Procedures Manual Inorganic Section 22)
Filters Probe rinses (nitric acid) Impinger Solutions (sulphuric acid/potassium permanganate, nitric acid/potassium dichromate)	Trace elements (heavy metals): Mercury	BS EN 13211:2001 (BS EN 1483:2007) Using microwave and HF digestion followed by: AFS analysis (Procedures Manual Inorganic Section 22)



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<p>ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES (cont'd)</p> <p>Filters Probe and impinger rinses (acetone, toluene, hexane and water) XAD-2 resin trap</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Polycyclic aromatic hydrocarbons (PAHs): Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Chrysene Benzo (b) fluoranthene Benzo (k) fluoranthene Benzo (a) pyrene Indeno (1,2,3-cd) pyrene Dibenz (a,h) anthracene Benzo (ghi) perylene Benzo(b)naphtho (2,1-D)-thiophene Benzo(c) phenanthrene Retene Cyclopenta (cd) pyrene Benzo (j) fluoranthene Benzo (e) pyrene Perylene Anthanthrene Dibenzo (a,i) pyrene Dibenzo (a,l) pyrene Dibenzo (a,e) pyrene Dibenzo (a,h) pyrene Coronene Cholanthrene</p>	<p>Documented In-House Methods based on the following national, international and other recognised standards</p> <p>BS ISO 11338-2:2003 Extraction followed by GCMS analysis (Organic Procedures SOP12K)</p>



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<p>ATMOSPHERIC POLLUTANTS AND EFFLUENTS - STACK GAS SAMPLES (cont'd)</p> <p>Filters Probe and impinger rinses (toluene, acetone and water) XAD-2 resin trap</p> <p>Filters Probe and impinger rinses (toluene, acetone and water) XAD-2 resin trap</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Polychlorinated biphenyls (PCBs): PCB #28 PCB #52 PCB # 77 PCB # 81 PCB #101 PCB #105 PCB #114 PCB #118 PCB #123 PCB # 126 PCB #138 PCB #153 PCB #156 PCB #157 PCB #167 PCB #169 PCB #180 PCB #189</p> <p>Poly Chlorinated Dibenzo-p-Dioxins (PCDD): 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD</p> <p>Poly Chlorinated Dibenzo Furans (PCDF): 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF</p>	<p>Documented In-House Methods based on the following national, international and other recognised standards</p> <p>BS EN 1948-2:2006, and BS EN 1948-3:2006 Extraction followed by GCHRMS analysis (Organic Procedures SOP1 and 11)</p> <p>BS EN 1948-2:2006 and BS EN 1948-3;2006 Extraction followed by GCHRMS analysis (Organic Procedures SOP 1)</p>



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ANIMAL FEEDING STUFFS	<u>Chemical Tests</u> (cont'd) Trace elements (heavy metals): The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the individual elements they can analyse using this method.	Procedures Manual Inorganic Section 16A Using ICP-MS analysis
SOILS, LEACHATES, EFFLUENTS, GROUND WATER and POTABLE WATER (Non-Regulatory), FILTERS (non stack emissions) and WATER TREATMENT CHEMICALS	Trace elements (heavy metals): The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the individual elements they can analyse using this method.	Procedures Manual Inorganic Section 16 Using ICP-MS and ICP-OES analysis
HUMAN BODY FLUIDS	<u>Chemical Tests</u>	Documented In-House Methods
Urine	Mercury	Procedures Manual Inorganic Section 22 Using AFS analysis
Urine	Benzene metabolite s-phenylmercapturic acid [SPMA]	Documented In-House Method SOP12V using GC-MS
LEACHATES, SOILS, SLUDGES and SEDIMENTS WATERS, Raw and Potable (Non-Regulatory) WASTE WATERS, Treated and Untreated, Industrial and Domestic Waste	<u>Chemical Tests</u>	Documented In-House Methods based on Methods for the Examination of Water and Associated Materials (MEWAM), Department of the Environment Standing Committee Analysts and Standard Methods for the Examination of Water and Wastewater, American Public Health Association - American Water Works Association - Water Pollution Control Federation, (APHA-AWWA-WPCF) 1989, 17th Edition and 1992, 18th Edition
	Phenols (Monohydric)	Procedures Manual (Inorganic) Section 9 based on MEWAM ISBN 0117516171, HMSO 1981 by Spectrometry



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LEACHATES, SOILS, SLUDGES and SEDIMENTS WATERS, Raw and Potable (Non-Regulatory) WASTE WATERS, Treated and Untreated, Industrial and Domestic Waste	<u>Chemical Tests</u> (cont'd)	Documented In-House Methods based on Methods for the Examination of Water and Associated Materials (MEWAM), Department of the Environment Standing Committee Analysts and Standard Methods for the Examination of Water and Wastewater, American Public Health Association - American Water Works Association - Water Pollution Control Federation, (APHA-AWWA-WPCF) 1989, 17th Edition and 1992, 18th Edition
	Cyanide (Total and easily liberated)	Procedures Manual (Inorganic) Section 10 based on MEWAM ISBN 0117522198, HMSO 1988, and, APHA-AWWA-WPCFM Part 4500, by distillation and colorimetric determination
	Total and speciated petroleum hydrocarbons	Documented In-House Method SOP 6M using GC-FID
LEACHATES, WATERS, Raw and Potable (Non-Regulatory) WASTE WATERS, Treated and Untreated, Industrial and Domestic Waste	Ammonia	Procedure Manual (Inorganic) Section 14 based on MEWAM ISBN 0117516139, HMSO 1981 by Spectrophotometry
LEACHATES (prepared soil leachates) WATERS - SURFACE WATER, GROUND WATER and POTABLE/CLEAN WATER (Non-Regulatory)	pH	Procedures Manual (Inorganic) Section 19 based on BS 1377:Part 3:1990, MEWAM ISBN 0117514284, HMSO 1978 using Envirotech aqualyser 3V2
LEACHATES and GROUNDWATER	Phenols (Monohydric)	Procedures Manual (Inorganic) Section 24 based on APHA-AWWA-WPCFM Part 5530 using continuous flow colorimetric analysis



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<p>LEACHATES and GROUNDWATER</p> <p>LEACHATES, SOILS, SLUDGES and SEDIMENTS WATERS, Raw and Potable (Non-Regulatory) WASTE WATERS, Treated and Untreated, Industrial and Domestic FILTERS STACK GAS ABSORPTION SOLUTIONS</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Cyanide (Total and free)</p> <p>METALS: Aluminium Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Selenium Tin Vanadium Zinc</p>	<p>Documented In-House Methods based on Methods for the Examination of Water and Associated Materials (MEWAM), Department of the Environment Standing Committee Analysts and Standard Methods for the Examination of Water and Wastewater, American Public Health Association - American Water Works Association - Water Pollution Control Federation, (APHA-AWWA-WPCF) 1989, 17th Edition and 1992, 18th Edition</p> <p>Procedures Manual (Inorganic) Section 24 based on ISO 14403:2002, APHA-AWWA-WPCFM Part 4500 continuous flow colorimetric analysis</p> <p>Procedures Manual (Inorganic) Section 18 based on MEWAM ISBN 0117516155, HMSO 1981, and, APHA-AWWA-WPCF 1992, 18th Edition by Inductively Coupled Plasma Optical Emission Spectrometry</p>



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS, Potable (Non-Regulatory) and Ground LEACHATES, Landfill and Prepared</p> <p>LEACHATES SOILS, SLUDGES and SEDIMENTS WATERS, Raw and Potable (Non-Regulatory) WASTE WATERS, Treated and Untreated, Industrial and Domestic</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>METALS: Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Selenium Vanadium Zinc</p> <p>pH</p>	<p>Documented In-House Methods based on Methods for the Examination of Water and Associated Materials (MEWAM), Department of the Environment Standing Committee Analysts and Standard Methods for the Examination of Water and Wastewater, American Public Health Association - American Water Works Association - Water Pollution Control Federation, (APHA-AWWA-WPCF) 1989, 17th Edition and 1992, 18th Edition</p> <p>Procedures Manual (Inorganic) Section 23 using ICP-MS</p> <p>Procedures Manual (Inorganic) Section 19 based on BS 1377:Part 3:1990, MEWAM ISBN 0117514284, HMSO 1978, and, APHA-AWWA-WPCF 1992, 18th Edition</p>



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<p>WATERS, Raw, Potable (Non-Regulatory), LEACHATES (prepared soil leachates)</p> <p>WATER TREATMENT CHEMICALS: Flocculants (PAC, Alum, Aluminium Iron (III) Sulphate, Ferric)</p> <p>Flocculants (PAC, Alum, Aluminium Iron (III) Sulphate)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Total Organic Carbon</p> <p>METALS: Arsenic Cadmium Chromium Mercury Lead Antimony Selenium</p> <p>Nickel</p>	<p>Documented In-House Methods based on Methods for the Examination of Water and Associated Materials (MEWAM), Department of the Environment Standing Committee Analysts and Standard Methods for the Examination of Water and Wastewater, American Public Health Association - American Water Works Association - Water Pollution Control Federation, (APHA-AWWA-WPCF) 1989, 17th Edition and 1992, 18th Edition</p> <p>Documented In-House Method SAL Organic SOP # 13 based upon Part 5310, APHA-AWWA-WEF 1995 and EN 1484:1987 by High Temperature Catalytic Combustion and Infrared</p> <p>Procedures Manual (Inorganic) Section 23 by ICP-MS</p> <p>Procedures Manual (Inorganic) Section 23 by ICP-MS</p>



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SOILS	<p><u>Chemical Tests</u></p> <p>Phenols (Monohydric)</p> <p>Cyanide (Total and free)</p> <p>pH</p> <p>pH</p> <p>Polynuclear Aromatic Hydrocarbons: Naphthalene Acenaphthylene Acenaphthene Fluorene Phenathrene Anthracene Benz(a)anthracene Chrysene</p>	<p>Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil</p> <p>Procedures Manual (Inorganic) Section 24 based on APHA-AWWA-WPCFM Part 5530 using continuous flow colorimetric analysis</p> <p>Procedures Manual (Inorganic) Section 24 based on ISO 14403:2002, APHA-AWWA-WPCFM Part 4500 continuous flow colorimetric analysis</p> <p>Procedures Manual (Inorganic) Section 19 based on BS 1377:Part 3:1990, MEWAM ISBN 0117514284, HMSO 1978 using Envirotech aqualyser 3V2</p> <p>Procedures Manual (Inorganic) Section 19 based on BS 1377:Part 3:1990, MEWAM ISBN 011 751 428 4, HMSO 1978, and APHA-AWWA-WPCF 1992, 18th Edition</p> <p>Documented In-House Generic Method SOP 12A using GC-MS SIM</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Poly Chlorinated Biphenyls (PCBs): IUPAC No 28 52 101 118 153 138 180</p> <p>Total and speciated Petroleum Hydrocarbons: (C₁₀ - C₃₅) Also banding, including: C10-C12, >C12-C16, >C16-C21, >C21-C35</p> <p>Total and speciated Petroleum Hydrocarbons - Aromatic/Aliphatic Split: (C10 - C35) Also banding, including: C10-C12, >C12-C16, >C16-C21, >C21-C35</p> <p>METALS: Arsenic Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Tin Vanadium Zinc</p>	<p>Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil (cont'd)</p> <p>Documented In-House Method SOP 11 based on USEPA Method 8082 using Gas Chromatography - High Resolution Mass Spectrometry and labelled internal standards</p> <p>Documented In-House Method SOP 6M using GC-FID</p> <p>Documented In-House Method SOP 6M using GC-FID</p> <p>Procedures Manual (Inorganic) Section 18 based on MEWAM ISBN 0117516155, HMSO 1981, and, APHA-AWWA-WPCF 1992, 18th Edition by Inductively Coupled Plasma Optical Emission Spectrometry</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds (VOC): Dichlorodifluoromethane Vinyl Chloride Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane MTBE 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 1,2-Dichloropropane Trichloroethene Bromodichloromethane Dibromomethane Cis-1,3-dichloropropene Toluene Trans-1,3-Dichloropropene 1,1,2-Trichloroethane 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethyl Benzene m,p-Xylene o-Xylene Bromoform Isopropylbenzene n-Propylbenzene Bromobenzene 1,3,5-Trimethylbenzene Tert-Butylbenzene</p>	<p>Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil (cont'd)</p> <p>Documented In-House Method SOP12J using GC-MS Scan</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds (VOC) (cont'd):</p> <p>1,2,4-Trimethylbenzene Sec-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Tertiary Amyl Methyl Ether</p> <p>Semi-Volatile Organic Compounds (SVOC):</p> <p>Phenol Bis (2-chloroethyl) ether 2-Chlorophenol 1,3-Dichlorobenzene Nitrobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bis (2-chloroisopropyl) ether 2-Methylphenol 3/4 Methylphenol Bis (2-chloroethoxy) methane 1,2,4-Trichlorobenzene Naphthalene Hexachlorobutadiene 4-Chloro, 3-methylphenol 2-Methylnaphthalene 2-Chloronaphthalene 2-Nitroaniline Acenaphthene Dibenzofuran 2,4-Dinitrotoluene Fluorene 4-Chlorophenylphenyl ether 4-Bromophenylphenyl ether Hexachlorobenzene Phenanthrene Dibutyl phthalate Fluoranthrene</p>	<p>Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil (cont'd)</p> <p>Documented In-House Method SOP12J using GC-MS Scan</p> <p>Documented In-House Method SOP12E using GC-MS Scan</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Semi-Volatile Organic Compounds (SVOC): (cont'd)</p> <p>Pyrene Benz (a) anthracene Chrysene Bis (2-ethylhexyl) phthalate Di-octyl phthalate Benzo (b) fluoranthrene Benzo (k) fluoranthrene Benzo (a) pyrene Indeno (123cd) pyrene Dibenz (ah) anthracene Benzo (ghi) perylene</p>	<p>Documented In-House Methods to meet the requirements of the Environment Agency MCERTS Performance Standard - Chemical Testing of Soil (cont'd)</p> <p>Documented In-House Method SOP12E using GC-MS Scan</p>
	END	