


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p>4225</p> <p>Accredited to ISO/IEC 17025:2005</p>	<b>Exova (UK) Ltd</b> <b>(Trading as Exova Jones Environmental)</b>	
	<b>Issue No: 067    Issue date: 06 April 2018</b>	
	<b>Unit 3 and Unit 6 Deeside Point</b> <b>Zone 3 Deeside Industrial Park</b> <b>Deeside</b> <b>CH5 2UA</b>	<b>Contact: Alan Wilson</b> <b>Tel: +44 (0)1244 833780</b> <b>Fax: +44 (0)1244 833781</b> <b>E-Mail: Alan.Wilson@Exova.com</b> <b>Website: www.jones-environmental.com</b>
<b>Testing performed at the above address only</b>		

### DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ASBESTOS IN BULK MATERIALS including materials and products suspected of containing asbestos	<u>Health and Hygiene</u>  Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite	Documented in-house method TM065 based on HSG 248:February 2005 using stereo microscopy, polarised light microscopy and dispersion staining
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 methods PM042S and TM065 using stereo microscopy, polarised light microscopy and dispersion staining
ASBESTOS IN SOILS (quantification)	Asbestos fibre screening and quantification of: Amosite Chrysotile Crocidolite Fibrous Actinolyte Fibrous Anthophyllite Fibrous Tremolite	Documented in-house methods PM042S and TM131S using gravimetric and phase contrast microscopy. Subsequent identification using TM065.



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PETROLEUM and PETROLEUM PRODUCTS	<p><u>Chemical Tests</u></p> <p>C5-C35 fingerprint (qualitative) and banding</p> <p>&gt;C5-6 &gt;C6-8 &gt;C8-10 &gt;C10-12 &gt;C12-16 &gt;C16-21 &gt;C21-35 &gt;C35</p> <p>Aliphatic/aromatic fractionation and subsequent banding:</p> <p>Aliphatic bands: &gt;C5-C6 &gt;C6-C8 &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35 &gt;C35+</p> <p>Aromatic bands (equivalent carbon EC): &gt;C6-C8 &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35 &gt;C35+</p>	<p>In-house method TM001P using GC-FID</p> <p>In-house method TM001P using GC-FID (cont'd)</p>



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AIR Ambient Air/Soil Vapour	Volatile Organic Compounds:  1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene 1,2,4-Trimethylbenzene 1,2-Dibromoethane 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform cis-1,2-Dichloroethene cis-1,3-Dichloropropene Ethylbenzene m&p - Xylenes Methylene Chloride o-Xylene Styrene Tetrachloroethene Toluene trans-1,3-Dichloropropene Trichloroethene Trichlorofluoromethane Trichlorotrifluoroethane Vinyl Chloride	In-house test method TM068G using preparation method PM 034, using Summa (Silco-can) canisters, Tedlar Bags, Bottle Vac and GC-MS based on USEPA TO15.



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SOILS	<p><u>Chemical Tests</u></p> <p>Elements:</p> <p>Arsenic Barium Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Zinc</p> <p>Water soluble boron</p> <p>Water Soluble Anions: Chloride Nitrite Nitrate (derived) Total Oxidised Nitrogen (TON) Sulphate</p> <p>Cyanide - Total</p> <p>MTBE benzene toluene ethylbenzene o-xylene m/p-xylene</p>	<p>In-house method TM030S using PM 015S and PM 077S by ICP-OES</p> <p>In-house method TM074 using PM 032 and PM 077S by ICP-OES</p> <p>In-house method TM038 using PM 020S by discrete analyser</p> <p>In-house method TM089W/S using PM 045S by segmented flow analysis</p> <p>In-house method TM031S using PM 012S using headspace GC-FID</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Gasoline Range Organics (GRO) and banding: &gt;C4-C8 &gt;C8-C12 &gt;C5-C6 &gt;C6-C8 &gt;C8-C10 &gt;C10-C12 Total GRO C4-C12 Total GRO C5-C12</p> <p>Also aliphatic/aromatic fractionation and subsequent banding: Aliphatic: &gt;C5-C6 &gt;C6-C8 Aromatic (equivalent carbon EC) &gt;C6-C8 &gt;C8-C10</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: C8-C40 Diesel range organics (DRO) C25-C40 range organics - lubricating oil</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: &gt;C8-C40, including banding: &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35</p> <p>&gt;C8-C10 &gt;C10-C20 &gt;C20-C30 &gt;C30-C40</p> <p>&gt;C7-C9 &gt;C10-14 &gt;C15-36</p>	<p>In-house method TM 036S using PM 012S, using headspace GC-FID</p> <p>In-house methods PM005S (orbital shaker) or PM006S (soxhlet extraction) or PM008S (end over end shake) followed by TM005S using GC-FID</p> <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Extractable petroleum hydrocarbons (EPH) including aliphatic/aromatic fractionation and subsequent banding: Aliphatic: &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35 &gt;C35-C40</p> <p>Aromatic: &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35</p> <p>Loss on ignition at 450 °C</p> <p>pH</p> <p>Total Sulphate</p> <p>BTEX Compounds benzene toluene ethylbenzene o-xylene m/p-xylene</p> <p>Polychlorinated Biphenyls (PCBs): PCB 28/31 PCB 52 PCB 101 PCB 118 PCB 138 PCB 153 PCB 180 PCB 81 PCB 87</p>	<p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID</p> <p>In-house method TM022S using PM 004S</p> <p>In house method TM073 using PM 011S using Metrohm robotic sample processor</p> <p>In-house method PM029S and PM 077 followed by TM050S using ICP-OES</p> <p>In House method TM152 including Methanol preservation (PM104) followed by Headspace GCMS</p> <p>In-house method TM017S using end over end shaker (PM 008) and GC-MS</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd) Polychlorinated Biphenyls (PCBs) (Cont'd): PCB 123 PCB 114 PCB 105 PCB 126 PCB 167 PCB 156/157 PCB 169 PCB 189 Total PCBs (sum of above)</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs):  Naphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Chrysene Benzo(b/j/k)fluoranthene Benzo(a)pyrene Indeno(123,cd)pyrene Dibenzo(ah)anthracene Benzo(ghi)perylene</p> <p>Phenols: Phenol m/p-Cresol Xylenols 2,3,5-Trimethylphenol 2-Isopropylphenol</p> <p>Solvent Extractable Matter</p> <p>Total Organic Carbon Total Carbon</p> <p>Volatile Organic Compounds: Chloromethane Chloroethane Trichlorofluoromethane</p>	<p>In-house method TM017S using end over end shaker (PM 008) and GC-MS</p> <p>In-house method TM004S using end over end shake (PM008S) and GC-MS</p> <p>In-house method TM026 using solvent extraction (PM021S) and HPLC</p> <p>In-house method TM007S using PM 006S</p> <p>In-house method TM021S using PM 024S</p> <p>In-house method TM015S using PM 010S by headspace GC-MS</p>



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SOILS (cont'd)	<u>Chemical Tests</u> (cont'd)  Volatile Organic Compounds (Cont'd):  1,1-Dichloroethene Dichloromethane Trans-1,2-Dichloroethene 1,1-Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane Toluene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Isopropylbenzene 1,1,2,2 Tetrachloroethane 1,2,3-Trichloropropane Propylbenzene 1,3,5-Trimethylbenzene Tert-Butylbenzene 1,2,4-Trimethylbenzene Sec-Butylbenzene 4-Isopropyltoluene 1,4-Dichlorobenzene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene	In-house method TM015S using PM 010S by headspace GC-MS





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SOILS (cont'd)	Chemical Tests (cont'd):  Volatile Organic Compounds (Cont'd): 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene MTBE Carbon Disulphide  Hexavalent Chromium  Semivolatile Organic Compounds:  Phenol 2-Chlorophenol N-Nitrodi-n-propylamine Nitrobenzene Isophorone 2,4-Dichlorophenol 1,2,4-Trichlorobenzene Hexachlorobutadiene 2-Methylnapthalene 2-Chloronapthalene Dimethylphthalate Dibenzofuran 4-Bromophenyl phenyl ether Phenanthrene Fluoranthene Pyrene	In-house method TM015S using PM 010S by headspace GC-MS  In House method TM038 using PM 020S using Aquachem Photometric Analyser  In house method TM016S using PM 008 using GCMS analysis
Leachate preparation (10:1)	Metals:  Aluminium Ammonium Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chloride Chromium Cobalt Copper	PM017S 10:1 leachate preparation based on BS EN 12457



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SOILS (cont'd) Leachate preparation (10:1)	Chemical Tests (cont'd)  Metals (cont'd): Iron Lead Magnesium Manganese Mercury Molybdenum Nickel Nitrite Phosphate Phosphorus Potassium Selenium Sodium Sulphate Thallium Vanadium Zinc	PM017S 10:1 leachate preparation based on BS EN 12457
WATERS  Potable water (tap, non regulatory), Surface water and groundwater	<u>Chemical Tests</u>  Volatile Organic Compounds (VOCs):  Chloromethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Carbon Disulphide Dichloromethane Trans-1,2-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane Toluene 1,1,2-Trichloroethane	In-house method PM010 and TM015W by headspace GC-MS



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WATERS (cont'd) Potable water (tap non regulatory), Surface water and groundwater (cont'd)	<u>Chemical Tests</u> (cont'd)  Volatile Organic Compounds (VOCs):  Tetrachloroethene 1,3,-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Bromoform Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene Tert-Butylbenzene 1,2,4-Trimethylbenzene Sec-Butylbenzene 4-Isopropyltoluene 1,3- Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene MTBE Vinyl Chloride	In-house method PM010 and TM015W by headspace GC-MS
Potable water (tap non regulatory), Surface water and groundwater	Volatile Organic Compounds (VOCs):  MTBE Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane Diethyl Ether 1,1-Dichloroethene Carbon Disulphide Acrylonitrile Trans-1,2-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene	In-house method TM 128 using PM 115W by Purge and Trap GC-MS



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<p>WATERS (cont'd)</p> <p>Potable water (tap non regulatory), Surface water and groundwater (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds (VOCs) (cont'd):</p> <p>Propionitrile Methyl Acrylate Bromochloromethane Methacrylonitrile 1,1,1-Trichloroethane 1-Chlorobutane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Toluene Cis-1,3-Dichloropropene Methyl Methacrylate Trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Bromoform Isopropylbenzene 1,1,2,2 Tetrachloroethane Bromobenzene 1,2,3-Trichloropropane Trans-1,4-dichloro-2-butene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene Tert-butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene</p>	<p>In-house method TM 128 using PM 115W by Purge and Trap GC-MS</p>



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WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	
Surface Water and groundwater	Phenols Cresols Xylenols	In-house method TM026 using PM 067W, using HPLC
Surface Water and groundwater	Hexavalent Chromium	In house method TM038 using PM 031W, by an Automated photometric Analyser
Surface Water and groundwater	Dissolved Gases: Ethane Ethene Methane	In house method TM025 using GC-TCD-FID
Potable water (non-regulatory), surface water and groundwater	Extractable petroleum hydrocarbons (EPH) including banding: >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total EPH >C10-C40	In-house method TM005 by GC-FID using stir bar extraction (PM030W) and fractionation by RapidTrace workstation PM016
Potable water (non-regulatory), surface water and groundwater	And including aliphatic/aromatic fractionation and subsequent banding  Aliphatic: >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total Aliphatic (>C10-C40) Aromatic (equivalent carbon EC): >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total Aromatic (>C10-C40)	
Potable water (non-regulatory), surface water and groundwater	Total Suspended Solids  1,2,4-Trichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene	In-house method TM037W using PM 031W by gravimetry



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<p>WATERS (cont'd)</p> <p>Potable water (non-regulatory), surface water and groundwater (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Total Suspended Solids (cont'd)</p> <p>1,4-Dichlorobenzene 2,4,5-Trichlorophenol 2,4-Dichlorophenol 2,4-Dinitrotoluene 2-Chloronaphthalene 2-Chlorophenol 2-Methylnaphthalene 2-Methylphenol</p> <p>Semi-Volatile Organic Compounds (SVOCs):</p> <p>4-Bromophenyl phenyl ether 4-Chloro-3-methylphenol 4-Chlorophenyl phenyl ether</p> <p>Acenaphthene Acenaphthylene Anthracene Azobenzene Benz[a]anthracene Benzo[b/k]fluoranthene Benzo[ghi]perylene Bis(2-Chloroethyl)ether Bis(2-chloroethoxy)methane Carbazole Chrysene Dibenz[a,h]anthracene Dibenzofuran Diethyl phthalate Di-n-Butyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachloroethane Isophorone Naphthalene Nitrobenzene N-Nitrodi-n-propylamine Phenanthrene Pyrene</p>	<p>In-house method TM037W using PM 031W by gravimetry</p> <p>In-house method TM016 using stir bar extraction (PM030W) followed by GC-MS analysis</p>



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<p>WATERS (cont'd)</p> <p>Drinking water (non regulatory tap water), Groundwater, Surface Water (river water)</p> <p>(excluding tap water)</p> <p>(excluding tap and river water)</p> <p>Surface water, groundwater and leachate from landfill</p> <p>Surface water, groundwater and leachate from landfill (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Metals:</p> <p>Aluminium Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Phosphorous Selenium Thallium Tin Vanadium Zinc</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: C8-C40</p> <p>Alkalinity</p> <p>pH</p> <p>Electrical Conductivity at 25 °C</p>	<p>In house method TM170W using PM 014W by ICP-MS</p> <p>In-house method TM005 by GC-FID using stir bar extraction (PM030W)</p> <p>In house method TM075 using PM 031W using robotic sample processor</p> <p>In house method TM073 using PM 031W using robotic sample processor</p> <p>In house method TM076 using PM 031W using robotic sample processor</p>



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WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	
	Total Organic Carbon Dissoved Organic Carbon Total Inorganic Carbon Dissolved Inorganic Carbon Total Carbon	In-house method TM060W by TOC analyser
	Biochemical Oxygen Demand (BOD)	In house method TM058 using DO probe and meter
Surface water, groundwater, Tap water (non-regulatory) and prepared leachate	Biochemical Oxygen Demand (BOD)	In house method TM058 using Manometric Bottle top sensors
Surface water, groundwater and leachate from landfill	Polycyclic Aromatic Hydrocarbons (PAHs):  Naphthalene Acenaphthene Acenaphthylene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Benzo(b/k)fluoranthene Benzo(a)pyrene Indeno(123,cd)pyrene Dibenzo(ah)anthracene Benzo(ghi)perylene Chrysene	In-house method TM004W using stir bar extraction (PM030W) and GC-MS





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<p>WATERS (cont'd)</p> <p>Surface water, groundwater and leachate from landfill (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Gasoline Range Organics (GRO) and banding: MTBE Benzene Toluene Ethylbenzene o-xylene m/p-xylene Decane Dodecane Naphthalene</p> <p>&gt;C5-C6 &gt;C6-C8 &gt;C5-C8 &gt;C8-C10 &gt;C8-C12</p>	<p>In-house method TM 036W using PM 012W using headspace GC-FID</p>
<p>Surface water, groundwater and leachate from landfill</p>	<p>Gasoline Range Organics (GRO) and banding:</p> <p>Total GRO &gt;C5-C12 Also aliphatic/aromatic fractionation and subsequent banding: Aliphatic: C5-C6 &gt;C6-C8 &gt;C8-C10 Aromatic (equivalent carbon EC) &gt;C5-C7 &gt;C7-C8 &gt;C8-C10</p>	<p>In-house method TM 036W using PM 012W using headspace GC-FID</p>



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<p>WATERS (cont'd)</p> <p>Surface water, groundwater, leachate prepared from soils and leachate from landfill</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Elements:</p> <p>Aluminium Antimony Arsenic Barium Cadmium Calcium Cobalt Chromium Copper Iron Lead Mercury Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Sodium Thallium Vanadium Zinc</p> <p>Mercury</p>	<p>PM017S 10:1 leachate preparation based on BS EN 12457 In-house method TM 030W using PM 014W using ICP-OES</p> <p>In house method TM061 using PM 038W using CVAFS</p>
<p>Surface water, groundwater, leachate prepared from soils and leachate from landfill</p>	<p>Ammonium Chloride Nitrate (derived) Nitrite Total Oxidised Nitrogen (TON) Phosphate Sulphate</p> <p>Total Solids</p> <p>Total Dissolved Solids</p>	<p>PM017S 10:1 leachate preparation based on BS EN 12457</p> <p>In-house method TM038 using PM 031W using discrete analyser</p> <p>In-house method TM020W using PM 031W by</p> <p>Gravimetry</p>



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<p>WATERS (cont'd)</p> <p>Tap water (non regulatory) surface water, groundwater, leachate prepared from soils and leachate from landfill</p> <p>Landfill leachate and leachate prepared from soil</p> <p>Surface Water and Ground Water</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Cyanide - Total and Free</p> <p>Settled Chemical Oxygen Demand</p> <p>Elements: Boron Beryllium</p> <p>Tert-Amyl methyl ether (TAME) Diisopropylether(DIPE) Ethyl-tert-butyl ether (ETBE)</p>	<p>In-house method TM089W/S using PM 031W by segmented flow analysis</p> <p>In-house method TM057W by spectrophotometry</p> <p>PM017S 10:1 leachate preparation based on BS EN 12457 In-house method TM030W using ICP-OES</p> <p>In-house method TM083 by preparation method PM 039W and using Headspace GCMS</p>
<p>SOILS</p>	<p><u>Chemical Tests</u></p> <p>Gasoline Range Organics (GRO) and banding: &gt;C4-C8 &gt;C8-C12 &gt;C5-C6 &gt;C6-C8 &gt;C8-C10 &gt;C10-C12 Total GRO C4-C12 Total GRO C5-C12</p>	<p><b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil</b></p> <p>In-house method TM 036S using PM 012S by headspace GC-FID</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Gasoline Range Organics (GRO) and banding: (cont'd)</p> <p>Also aliphatic/aromatic fractionation and subsequent banding: Aliphatic: &gt;C5-C6 &gt;C6-C8 Aromatic (equivalent carbon EC): &gt;C6-C8 &gt;C8-C10</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: C8-C40 Diesel range organics (DRO) C25-C40 range organics - lubricating oil</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: &gt;C8-C40, including banding: &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35</p> <p>&gt;C8-C10 &gt;C10-C20 &gt;C20-C30 &gt;C30-C40</p>	<p><b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil</b> (cont'd)</p> <p>In-house method TM 036S using PM 012S by headspace GC-FID (cont'd)</p> <p>In-house methods PM008S (end over end shake) followed by TM005S using GC-FID</p> <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Extractable petroleum hydrocarbons (EPH) (cont'd)</p> <p>And including aliphatic/aromatic fractionation and subsequent banding: Aliphatic: &gt;C8-C10 &gt;C10-C12 &gt;C12-C16 &gt;C16-C21 &gt;C21-C35 &gt;C35-C40</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs):</p> <p>Naphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Chrysene Benzo(b/k)fluoranthene Indeno(123,cd)pyrene</p> <p>Phenols: Phenol m/p-Cresol Xylenols 2,3,5-Trimethylphenol 2-Isopropylphenol</p>	<p><b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil</b> (cont'd)</p> <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID (cont'd)</p> <p>In-house method TM004S using end over end shake (PM008S) and GC-MS</p> <p>In-house method TM026 using solvent extraction (PM021S) and HPLC</p>



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (cont'd)	<u>Chemical Tests</u> (cont'd)  Elements  Arsenic Barium Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Zinc  Water soluble boron  Water Soluble Anions:  Chloride Nitrite Nitrate (derived) Total Oxidised Nitrogen (TON) Sulphate  Cyanide - Total	<b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</b>  In-house method TM030S using PM 015S and PM 077S by ICP-OES          In-house method TM074 by PM 015S and PM 077S by ICP-OES   In-house method TM038 by PM 020S by discrete analyser      In-house method TM089W/S by PM 045S by segmented flow analysis



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Polychlorinated Biphenyls (PCBs):</p> <p>PCB 81 PCB 77 PCB 123 PCB 118 PCB 114 PCB 105 PCB 126 PCB 167 PCB 156/157 PCB 169 PCB 189 PCB 28 PCB 52 PCB 101 PCB 153 PCB 138 PCB180</p> <p>pH</p> <p>Total Sulphate</p> <p>Volatile Organic Compounds:</p> <p>MTBE Chloroethane Trichlorofluoromethane 1,1-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene</p>	<p><b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil</b> (cont'd)</p> <p>PCB Congeners by in house method TM017S using Preparation method PM008S and GC-MS analysis.</p> <p>In-house method TM073 using PM 011S by Metrohm robotic sample processor</p> <p>In-house method PM029S followed by TM050S using ICP-OES</p> <p>In-house method TM015S by PM 010S by headspace GC-MS</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds (Cont'd):</p> <p>1,2-Dichloropropane Dibromomethane Bromodichloromethane Toluene 1,1,2-Trichloroethane 1,3,-Dichloropropane Dibromochloromethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene 1,1,2,2 Tetrachloroethane 1,2,3-Trichloropropane 1,3- Dichlorobenzene 1,2-Dichlorobenzene</p> <p>Semivolatile Organic Compounds</p> <p>Phenol 2-Chlorophenol N-Nitrodi-n-propylamine Nitrobenzene Isophorone 2,4-Dichlorophenol 1,2,4-Trichlorobenzene Hexachlorobutadiene 2-Methylnaphthalene 2-Chloronaphthalene Dimethylphthalate Dibenzofuran 4-Bromophenyl phenyl ether Phenanthrene Fluoranthene Pyrene</p>	<p><b>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</b></p> <p>In house method TM016S using PM 008 S by GCMS analysis</p>
END		