


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>1252</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3>SCIENTIFICS</h3> <p>A division of ESG Limited</p> <p>Issue No: 056 Issue date: 11 April 2012</p>	
	<p>Environmental Chemistry</p> <p>PO Box 100</p> <p>Bretby Business Park</p> <p>Burton-on-Trent</p> <p>Staffordshire</p> <p>DE15 0XD</p>	<p>Contact: Mr Andy Peirce</p> <p>Tel: +44 (0)1283 554542</p> <p>Fax: +44 (0)1283 554422</p> <p>E-Mail: andy.peirce@esgl.co.uk</p> <p>Website:</p>
<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SILICACIOUS MATERIALS	<p><u>Chemical Tests</u></p> <p>Aluminium Calcium Iron Magnesium Manganese Phosphorus Potassium Silicon Sodium Sulphur Titanium</p>	Documented In-House Method based on Analyst: June 1985: Vol 110 by ICP-OES, No ICPASH
SOILS, SEDIMENTS and SLUDGES	<p><u>Chemical Tests</u></p> <p>Aluminium Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Molybdenum Nickel Vanadium Zinc</p>	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials. Determination of Metals in Soils, Sediments and Sewage Sludge and Plants using ICP-OES, No ICPSOIL



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS ONLY (includes made ground) (cont'd)	<u>Chemical Tests</u> (cont'd)	
	Sulphate (acid soluble)	Documented In-House Method using ICP-OES, No ICPACIDS
	Sulphate (water soluble)	Documented In-House Method using ICP-OES, No ICPWSS
	Sulphur (elemental)	Documented In-House Method based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6. Solvent extraction followed by HPLC and UV detection, No ELESULP
	Conductivity	Documented In-House Extraction Method, analysis of extract by conductivity probe, No WSLM2
	pH	Documented In-House Method, No PHSOIL
	Total Moisture Content	Documented In-House Method No TMSS
	Benzene Toluene Ethylbenzene Xylenes (o-, m/p-) MTBE	Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA
	Gasoline range organics (GRO)	Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA
	Total Extractable Materials (TEM)	Documented in house method No TEM by gravimetry



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>SOILS ONLY (includes made ground) (cont'd)</p> <p>SOILS</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Phenol and its Methylated Isomers including: Methyl phenols Dimethyl phenols Trimethyl phenols Total Phenols Naphthol</p> <p><u>Chemical Tests</u></p> <p>Total Petroleum Hydrocarbons (C8-C40) including aromatic/ aliphatic fractionation and quantification according to carbon banding: DRO (C10-C24) MRO (C22-C34) KRO (C8-C14) C8-C10, C10-C12, C12-C16, C16-C21 and C21-C35</p> <p>Nitrate Nitrogen</p> <p>PAH's including: Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno (123-cd)pyrene Dibenz(ah)anthracene Benzo(ghi)perylene Total PAH (sum of 16 above)</p>	<p>Documented In-House Method based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6, (9/4/96), No PHEHPLC</p> <p>Documented In-House Method TPHFIDUS</p> <p>Documented In-House Method using Ion Selective Electrode, No ISENITS</p> <p>In house method PAHMSUS using ultrasonic extraction with GCMS detection</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (cont'd)	<u>Chemical Tests (cont'd)</u> Monohydric Phenols/Phenol index Volatile Organic Compounds: Chloromethane 1,2,4 trichlorobenzene Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene trans 1,2-Dichloroethene 1,1-Dichloroethane MTBE 2,2-Dichloropropane cis 1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene Benzene 1,2-Dichloroethane Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane cis 1,3-Dichloropropene Toluene trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene Ethylbenzene 1,1,1,2-Tetrachloroethane m and p-Xylene o-Xylene Styrene Bromoform iso-Propylbenzene 1,1,2,2-Tetrachloroethane Propylbenzene	Documented in house method using Skalar continuous flow No. SFAPI Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (cont'd)	<p><u>Chemical Tests (cont'd)</u></p> <p>Volatile Organic Compounds: (cont'd)</p> <p>Bromobenzene 1,2,3-Trichloropropane 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, Naphthalene 1,2,3-Trichlorobenzene</p> <p>Benzene Toluene Ethyl Benzene m&p Xylenes o Xylene Total Xylenes MTBE</p> <p>Gasoline range organics: Total GRO >C5-C10 GRO >C5-C6 GRO >C6-C7 GRO >C7-C8 GRO >C8-C10 GRO >C5-C7 GRO >C6-C8</p>	<p>Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS (cont'd)</p> <p>Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA</p> <p>Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (MCERTS)	<u>Chemical Tests</u>	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil
	Sulphur (elemental)	Documented In-House Method Solvent extraction followed by HPLC and UV detection, No ELESULP
	Sulphate (Total/acid soluble)	Documented In-House Method using ICP-OES, No ICPACIDS
	Sulphate (water soluble)	Documented In-House Method using ICP-OES, No ICPWSS
Sand, clay, and silty type soils and made-ground	Iron Aluminium Beryllium Barium	Documented In-House Method - ICPSOIL using aqua regia extraction and ICP-OES determination
	PAH's including: Naphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenz(ah)anthracene Indeno(123cd)pyrene Benzo(ghi)perylene	In house method PAHMSUS using ultrasonic extraction with GCMS detection
	Volatile Organic Compounds: Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane trans 1,2-Dichloroethene 1,1-Dichloroethane MTBE 2,2-Dichloropropane	Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>SOILS (MCERTS) (cont'd)</p> <p>Sand, clay, and silty type soils and made-ground (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds: (cont'd)</p> <p>cis 1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene Benzene 1,2-Dichloroethane Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane cis 1,3-Dichloropropene Toluene trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene Ethylbenzene 1,1,1,2-Tetrachloroethane m and p-Xylene o-Xylene Styrene Bromoform iso-Propylbenzene 1,1,2,2-Tetrachloroethane Propylbenzene Bromobenzene 1,2,3-Trichloropropane 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene</p>	<p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</p> <p>Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS (cont'd)</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (MCERTS) (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)
Sand, clay, and silty type soils and made-ground (cont'd)	Volatile Organic Compounds: (cont'd) p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane Naphthalene 1,2,3-Trichlorobenzene Benzene Toluene Ethyl Benzene m&p Xylenes o Xylene Total Xylenes Gasoline range organics: Total GRO >C5-C10 GRO >C5-C6 GRO >C6-C7 GRO >C7-C8 GRO >C8-C10 GRO >C5-C7 GRO >C6-C8 Arsenic Chromium Copper Lead Manganese Nickel Zinc Cadmium Mercury Selenium Molybdenum Cobalt Vanadium	Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS (cont'd) Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA Documented In-House Method using ICPMS, No ICPMSS



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SOILS (MCERTS) (cont'd)	<u>Chemical Tests</u> (cont'd) Water Soluble Boron Total Petroleum Hydrocarbons (C8 - C40) Phenol Potassium Chloride extractable ammoniacal Nitrogen Free Cyanide Total Cyanide Thiocyanate pH	Documented in house method using hot water extraction with ICP-OES detection, No ICPBOR Documented In-House Method TPHFIDUS Documented in house method PHENPLC using methanol extraction and HPLC detection Documented in house method using Konelab discrete analyser, No AMMAR Documented in house method using Skalar Continuous flow analysis, No SFAPI Documented in house method using 1:2.5 soil to water suspension by method PHSOIL
WATERS	<u>Chemical Tests</u>	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials
Potable, Surface, Ground and Waste Waters Landfill Leachate Laboratory Generated Leachate	Free Cyanide Total Cyanide Phenol Index Thiocyanate Free Sulphide as S	Documented In-House Method using segmented flow analysis SFAP1
Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate	Determination of dissolved and total metals: Aluminium Arsenic Barium Boron Cadmium Calcium Chromium Cobalt	Documented In-House Method using ICP-OES, No ICPWAVAR



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (cont'd)</p> <p>Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Determination of dissolved and total metals: (cont'd)</p> <p>Copper Iron Lead Magnesium Manganese Molybdenum Nickel Potassium Sodium Strontium Sulphur Vanadium Zinc</p> <p>Antimony Arsenic Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Tin Uranium Vanadium Zinc</p> <p>Fluoride</p>	<p>Documented In-House Method using ICP-OES, No ICPWAVAR (cont'd)</p> <p>Documented In-House Method using ICPMS, No ICPMSW</p> <p>Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on the Standard Methods for the Examination of Water and Wastewater, No ISEF</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (cont'd)</p> <p>Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate (cont'd)</p> <p>Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate Landfill Leachate</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Gasoline range organics (GRO)</p> <p>pH</p> <p>Conductivity</p> <p>Chemical Oxygen Demand</p> <p>Total Alkalinity</p> <p>Total Organic/Inorganic Carbon</p> <p>Suspended Solids</p> <p>Total Acidity</p>	<p>Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA</p> <p>Documented In-House Method using pH probe based on BS 2690:1984:Part 109, No WSLM3</p> <p>Documented In-House Method using conductivity probe based on BS 2690:1984:Part 109, No WSLM2</p> <p>Documented In-House colorimetric chromium oxidation method based on BS 6068:2.34:1988, No WSLM11</p> <p>Documented In-House titrimetric method based on BS 2690:1984:Part 109, No WSLM12</p> <p>Documented In-House Method using TIC/TOC instrumental technique, No WSLM13</p> <p>Documented In-House gravimetric method based on BS 2690:1981:Part 120, No WSLM10</p> <p>Documented In-House Method based on BS 2690:1984:Part 109, No WSLM17</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (cont'd)</p> <p>Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate Landfill Leachate (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Determination of: Ammonia Total Oxidised nitrogen Nitrite Nitrate Chloride Phosphate Thiocyanate Hexavalent Chromium</p>	<p>Documented In-House Method by automated discrete colorimetric analysis, No KONENS</p>
<p>Potable, Surface, Ground and Waste Waters Minewaters</p>	<p>Total Iron Ferrous Iron</p>	<p>Documented In-House Method by automated discrete colorimetric analysis, No KONEFE</p>
<p>Potable, Surface, Ground and Waste Waters</p>	<p>Phenol and its Methylated Isomers including: Methyl phenols Dimethyl phenols Trimethyl phenols</p>	<p>Documented In-House Methods based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6, (9/4/96), No PHEHPLC</p>
<p>Potable, Surface, Ground and Waste Waters</p>	<p>Benzene Toluene Ethylbenzene Xylenes (o-, m/p-) MTBE</p>	<p>Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA</p>
<p>Ground Waters, Surface Waters and Waste Waters</p>	<p>Quantitative and semi-quantitative determination of Volatile Organic Compounds (VOC's) including: Chloromethane Vinyl Chloride Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane trans 1,2-Dichloroethene 1,1-Dichloroethane cis 1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene</p>	<p>Documented in-house Method using Headspace Extraction, Gas Chromatography with Mass Spectrometry Detection No VOCHSAW</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (cont'd)</p> <p>Ground Waters, Surface Waters and Waste Waters (cont'd)</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Quantitative and semi-quantitative determination of Volatile Organic Compounds (VOC's) including: (cont'd)</p> <p>1,2-Dichloroethane Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Styrene Bromoform iso-Propylbenzene 1,1,2,2-Tetrachloroethane Propylbenzene Bromobenzene 1,2,3-Trichloropropane 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-Isopropyltoluene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene</p>	<p>Documented in-house Method using Headspace Extraction, Gas Chromatography with Mass Spectrometry Detection No VOCHSAW (cont'd)</p>



1252
Accredited to
ISO/IEC 17025:2005

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

SCIENTIFICS
A division of ESG Limited
Issue No: 056 Issue date: 11 April 2012

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (cont'd)</p> <p>Potable, Surface, Ground and Waste Waters Laboratory Generated Leachate Landfill Leachate</p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Total Petroleum Hydrocarbons C8 - C40</p> <p>Speciated EPH: Aliphatic (Mineral Oil) fraction Aromatic (PAH) fraction</p> <p>Banded EPH: C8 - C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C40 C10-C24 (Diesel Range) C8 - C14 (Kerosene Range) C22-C34 (Mineral Oil Range) C10-C20, C20-C30, C30-C40</p>	<p>Documented In-House Method: HCETW - Pentane extraction followed by: Documented In-House Method: TPHFID - using GCFID for the aliphatic fractions and GCMS FOR THE Aromatic fractions</p>
END		