

## APPENDIX

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1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following:  
NRA Leach tests, flash point, ammonium as  $\text{NH}_4$  by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS TICS.
2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
3. If sufficient sample is received a sub sample will be retained free of charge for one month after analysis is completed (e-mailed) for both soil jars and tubs. All waters, volatile jars and vials will be discarded after one month of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Geochem reserve the right to charge for samples received and stored but not analysed.
4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
6. When requested, an asbestos screen is done in-house on soils and if no fibres are found will be reported as NFD – no fibres detected. If asbestos is detected, then identification is carried out by ALcontrol Shutler. If a sample is suspected of containing asbestos, then further preparation and analysis will be suspended on that sample until the asbestos result is known. If asbestos is present, then no further analysis will be undertaken.
7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample – similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule.
8. NDP – No determination possible due to insufficient/unsuitable sample.
9. Metals in water are performed on a filtered sample, and therefore represent dissolved metals – total metals must be requested separately.
10. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.
11. **Surrogate recoveries** – Currently the only analyses which are surrogate corrected are EPH and PAHs on soils.
12. **Product analyses** – Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
13. Phenols monohydric by HPLC includes phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
14. Total of 8 speciated phenols by HPLC includes Resorcinol, Catechol, Phenol, Napthol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, cresols and xylenols (as detailed in 13).
15. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
16. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.
17. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

## MCERTS

1. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
2. It should be noted that for a particular set of data some of the data may not always meet the precision and bias criteria as prescribed by MCERTS. This is because whilst criteria were met when the method was originally validated, specific criteria for ongoing AQC were not set by the Environment Agency, so that the point of reference becomes the criteria used for the original validation. The precision and bias data for the certified reference material (CRM), used in the method may itself fall outside these criteria and as a result the samples associated with the batch in question do not strictly meet the MCERTS criteria. This issue is common to all UK laboratories although in practice this is not always reported as such. However in the interest of maintaining strict conformance with both MCERTS and UKAS ISO17025 such data are flagged by Alcontrol as not claiming MCERTS, but still meets the requirements of ISO17025. This should not detract from the usability of such data in terms of their application to the existing project.



# ALCONTROL GEOCHEM - MCERTS UPDATE (8th August 2006)- Annex A (normative)

Table 1 - Performance characteristics (metals and organometallics)	UKAS	MCERTS
Antimony	yes	yes
Arsenic	yes	yes
Barium	yes	yes
Beryllium	yes	yes
Boron (water soluble)	yes	yes
Cadmium	yes	yes
Cobalt	yes	yes
Copper	yes	yes
Chromium	yes	yes
Iron	yes	yes
Lead	yes	yes
Manganese	yes	yes
Mercury	yes	yes
Molybdenum	yes	yes
Nickel	yes	yes
Organolead compounds	no	no
Organotin compounds	no	no
Selenium	yes	yes
Thallium	yes	p
Vanadium	yes	yes
Zinc	yes	yes

Table 2 - Performance characteristics (inorganics)	UKAS	MCERTS
Easily liberated cyanide	yes	yes
Complex cyanide	yes	yes
pH	yes	yes
LOI	yes	yes
Sulphide	yes	p
Sulphate	yes	yes
Sulphur	yes	yes
Thiocyanate	yes	yes
Exchangeable Ammonium	yes	yes

Table 3 - Performance characteristics (organics)	UKAS	MCERTS
Benzene (GC- FID & GC-MS)	yes	yes
Benzo[a]pyrene (GC-MS)	yes	yes
Chlorobenzene	yes	yes
Chloromethane	yes	p
Chlorophenol (2-chlorophenol)	yes	yes
Chlorotoluene(2-chlorotoluene, 4-chlorotoluene)	yes	p
1,2-dichloroethane	yes	p
Dichloromethane	yes	p
"Dioxins"	no	no
Ethylbenzene	yes	p
"Furans"	no	no
Hexachlorobutadiene (SVOC)	yes	yes
"Hydrocarbons"	yes	yes
"Nitroaromatics"	yes	no
Pentachlorophenol	p	p
"Phenols" - Phenol by HPLC	yes	yes
"Phthalate esters"	p	p
"Polyaromatic hydrocarbons" by GC-MS	yes	yes, exc naphthalene when Kerosene
"Polychlorinated biphenyls" (Aroclors)	yes	yes
Tetrachloroethane (1,1,1,2)	yes	yes
Tetrachloroethene	yes	p
Tetrachloromethane (carbon tetrachloride)	yes	yes
Toluene (GC-FID)	yes	yes
Trichloroethane	yes	yes
Trichloroethene	yes	yes
Trichloromethane (chloroform)	yes	yes
Vinyl chloride	yes	yes
Xylene (GC-FID)	yes	yes

yes - accreditation awarded

p = pending - data meeting MCERTS criteria submitted to UKAS - awaiting certification

no = not being submitted in the near future

# ALcontrol Geochem - Table Of Results

**Job Number:** 06/19990/02/01

**Client:** Peter Cowsill Limited

**Client Ref:**

**Matrix:** LIQUID

				Sample Identity	D/S	U/S
				Depth	-	-
				Sample Type	LIQUID	LIQUID
				Sample Received Date	12/12/2006	12/12/2006
				Sampled Date	08/12/2006	08/12/2006
				Batch	2	2
				Sample Number(s)	31-32	33-34
	Method	Units	Method	Detection Limit		
Arsenic Dissolved (ICP-MS)	TM152	ug/l		<1	<1	1
Boron Dissolved (ICP-MS)	TM152	ug/l		<10	73	29
Cadmium Dissolved (ICP-MS)	TM152	ug/l		<0.4	<0.4	<0.4
Chromium Dissolved (ICP-MS)	TM152	ug/l		<1	<1	<1
Copper Dissolved (ICP-MS)	TM152	ug/l		<1	<1	<1
Lead Dissolved (ICP-MS)	TM152	ug/l		<1	1	1
Nickel Dissolved (ICP-MS)	TM152	ug/l		<1	1	1
Selenium Dissolved (ICP-MS)	TM152	ug/l		<1	<1	1
Zinc Dissolved (ICP-MS)	TM152	ug/l		<3	18	24
Mercury Dissolved (CVAA)	TM127	ug/l		<0.05	<0.05	<0.05
Sulphate (soluble)	TM098	mg/l		<3	15	14
pH Value	TM133	pH Units		<1.00	7.28	7.22
EPH (DRO) (C10-C40)	TM172	ug/l		<10	<10	<10
<b>PAH by GCMS</b>						
Naphthalene	TM074	ng/l		<10	<10	<10
Acenaphthylene	TM074	ng/l		<10	<10	<10
Acenaphthene	TM074	ng/l		<10	<10	<10
Fluorene	TM074	ng/l		<10	<10	<10
Phenanthrene	TM074	ng/l		<10	<10	<10
Anthracene	TM074	ng/l		<10	<10	<10
Fluoranthene	TM074	ng/l		<10	<10	<10
Pyrene	TM074	ng/l		<10	<10	<10
Benz(a)anthracene	TM074	ng/l		<10	<10	<10
Chrysene	TM074	ng/l		<10	<10	<10
Benzo(b)fluoranthene	TM074	ng/l		<10	<10	<10
Benzo(k)fluoranthene	TM074	ng/l		<10	<10	<10
Benzo(a)pyrene	TM074	ng/l		<10	<10	<10
Indeno(123cd)pyrene	TM074	ng/l		<10	<10	<10
Dibenzo(ah)anthracene	TM074	ng/l		<10	<10	<10
Benzo(ghi)perylene	TM074	ng/l		<10	<10	<10
PAH 16 Total	TM074	ng/l		<10	<10	<10