



Rapport d'analyse

CAPSE

Bénédicte GRAUX

3 Rue Dolbeau à Ducos

2e étage

F-98802 NOUMEA (NEW CALEDONIA)

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Votre nom de Projet : ESQAL - Caractérisation des eaux de la lagune et eau de mer

Votre référence de Projet : 2013-1870-03

Référence du rapport ALcontrol : 11913221, version: 2

Rotterdam, 08-08-2013

Cher(e) Madame/ Monsieur,

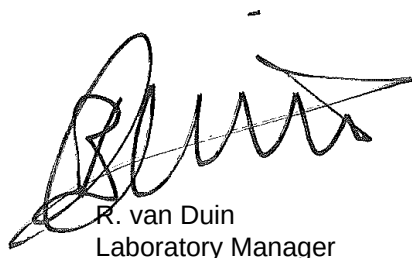
Veuillez trouver ci-joint les résultats des analyses effectuées en laboratoire pour votre projet 2013-1870-03. Le rapport reprend les descriptions des échantillons, le nom de projet et les analyses que vous avez indiqués sur le bon de commande. Les résultats rapportés se réfèrent uniquement aux échantillons analysés.

Ce rapport est constitué de 15 pages dont chromatogrammes si prévus, références normatives, informations sur les échantillons. Dans le cas d'une version 2 ou plus élevée, toute version antérieure n'est pas valable. Toutes les pages font partie intégrante de ce rapport, et seule une reproduction de l'ensemble du rapport est autorisée.

En cas de questions et/ou remarques concernant ce rapport, nous vous prions de contacter notre Service Client.

Toutes les analyses, à l'exception des analyses sous-traitées, sont réalisées par ALcontrol Laboratoires, Steenhouwerstraat 15, Rotterdam, Pays Bas.

Veuillez recevoir, Madame/ Monsieur, l'expression de nos cordiales salutations.



R. van Duin
Laboratory Manager



CAPSE
Bénédicte GRAUX

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Projet ESQAL - Caractérisation des eaux de la lagune et eau de mer
Référence du projet 2013-1870-03
Réf. du rapport 11913221 - 2

Date de commande 17-07-2013
Date de début 23-07-2013
Rapport du 08-08-2013

Code	Matrice	Réf. échantillon
001	Eau de surface	E3 : canalisation entrée lagune
002	Eau de surface	E4 : "sortie" lagune

Analyse	Unité	Q	001	002
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METAUX

arsenic	µg/l	Q	<5	<5
cadmium	µg/l	Q	<0.20	<0.20
chrome	µg/l	Q	8.4	3.4
cuivre	µg/l	Q	<2.0	<2.0
mercure	µg/l	Q	<0.05	<0.05
plomb	µg/l	Q	<2.0	<2.0
manganèse	µg/l	Q	150	160
nickel	µg/l	Q	3.5	4.2
zinc	µg/l	Q	<10	<10

HYDROCARBURES AROMATIQUES POLYCYCLIQUES

naphtalène	µg/l	Q	<0.1	<0.1
acénaphthylène	µg/l	Q	<0.1	<0.1
acénaphthène	µg/l	Q	<0.1	<0.1
fluorène	µg/l	Q	<0.05	<0.05
phénanthrène	µg/l	Q	<0.02	<0.02
anthracène	µg/l	Q	<0.02	<0.02
fluoranthène	µg/l	Q	<0.02	<0.02
pyrène	µg/l	Q	<0.02	<0.02
benzo(a)anthracène	µg/l	Q	<0.02	<0.02
chrysène	µg/l	Q	<0.02	<0.02
benzo(b)fluoranthène	µg/l	Q	<0.02	<0.02
benzo(k)fluoranthène	µg/l	Q	<0.01	<0.01
benzo(a)pyrène	µg/l	Q	<0.01	<0.01
dibenzo(ah)anthracène	µg/l	Q	<0.02	<0.02
benzo(ghi)pérylène	µg/l	Q	<0.02	<0.02
indéno(1,2,3-cd)pyrène	µg/l	Q	<0.02	<0.02
Somme des HAP (10) VROM	µg/l	Q	<0.3	<0.3
Somme des HAP (16) - EPA	µg/l	Q	<0.6	<0.6

HYDROCARBURES TOTAUX

fraction C10-C12	µg/l		<5	<5
fraction C12-C16	µg/l		<5	7.6
fraction C16 - C21	µg/l		<5	<5
fraction C21 - C40	µg/l		<5	5.1
hydrocarbures totaux C10-C40	µg/l	Q	<20	<20

ANALYSES SOUS-TRAITÉES

Monoéthanolamine voir annexe voir annexe

Les analyses notées Q sont accréditées par le RvA.

Paraphe :

CAPSE
Bénédicte GRAUX

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Projet ESQAL - Caractérisation des eaux de la lagune et eau de mer
Référence du projet 2013-1870-03
Réf. du rapport 11913221 - 2

Date de commande 17-07-2013
Date de début 23-07-2013
Rapport du 08-08-2013

Code	Matrice	Réf. échantillon
003	Divers (liquides)	E5 : eau de mer

Analyse	Unité	Q	003
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HYDROCARBURES AROMATIQUES POLYCYCLIQUES

naphtalène	µg/l	<0.1
acénaphthylène	µg/l	<0.1
acénaphène	µg/l	<0.1
fluorène	µg/l	<0.05
phénanthrène	µg/l	<0.02
anthracène	µg/l	<0.02
fluoranthène	µg/l	<0.02
pyrène	µg/l	<0.02
benzo(a)anthracène	µg/l	<0.02
chrysène	µg/l	<0.02
benzo(b)fluoranthène	µg/l	<0.02
benzo(k)fluoranthène	µg/l	<0.01
benzo(a)pyrène	µg/l	<0.01
dibenzo(ah)anthracène	µg/l	<0.02
benzo(ghi)pérylène	µg/l	<0.02
indéno(1,2,3-cd)pyrène	µg/l	<0.02
Somme des HAP (10) VROM	µg/l	<0.3
Somme des HAP (16) - EPA	µg/l	<0.6

HYDROCARBURES TOTAUX

fraction C10-C12	µg/l	<5
fraction C12-C16	µg/l	<5
fraction C16 - C21	µg/l	<5
fraction C21 - C40	µg/l	<5
hydrocarbures totaux C10-C40	µg/l	<20

ANALYSES SOUS-TRAITÉES

8 heavy metals - saline water	voir annexe
Manganèse eau saline	voir annexe
Monoéthanolamine	voir annexe

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Projet ESQAL - Caractérisation des eaux de la lagune et eau de mer
Référence du projet 2013-1870-03
Réf. du rapport 11913221 - 2

Date de commande 17-07-2013
Date de début 23-07-2013
Rapport du 08-08-2013

Analyse	Matrice	Référence normative
arsenic	Eau de surface	Conforme à NEN 6966, analyse conforme à NEN-EN-ISO 11885
cadmium	Eau de surface	Idem
chrome	Eau de surface	Idem
cuivre	Eau de surface	Idem
mercure	Eau de surface	Conforme NEN-EN-ISO 17852
plomb	Eau de surface	Conforme à NEN 6966, analyse conforme à NEN-EN-ISO 11885
manganèse	Eau de surface	Idem
nickel	Eau de surface	Idem
zinc	Eau de surface	Idem
naphtalène	Eau de surface	Méthode interne
acénaphthylène	Eau de surface	Idem
acénaphthène	Eau de surface	Idem
fluorène	Eau de surface	Idem
phénanthrène	Eau de surface	Idem
anthracène	Eau de surface	Idem
fluoranthène	Eau de surface	Idem
pyrène	Eau de surface	Idem
benzo(a)anthracène	Eau de surface	Idem
chrysène	Eau de surface	Idem
benzo(b)fluoranthène	Eau de surface	Idem
benzo(k)fluoranthène	Eau de surface	Idem
benzo(a)pyrène	Eau de surface	Idem
dibenzo(ah)anthracène	Eau de surface	Idem
benzo(ghi)pérylène	Eau de surface	Idem
indéno(1,2,3-cd)pyrène	Eau de surface	Idem
hydrocarbures totaux C10-C40	Eau de surface	Méthode interne, extraction hexane, analyse par GC-FID
Monoéthanolamine	Eau de surface	Analyse sous-traitée
naphtalène	Divers (liquides)	Méthode interne
acénaphthylène	Divers (liquides)	Idem
acénaphthène	Divers (liquides)	Idem
fluorène	Divers (liquides)	Idem
phénanthrène	Divers (liquides)	Idem
anthracène	Divers (liquides)	Idem
fluoranthène	Divers (liquides)	Idem
pyrène	Divers (liquides)	Idem
benzo(a)anthracène	Divers (liquides)	Idem
chrysène	Divers (liquides)	Idem
benzo(b)fluoranthène	Divers (liquides)	Idem
benzo(k)fluoranthène	Divers (liquides)	Idem
benzo(a)pyrène	Divers (liquides)	Idem
dibenzo(ah)anthracène	Divers (liquides)	Idem
benzo(ghi)pérylène	Divers (liquides)	Idem
indéno(1,2,3-cd)pyrène	Divers (liquides)	Idem
hydrocarbures totaux C10-C40	Divers (liquides)	Méthode interne, extraction hexane, analyse par GC-FID
8 heavy metals - saline water	Divers (liquides)	Analyse sous-traitée
Manganèse eau saline	Divers (liquides)	Idem
Monoéthanolamine	Divers (liquides)	Idem

Code	Code barres	Date de réception	Date prélèvement	Flaconnage
001	B8896549	23-07-2013	15-07-2013	ALC204

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Référence du projet 2013-1870-03
Réf. du rapport 11913221 - 2

Date de commande 17-07-2013
Date de début 23-07-2013
Rapport du 08-08-2013

Code	Code barres	Date de réception	Date prélèvement	Flaconnage
001	B8896553	23-07-2013	15-07-2013	ALC204
001	G9714462	23-07-2013	15-07-2013	ALC236
001	S9308453	23-07-2013	15-07-2013	ALC237
001	S9308459	23-07-2013	15-07-2013	ALC237
002	B8896527	23-07-2013	15-07-2013	ALC204
002	B8896555	23-07-2013	15-07-2013	ALC204
002	G9872358	23-07-2013	15-07-2013	ALC236
002	S9203767	23-07-2013	15-07-2013	ALC237
002	S9308462	23-07-2013	15-07-2013	ALC237
003	B8896533	23-07-2013	15-07-2013	ALC204
003	B8896550	23-07-2013	15-07-2013	ALC204
003	G9872359	23-07-2013	15-07-2013	ALC236
003	S9308458	23-07-2013	15-07-2013	ALC237
003	S9308460	23-07-2013	15-07-2013	ALC237

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Projet ESQAL - Caractérisation des eaux de la lagune et eau de mer
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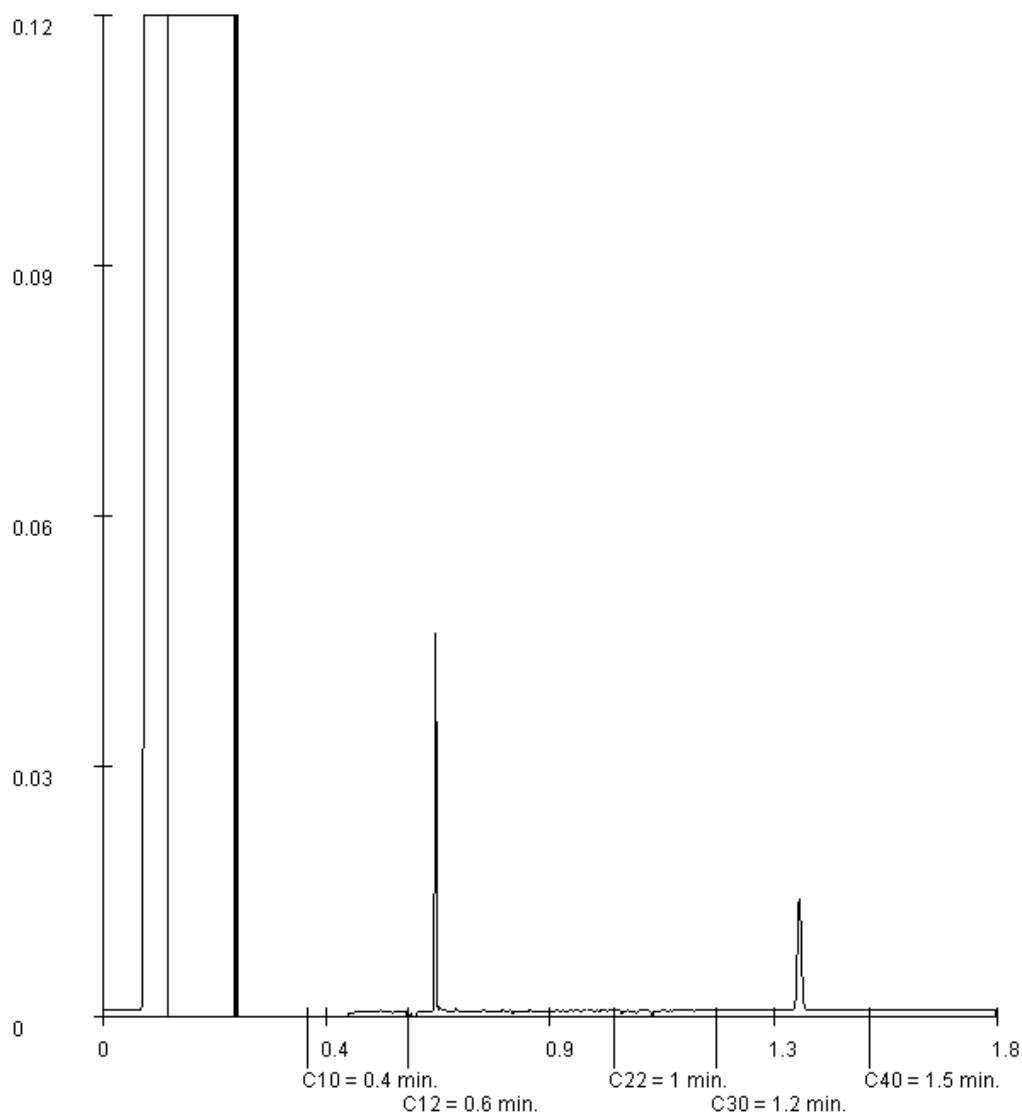
Date de commande 17-07-2013
Date de début 23-07-2013
Rapport du 08-08-2013

Référence de l'échantillon: 002
Information relative aux échantillons E4 : "sortie" lagune

Détermination de la chaîne de carbone

essence	C9-C14
kérosène et pétrole	C10-C16
diesel et gazole	C10-C28
huile de moteur	C20-C36
mazout	C10-C36

Les pics C10 et C40 sont introduits par le laboratoire et sont utilisés comme étalons internes.



Paraphe :



Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Combrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 341850-1

Date of Report: 05-Aug-2013

Customer: ALcontrol Laboratories Ltd
5 rue Madame de Sanzillon
92110 Clichy sur Seine
FRANCE

Customer Contact: Mr Ludovic Baron

Customer Job Reference: 119113221

Customer Purchase Order: 119113221

Date Job Received at SAL: 24-Jul-2013

Date Analysis Started: 25-Jul-2013

Date Analysis Completed: 05-Aug-2013

The results reported relate to samples received in the laboratory
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

Report checked
and authorised by :
Annie Hennis
Project Manager

Issued by :
Annie Hennis
Project Manager



SAL Reference: 341850							
Customer Reference: 119113221							
Water				Analysed as Water			
Miscellaneous							
SAL Reference				341850 001	341850 002	341850 003	
Customer Sample Reference				11913221-001	11913221-002	11913221-003	
Date Sampled				15-JUL-2013	15-JUL-2013	15-JUL-2013	
Determinand	Method	Test Sample	LOD	Units			
Monoethanolamine	T23	AR	10	mg/l	<10	<10	<10

Index to symbols used in 341850-1

Value	Description
AR	As Received
N	Analysis is not UKAS accredited

Method Index

Value	Description
T23	GC/MS (DI)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Monoethanolamine	T23	AR	10	mg/l	N	001-003



ALcontrol Laboratories

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
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email: mkt@alcontrol.com
Website: www.alcontrol.com

ALcontrol Laboratories
5 rue Madame de Sanzillon
Clichy sur Seine
Clichy

Attention: Ludovic Baron

CERTIFICATE OF ANALYSIS

Date: 29 July 2013
Customer: H_ALCON_CHY
Sample Delivery Group (SDG): 130724-97
Your Reference: 11913221
Location: 11913221
Report No: 235140

We received 1 sample on Wednesday July 24, 2013 and 1 of these samples were scheduled for analysis which was completed on Monday July 29, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





ALcontrol Laboratories

CERTIFICATE OF ANALYSIS

Validated

SDG: 130724-97
Job: H_ALCON_CHY-156
Client Reference: 11913221

Location: 11913221
Customer: ALcontrol Laboratories
Attention: Ludovic Baron

Order Number:
Report Number: 235140
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
7810961	11913221-003		0.00	

Only received samples which have had analysis scheduled will be shown on the following pages.



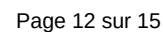
ALcontrol Laboratories

CERTIFICATE OF ANALYSIS

Validated

SDG:	130724-97	Location:	11913221	Order Number:	
Job:	H_ALCON_CHY-156	Customer:	ALcontrol Laboratories	Report Number:	235140
Client Reference:	11913221	Attention:	Ludovic Baron	Superseded Report:	

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)		7810961
	Customer Sample Reference		11913221-003
	AGS Reference		
	Depth (m)		0.00
	Container		HN03 Filtered /ALE
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1	X
Mercury Dissolved	All	NDPs: 0 Tests: 1	X



Order Number:
Report Number: 235140
Superseded Report:

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ALcontrol Laboratories

CERTIFICATE OF ANALYSIS

Validated

SDG: 130724-97
Job: H_ALCON_CHY-156
Client Reference: 11913221

Location: 11913221
Customer: ALcontrol Laboratories
Attention: Ludovic Baron

Order Number:
Report Number: 235140
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.



ALcontrol Laboratories

CERTIFICATE OF ANALYSIS

Validated

SDG: 130724-97
Job: H_ALCON_CHY-156
Client Reference: 11913221

Location: 11913221
Customer: ALcontrol Laboratories
Attention: Ludovic Baron

Order Number:
Report Number: 235140
Superseded Report:

Test Completion Dates

Lab Sample No(s)	7810961
Customer Sample Ref.	11913221-003
AGS Ref.	
Depth	0.00
Type	SALINE_B
Dissolved Metals by ICP-MS	29-Jul-2013
Mercury Dissolved	29-Jul-2013



CERTIFICATE OF ANALYSIS

SDG: 130724-97
Job: H_ALCON_CHY-156
Client Reference: 11913221

Location: 11913221
Customer: ALcontrol Laboratories
Attention: Ludovic Baron

Order Number:
Report Number: 235140
Superseded Report:

Appendix General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICS and SVOC 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 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date 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 Laboratories 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, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include 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).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. 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.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. 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.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
\$	Sampled on date not provided
+	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Anothite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than :
- Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.