



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Meirion Humphreys

CERTIFICATE OF ANALYSIS

Date: 18 September 2018
Customer: H_NCC_NPT
Sample Delivery Group (SDG): 180829-25
Your Reference:
Location: Docksway Landfill Site
Report No: 472872

This report has been revised and directly supersedes 471272 in its entirety.

We received 4 samples on Wednesday August 29, 2018 and 4 of these samples were scheduled for analysis which was completed on Tuesday September 18, 2018. 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.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 180829-25 Client Reference: Report Number: 472872
Location: Docksway Landfill Site Order Number: 700124102 Superseded Report: 471272

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18210166	C3_Asb		0.00 - 0.00	28/08/2018
18210152	SW_23		0.00 - 0.00	28/08/2018
18210157	SW_24		0.00 - 0.00	28/08/2018
18210161	SW_1A		0.00 - 0.00	28/08/2018

Maximum Sample/Coolbox Temperature (°C) :

11.4

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 180829-25
Location: Docksway Landfill Site

Client Reference:
Order Number: 700124102

Report Number: 472872
Superseded Report: 471272

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)	18210166	18210152	18210157	18210161
Customer Sample Reference	C3_Asb	SW_23	SW_24	SW_1A
AGS Reference				
Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Container	H2SO4 (ALE212) 250ml BOD (ALE212)	500ml Plastic (ALE208) 250ml BOD (ALE212)	H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212)	H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212)
Sample Type	SW	SW	SW	SW

Parameter	All	NDPs: 0 Tests: 4	18210166	18210152	18210157	18210161
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 4	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 4	X	X	X	X
Asbestos in Water*	All	NDPs: 0 Tests: 1	X			
BOD True Total	All	NDPs: 0 Tests: 4	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 4	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4	X	X	X	X
pH Value	All	NDPs: 0 Tests: 4	X	X	X	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 180829-25 **Client Reference:** **Report Number:** 472872
Location: Docksway Landfill Site **Order Number:** 700124102 **Superseded Report:** 471272

Table of Results - Appendix

Method No	Reference	Description
SUB (ASB)		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

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CERTIFICATE OF ANALYSIS

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SDG: 180829-25	Client Reference:	Report Number: 472872	Superseded Report: 471272
Location: Docksway Landfill Site	Order Number: 700124102		

Test Completion Dates

Lab Sample No(s)	18210166	18210152	18210157	18210161
Customer Sample Ref.	C3_Asb	SW_23	SW_24	SW_1A
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water	Surface Water	Surface Water

Ammoniacal Nitrogen	05-Sep-2018	05-Sep-2018	05-Sep-2018	05-Sep-2018
Anions by Kone (w)	30-Aug-2018	30-Aug-2018	30-Aug-2018	30-Aug-2018
Asbestos in Water*	05-Sep-2018			
BOD True Total	04-Sep-2018	03-Sep-2018	03-Sep-2018	03-Sep-2018
COD Unfiltered	18-Sep-2018	03-Sep-2018	06-Sep-2018	03-Sep-2018
Conductivity (at 20 deg.C)	03-Sep-2018	03-Sep-2018	03-Sep-2018	03-Sep-2018
pH Value	06-Sep-2018	06-Sep-2018	06-Sep-2018	06-Sep-2018

ALS Environmental Ltd
Torrington Avenue
Coventry
CV4 9GU

T: +44 (0)24 7642 1213
F: +44 (0)24 7685 6575
www.alsenvironmental.co.uk

Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

05 September 2018

Test Report: COV/1602425/2018

Dear Subcon Results

Analysis of your sample(s) submitted on 31 August 2018 is now complete and we have pleasure in enclosing the appropriate test report(s).

An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed:



Name: A. Zunzunegui

Title: Organic Team Leader



Report Summary

ANALYSED BY

**Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU**



Date of Issue: **05 September 2018**

Report Number: **COV/1602425/2018**

Issue **1**

This issue replaces
all previous issues

Job Description: 2017-2018 Analysis

Job Location: Geotrace

Number of Samples
included in this report **1**

Job Received: **31 August 2018**

Number of Test Results
included in this report **2**

Analysis Commenced: **05 September 2018**

Signed:

Name: **A. Zunzunegui**

Date: **05 September 2018**

Title: **Organic Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 1 of 4

Certificate of Analysis

ANALYSED BY



Report Number: **COV/1602425/2018**
Laboratory Number: **17461105**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **18213008 C3_Asb**
Sample Matrix: **Surface Water**
Sample Date/Time: **28 August 2018**
Sample Received: **31 August 2018**
Analysis Complete: **05 September 2018**

Issue **1**
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Description of Sample	Analyst Com	Text	05/09/2018	N Cov	70
Asbestos Identification	Analyst Com	Text	05/09/2018	N Cov	70

Analyst Comments for 17461105:

ASBESTOS COMMENTS Asbestos ID: Non Detected, Description of Sample: Water

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **A. Zunzunegui**

Date: **05 September 2018**

Title: **Organic Team Leader**

ALS Environmental Ltd

Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Page 2 of 4



ANALYST COMMENTS FOR REPORT COV/1602425/2018

Issue 1 This issue replaces all previous issues

Date of Issue: **05 September 2018**

Sample No	Analysis Comments
17461105	ASBESTOS COMMENTS Asbestos ID: Non Detected, Description of Sample: Water

Signed:

A handwritten signature in black ink, appearing to read 'A. Zunzunegui', written over a horizontal line.

Name: **A. Zunzunegui**

Date: **05 September 2018**

Title: **Organic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/1602425/2018

ISSUE 1

Date of Issue: 05 September 2018

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments
17461105	18213008 C3_Asb	Asbestos Identification	{*}Non Detected{*/}
17461105	18213008 C3_Asb	Description of Sample	{*}Water{*/}

Signed: 	Name: A. Zunzunegui	Date: 05 September 2018
	Title: Organic Team Leader	



CERTIFICATE OF ANALYSIS

SDG: 180829-25	Client Reference:	Report Number: 472872
Location: Docksway Landfill Site	Order Number: 700124102	Superseded Report: 471272

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 6 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. ALS 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 (NDP). 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 (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

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 leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. 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.

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.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	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 ALS (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 ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astestostype	CommonName
Chrysotile	WhiteAsbestos
Amosite	BrownAsbestos
Coisidolite	BlueAsbestos
FibrousActinolite	-
FibrousAnthophyllite	-
FibrousTremolite	-

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.