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Veolia Environmental Services  
Lindon Road  
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Walsall  
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WS8 7BB

**Attention:** Joel Candlin

## CERTIFICATE OF ANALYSIS

**Date of report Generation:** 21 September 2021  
**Customer:** Veolia Environmental Services  
**Sample Delivery Group (SDG):** 210910-50  
**Your Reference:**  
**Location:** Maendy Landfill  
**Report No:** 614070  
**Order Number:** 4200053189

**This report has been revised and directly supersedes 613494 in its entirety.**

We received 4 samples on Friday September 10, 2021 and 4 of these samples were scheduled for analysis which was completed on Friday September 17, 2021. 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.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

**Sonia McWhan**

Operations Manager





# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50

Report Number: 614070

Superseded Report: 613494

Client Ref.:

Location: Maendy Landfill

## Received Sample Overview

Lab Sample No(s)	Customer	Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24953159		01			08/09/2021
24953156		12			08/09/2021
24953158		15			08/09/2021
24953157		17			08/09/2021

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



# CERTIFICATE OF ANALYSIS

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SDG: 210910-50

Report Number: 614070

Superseded Report: 613494

Client Ref.:

Location: Maendy Landfill

## Results Legend



Test



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)

Customer Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

24953157  
24953158  
24953156  
24953159

17  
15  
12  
01

0.5l glass bottle (ALE227)  
0.5l glass bottle (ALE227)  
0.5l glass bottle (ALE227)  
0.5l glass bottle (ALE227)

SW  
SW  
SW  
SW

Acid Herbicides by GCMS

All

NDPs: 0  
Tests: 4

X X X X

Dissolved Metals by ICP-MS

All

NDPs: 0  
Tests: 4

X X X X

PCB Congeners - Aqueous (W)

All

NDPs: 0  
Tests: 4

X X X X

Pesticides (Suite I) by GCMS

All

NDPs: 1  
Tests: 3

N X X X

Pesticides (Suite II) by GCMS

All

NDPs: 0  
Tests: 4

X X X X

Phenols by HPLC (W)

All

NDPs: 0  
Tests: 4

X X X X

SVOC MS (W) - Aqueous

All

NDPs: 0  
Tests: 4

X X X X

VOC MS (W)

All

NDPs: 1  
Tests: 3

N X X X



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SDG: 210910-50  
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Results Legend			Customer Sample Ref.		01	12	15	17		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4* Sample deviation (see appendix)	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		01		08/09/2021 Surface Water (SW) 10/09/2021 210910-50 24953159	08/09/2021 Surface Water (SW) 10/09/2021 210910-50 24953156	08/09/2021 Surface Water (SW) 10/09/2021 210910-50 24953158	08/09/2021 Surface Water (SW) 10/09/2021 210910-50 24953157		
Component	LOD/Units	Method								
Arsenic (diss)	<0.5 µg/l	TM152	0.769	2 #	0.57	2 #	<0.5	2 #	<0.5	2 #
Zinc (diss)	<1 µg/l	TM152	40	2 #	1.65	2 #	4.84	2 #	1.32	2 #
PCB congener 28	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 52	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 101	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 118	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 138	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 153	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 180	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105		<0.105		<0.105		<0.105	
PCB congener 77	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 81	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 105	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 114	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 123	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 126	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 156	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 157	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 167	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 169	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
PCB congener 189	<0.015 µg/l	TM197	<0.015		<0.015		<0.015		<0.015	
Resorcinol	<0.01 mg/l	TM259	<0.01	2	<0.01	2	<0.01	2	<0.01	2
Catechol	<0.01 mg/l	TM259	<0.01	2	<0.01	2	<0.01	2	<0.01	2
Phenol	<2 µg/l	TM259	<2	2	<2	2	<2	2	<2	2
Cresols	<6 µg/l	TM259	10	2	<6	2	<6	2	<6	2
Xylenols	<8 µg/l	TM259	<8	2	<8	2	<8	2	<8	2
1-Naphthol	<0.01 mg/l	TM259	<0.01	2	<0.01	2	<0.01	2	<0.01	2
2,3,5-Trimethylphenol	<0.003 mg/l	TM259	<0.003	2	<0.003	2	<0.003	2	<0.003	2
2-Isopropylphenol	<0.006 mg/l	TM259	0.03	2	<0.006	2	<0.006	2	<0.006	2
Phenols, Total Detected 8 Speciated	<0.045 mg/l	TM259	<0.045	2	<0.045	2	<0.045	2	<0.045	2
Trifluralin	<0.01 µg/l	TM343			<0.05		<0.01		<0.05	
HCH alpha	<0.01 µg/l	TM343			<0.05		<0.01		<0.05	
HCH gamma	<0.01 µg/l	TM343			<0.05		<0.01		<0.05	



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Superseded Report: 613494

Results Legend			Customer Sample Ref.	01	12	15	17		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery. (F) Trigger breach confirmed 1-4* Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953159	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953156	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953158	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953157		
Component	LOD/Units	Method							
Heptachlor	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Aldrin	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
HCH beta	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Isodrin	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
HCH delta	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Heptachlor epoxide	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
o,p'-DDE	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Endosulfan I	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
trans-Chlordane	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
cis-Chlordane	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
p,p'-DDE	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Dieldrin	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Endrin	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
o,p'-DDT	<0.01 µg/l	TM343			<0.1	<0.01	<0.1		
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Endosulfan II	<0.02 µg/l	TM343			<0.1	<0.02	<0.1		
p,p'-DDT	<0.01 µg/l	TM343			<0.2	<0.01	<0.2		
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.1	<0.01	<0.1		
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.2	<0.01	<0.2		
Endosulfan Sulphate	<0.02 µg/l	TM343			<0.1	<0.02	<0.1		
Permethrin I	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
Permethrin II	<0.01 µg/l	TM343			<0.05	<0.01	<0.05		
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
Hexachlorobutadiene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344	0.228	<0.01	<0.01	<0.01	<0.01		
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
Dichlorvos	<0.01 µg/l	TM344	<0.02	<0.02	<0.02	<0.02	<0.02		
Dichlobenil	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
Mevinphos	<0.01 µg/l	TM344	<0.03	<0.03	<0.03	<0.03	<0.03		
Tecnazene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
Hexachlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		
Demeton-S-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01		



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SDG: 210910-50  
Client Ref.:

Report Number: 614070  
Location: Maendy Landfill

Superseded Report: 613494

Results Legend			Customer Sample Ref.	01	12	15	17		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfiltTotal / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4*§@ Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021		
Component	LOD/Units	Method							
Phorate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Diazinon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Triallate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Atrazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Simazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Disulfoton	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Propetamphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Chlorpyrifos-methyl	<0.01 µg/l	TM344		<0.03	<0.03	<0.03	<0.03		
Dimethoate	<0.01 µg/l	TM344		<0.1	<0.1	<0.1	<0.1		
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Chlorpyrifos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Methyl Parathion	<0.01 µg/l	TM344		<0.05	<0.05	<0.05	<0.05		
Malathion	<0.01 µg/l	TM344		<0.06	<0.06	<0.06	<0.06		
Fenthion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Fenitrothion	<0.01 µg/l	TM344		<0.05	<0.05	<0.05	<0.05		
Triadimefon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Pendimethalin	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Parathion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Chlorfenvinphos	<0.01 µg/l	TM344		<0.06	<0.06	<0.06	<0.06		
trans-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
cis-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.01		
Ethion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Carbophenothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.02		
Triazophos	<0.01 µg/l	TM344		<0.3	<0.3	<0.3	<0.3		
Phosalone	<0.01 µg/l	TM344		<0.15	<0.15	<0.15	<0.15		
Azinphos-methyl	<0.02 µg/l	TM344		<0.2	<0.2	<0.2	<0.2		
Azinphos ethyl	<0.02 µg/l	TM344		<0.2	<0.2	<0.2	<0.2		
Dinitro-o-cresol	<0.1 µg/l	TM411		<0.1	<0.1	0.894	<0.1		
Clopyralid	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04		
MCPA	<0.05 µg/l	TM411		0.11	<0.05	<0.05	<0.05		
MCPP	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04		
Dicamba	<0.04 µg/l	TM411		<0.04	<0.04	<0.04	<0.04		
MCPB	<0.05 µg/l	TM411		<0.05	<0.05	<0.05	<0.05		





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SDG: 210910-50

Report Number: 614070

Superseded Report: 613494

Client Ref.:

Location: Maendy Landfill

## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		01	12	15	17		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4* \$@ Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953159	Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953156	Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953158	Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953157		
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Chlorophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Methylphenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Nitroaniline (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
2-Nitrophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
3-Nitroaniline (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Chloroaniline (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Methylphenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Nitroaniline (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
4-Nitrophenol (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Azobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Acenaphthylene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Acenaphthene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Anthracene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<2 #	<2 #	<2 #	<2 #		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		





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Location: Maendy Landfill

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## SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		01	12	15	17		
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021	Surface Water (SW) 08/09/2021		
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
* Subcontracted - refer to subcontractor report for accreditation status.					10/09/2021 210910-50 24953159	10/09/2021 210910-50 24953156	10/09/2021 210910-50 24953158	10/09/2021 210910-50 24953157		
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery										
(F) Trigger breach confirmed										
1-4* @ Sample deviation (see appendix)										
Component	LOD/Units	Method								
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Carbazole (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Chrysene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Dibenzofuran (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Diethyl phthalate (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Dimethyl phthalate (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
n-Dioctyl phthalate (aq)	<5 µg/l	TM176			<5 #	<5 #	<5 #	<5 #		
Fluoranthene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Fluorene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Hexachlorobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Hexachlorobutadiene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Pentachlorophenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1		
Phenol (aq)	<1 µg/l	TM176			<1	<1	<1	<1		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Hexachloroethane (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Nitrobenzene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Naphthalene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Isophorone (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176			<1	<1	<1	<1		
Phenanthrene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		
Pyrene (aq)	<1 µg/l	TM176			<1 #	<1 #	<1 #	<1 #		



# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50  
Client Ref.:

Report Number: 614070  
Location: Maendy Landfill

Superseded Report: 613494

## VOC MS (W)

Results Legend			Customer Sample Ref.	12	15	17			
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4*\$@ Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	12 Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953156	15 Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953158	17 Surface Water (SW) 08/09/2021 10/09/2021 210910-50 24953157			
Component	LOD/Units	Method							
Dibromofluoromethane**	%	TM208		111 2	112 2	112 2			
Toluene-d8**	%	TM208		102 2	102 2	101 2			
4-Bromofluorobenzene**	%	TM208		98.5 2	98.3 2	96.4 2			
Dichlorodifluoromethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Chloromethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Vinyl Chloride	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Bromomethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Chloroethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Trichlorofluoromethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,1-Dichloroethene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Carbon disulphide	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Dichloromethane	<3 µg/l	TM208		<3 2 #	<3 2 #	<3 2 #			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,1-Dichloroethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
2,2-Dichloropropane	<1 µg/l	TM208		<1 2	<1 2	<1 2			
Bromochloromethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Chloroform	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,1-Dichloropropene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Carbontetrachloride	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,2-Dichloroethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Benzene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Trichloroethene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,2-Dichloropropane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Dibromomethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Bromodichloromethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
Toluene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			
1,3-Dichloropropane	<1 µg/l	TM208		<1 2 #	<1 2 #	<1 2 #			



# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50  
Client Ref.:

Report Number: 614070  
Location: Maendy Landfill

Superseded Report: 613494

## VOC MS (W)

Results Legend			Customer Sample Ref.	12	15	17			
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4 Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953156	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953158	Surface Water (SW) 08/09/2021  10/09/2021 210910-50 24953157			
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Dibromochloromethane	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2-Dibromoethane	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Chlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Ethylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Xylene (m+p)	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Xylene (o)	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Styrene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Bromoform	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Isopropylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Bromobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Propylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
2-Chlorotoluene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
4-Chlorotoluene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
tert-Butylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
sec-Butylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
4-iso-Propyltoluene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,3-Dichlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
n-Butylbenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1 2	<1 2	<1 2				
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Hexachlorobutadiene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
Naphthalene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 2 #	<1 2 #	<1 2 #				
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1 2	<1 2	<1 2				

15:52:55 21/09/2021



# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50

Report Number: 614070

Superseded Report: 613494

Client Ref.:

Location: Maendy Landfill

## Notification of NDPs (No determination possible)

Date Received : 10/09/2021 08:25:18

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
24953159	01		VOC MS (W)	Insufficient Sample
24953159	01		VOC MS (W)	Insufficient Sample
24953159	01		Pesticides (Suite I) by GCMS	Insufficient sample remaining for repeat analysis
24953159	01		Pesticides (Suite I) by GCMS	Insufficient sample remaining for repeat analysis



# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50  
Client Ref.:

Report Number: 614070  
Location: Maendy Landfill

Superseded Report: 613494

## Table of Results - Appendix

Method No	Reference	Description
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.



# CERTIFICATE OF ANALYSIS

Validated

SDG: 210910-50  
Client Ref.:

Report Number: 614070  
Location: Maendy Landfill

Superseded Report: 613494

## Test Completion Dates

Lab Sample No(s)	24953159	24953156	24953158	24953157
Customer Sample Ref.	01	12	15	17
AGS Ref.				
Depth				
Type	Surface Water	Surface Water	Surface Water	Surface Water

Acid Herbicides by GCMS	15-Sep-2021	15-Sep-2021	15-Sep-2021	15-Sep-2021
Dissolved Metals by ICP-MS	15-Sep-2021	15-Sep-2021	15-Sep-2021	15-Sep-2021
PCB Congeners - Aqueous (W)	16-Sep-2021	16-Sep-2021	16-Sep-2021	16-Sep-2021
Pesticides (Suite I) by GCMS		15-Sep-2021	16-Sep-2021	15-Sep-2021
Pesticides (Suite II) by GCMS	16-Sep-2021	16-Sep-2021	16-Sep-2021	16-Sep-2021
Phenols by HPLC (W)	14-Sep-2021	14-Sep-2021	14-Sep-2021	14-Sep-2021
SVOC MS (W) - Aqueous	16-Sep-2021	16-Sep-2021	15-Sep-2021	16-Sep-2021
VOC MS (W)		17-Sep-2021	17-Sep-2021	17-Sep-2021



# CERTIFICATE OF ANALYSIS

<b>SDG:</b>	210910-50	<b>Client Reference:</b>		<b>Report Number:</b>	614070
<b>Location:</b>	Maendy Landfill	<b>Order Number:</b>	4200053189	<b>Superseded Report:</b>	613494

## 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 NH<sub>4</sub> by the BRE method, VOC TICs and SVOC TICs.

2. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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 (BTX). 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.

16. 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.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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 subject 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.

### 19. 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	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

### 20. Asbestos

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.

#### 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.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	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.

#### Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

**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.**