



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

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Attention: Lisa Maiden

CERTIFICATE OF ANALYSIS

Date: 21 March 2018
Customer: H_APEXTEST_BRG
Sample Delivery Group (SDG): 180313-29
Your Reference: D8073-18
Location: MAESFFYNNON CARE HOME/PRIMARY SCHOOL A
Report No: 448901

This report has been revised and directly supersedes 448378 in its entirety.

We received 5 samples on Tuesday March 13, 2018 and 5 of these samples were scheduled for analysis which was completed on Wednesday March 21, 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 Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901
Location: MAESFFYNNON CARE HO	Order Number: AT1060	Superseded Report: 448378

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17197691	1	D		12/03/2018
17197693	2	D		12/03/2018
17197694	3	D		12/03/2018
17197695	4	D		12/03/2018
17197696	5	D		12/03/2018

Maximum Sample/Coolbox Temperature (°C) :

7.4

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:	180313-29	Client Reference:	D8073-18	Report Number:	448901
Location:	MAESFFYNNON CARE HO	Order Number:	AT1060	Superseded Report:	448378

Results Legend	Lab Sample No(s)			17197691		17197693		17197694		17197695		17197696	
	Customer Sample Reference	1		2		3		4		5			
AGS Reference	D		D		D		D		D				
Depth (m)													
Container	250g Amber Jar (ALE210) 1kg TUB		250g Amber Jar (ALE210) 1kg TUB		250g Amber Jar (ALE210) 1kg TUB		250g Amber Jar (ALE210) 1kg TUB		250g Amber Jar (ALE210) 1kg TUB		250g Amber Jar (ALE210) 1kg TUB		
Sample Type	S		S		S		S		S		S		
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Anions by Kone (w)	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
CEN Readings	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Fluoride	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Mercury Dissolved	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Mineral Oil	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
PAH by GCMS	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
PCBs by GCMS	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
pH	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 5		X	X	X	X	X	X	X	X	X	



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901
Location: MAESFFYNNON CARE HO	Order Number: AT1060	Superseded Report: 448378

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17197691	1		Dark Brown	Sandy Loam	Stones	None
17197693	2		Dark Brown	Sandy Silt Loam	Stones	None
17197694	3		Dark Brown	Sandy Loam	Stones	None
17197695	4		Dark Brown	Sandy Loam	Stones	None
17197696	5		Dark Brown	Sandy Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

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 materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901	Superseded Report: 448378
Location: MAESFFYNNON CARE HOME	Order Number: AT1060		

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference	Site Location	MAESFFYNNON CARE HOME/PR
Mass Sample taken (kg) 0.109	Natural Moisture Content (%)	20.5
Mass of dry sample (kg) 0.090	Dry Matter Content (%)	83
Particle Size <4mm >95%		

Case	
SDG	180313-29
Lab Sample Number(s)	17197691
Sampled Date	12-Mar-2018
Customer Sample Ref.	1 DZ
Depth (m)	

Landfill Waste Acceptance Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
3	5	6
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	>6	-
-	-	-
-	-	-

Solid Waste Analysis	Result
Total Organic Carbon (%)	0.878
Loss on Ignition (%)	3.78
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	17.4
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	7.37
ANC to pH 6 (mol/kg)	<0.03
ANC to pH 4 (mol/kg)	0.0889

Eluate Analysis	C2 Conc ⁿ in 10:1 eluate (mg/l)		A2 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00204	<0.0002	0.0204	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	<0.0003	<0.0003	<0.003	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	3.5	<2	35	<20	1000	20000	50000
Total Dissolved Solids	22.2	<5	222	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	14-Mar-2018
pH (pH Units)	7.70
Conductivity (µS/cm)	19.80
Temperature (°C)	18.50
Volume Leachant (Litres)	0.882

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
 Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
 Mcerts Certification does not apply to leachates

21/03/2018 12:44:17

12:44:08 21/03/2018



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901	Superseded Report: 448378
Location: MAESFFYNNON CARE HOME	Order Number: AT1060		

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference	Site Location	MAESFFYNNON CARE HOME/PR
Mass Sample taken (kg)	Natural Moisture Content (%)	22
Mass of dry sample (kg)	Dry Matter Content (%)	82
Particle Size <4mm		>95%

Case	
SDG	180313-29
Lab Sample Number(s)	17197693
Sampled Date	12-Mar-2018
Customer Sample Ref.	2 DZ
Depth (m)	

Landfill Waste Acceptance Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
3	5	6
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	>6	-
-	-	-
-	-	-

Solid Waste Analysis	Result
Total Organic Carbon (%)	0.778
Loss on Ignition (%)	3.72
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	19.2
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	7.24
ANC to pH 6 (mol/kg)	<0.03
ANC to pH 4 (mol/kg)	0.0649

Eluate Analysis	C ₂ Conc ⁿ in 10:1 eluate (mg/l)		A ₂ 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection	Inert	Stable	Hazardous
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00405	<0.0002	0.0405	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000796	<0.0003	0.00796	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.0108	<0.003	0.108	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	0.00132	<0.0002	0.0132	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.0054	<0.001	0.054	<0.01	4	50	200
Chloride	3.7	<2	37	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	2.8	<2	28	<20	1000	20000	50000
Total Dissolved Solids	33.8	<5	338	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	15-Mar-2018
pH (pH Units)	8.48
Conductivity (µS/cm)	36.40
Temperature (°C)	18.30
Volume Leachant (Litres)	0.880

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
 Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
 Mcerts Certification does not apply to leachates

21/03/2018 12:44:17

12:44:08 21/03/2018



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901	Superseded Report: 448378
Location: MAESFFYNNON CARE HOME	Order Number: AT1060		

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference	Site Location	MAESFFYNNON CARE HOME/PR
Mass Sample taken (kg) 0.105	Natural Moisture Content (%)	16.3
Mass of dry sample (kg) 0.090	Dry Matter Content (%)	86
Particle Size <4mm >95%		

Case	
SDG	180313-29
Lab Sample Number(s)	17197694
Sampled Date	12-Mar-2018
Customer Sample Ref.	3 DZ
Depth (m)	

Landfill Waste Acceptance Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
3	5	6
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	>6	-
-	-	-
-	-	-

Solid Waste Analysis	Result
Total Organic Carbon (%)	1.05
Loss on Ignition (%)	3.86
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	14.8
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	6.52
ANC to pH 6 (mol/kg)	<0.03
ANC to pH 4 (mol/kg)	0.0492

Eluate Analysis	C ₂ Conc ⁿ in 10:1 eluate (mg/l)		A ₂ 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection	Inert	Stable	Hazardous
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00202	<0.0002	0.0202	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000777	<0.0003	0.00777	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00389	<0.001	0.0389	<0.01	4	50	200
Chloride	11.3	<2	113	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	4.7	<2	47	<20	1000	20000	50000
Total Dissolved Solids	50.4	<5	504	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	15-Mar-2018
pH (pH Units)	7.84
Conductivity (µS/cm)	53.40
Temperature (°C)	18.30
Volume Leachant (Litres)	0.885

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
 Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
 Mcerts Certification does not apply to leachates

21/03/2018 12:44:17

12:44:08 21/03/2018



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901	Superseded Report: 448378
Location: MAESFFYNNON CARE HOME	Order Number: AT1060		

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference	Site Location MAESFFYNNON CARE HOME/PR
Mass Sample taken (kg) 0.106	Natural Moisture Content (%) 17.6
Mass of dry sample (kg) 0.090	Dry Matter Content (%) 85
Particle Size <4mm >95%	

Case	
SDG	180313-29
Lab Sample Number(s)	17197695
Sampled Date	12-Mar-2018
Customer Sample Ref.	4 DZ
Depth (m)	

Landfill Waste Acceptance Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
3	5	6
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	>6	-
-	-	-
-	-	-

Solid Waste Analysis	Result
Total Organic Carbon (%)	1.12
Loss on Ignition (%)	3.49
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	18.6
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	6.69
ANC to pH 6 (mol/kg)	<0.03
ANC to pH 4 (mol/kg)	0.0377

Eluate Analysis	C ₂ Conc ⁿ in 10:1 eluate (mg/l)		A ₂ 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection	Inert	Stable	Hazardous
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00192	<0.0002	0.0192	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00115	<0.0003	0.0115	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00268	<0.001	0.0268	<0.01	4	50	200
Chloride	6.9	<2	69	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	4.6	<2	46	<20	1000	20000	50000
Total Dissolved Solids	36.2	<5	362	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	15-Mar-2018
pH (pH Units)	7.99
Conductivity (µS/cm)	38.70
Temperature (°C)	18.50
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
 Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
 Mcerts Certification does not apply to leachates

21/03/2018 12:44:17

12:44:08 21/03/2018



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901	Superseded Report: 448378
Location: MAESFFYNNON CARE HOME	Order Number: AT1060		

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference	Site Location	
Mass Sample taken (kg) 0.105	Natural Moisture Content (%) 16.3	MAESFFYNNON CARE HOME/PR
Mass of dry sample (kg) 0.090	Dry Matter Content (%) 86	
Particle Size <4mm >95%		

Case	
SDG	180313-29
Lab Sample Number(s)	17197696
Sampled Date	12-Mar-2018
Customer Sample Ref.	5 DZ
Depth (m)	

Landfill Waste Acceptance Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
3	5	6
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	>6	-
-	-	-
-	-	-

Solid Waste Analysis	Result
Total Organic Carbon (%)	1.01
Loss on Ignition (%)	3.44
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	29.7
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	6.81
ANC to pH 6 (mol/kg)	<0.03
ANC to pH 4 (mol/kg)	0.0754

Eluate Analysis	C ₂ Conc ⁿ in 10:1 eluate (mg/l)		A ₂ 10:1 conc ⁿ leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection	Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00204	<0.0002	0.0204	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000492	<0.0003	0.00492	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	<0.0004	<0.0004	<0.004	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00561	<0.001	0.0561	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	2.6	<2	26	<20	1000	20000	50000
Total Dissolved Solids	27.4	<5	274	<50	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	<3	<3	<30	<30	500	800	1000

Leach Test Information

Date Prepared	15-Mar-2018
pH (pH Units)	8.29
Conductivity (µS/cm)	27.90
Temperature (°C)	17.70
Volume Leachant (Litres)	0.885

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
 Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
 Mcerts Certification does not apply to leachates

21/03/2018 12:44:17

12:44:08 21/03/2018



CERTIFICATE OF ANALYSIS

Validated

SDG: 180313-29 Client Reference: D8073-18 Report Number: 448901
Location: MAESFFYNNON CARE HO Order Number: AT1060 Superseded Report: 448378

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990; BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM182	CEN/TC 292 - WI 292046-characterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
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
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

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



CERTIFICATE OF ANALYSIS

Validated

SDG:	180313-29	Client Reference:	D8073-18
Location:	MAESFFYNNON CARE HO	Order Number:	AT1060
		Report Number:	448901
		Superseded Report:	448378

Test Completion Dates

Lab Sample No(s)	17197691	17197693	17197694	17197695	17197696
Customer Sample Ref.	1	2	3	4	5
AGS Ref.	D	D	D	D	D
Depth					
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)

ANC at pH4 and ANC at pH 6	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018
Anions by Kone (w)	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018
CEN 10:1 Leachate (1 Stage)	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018
CEN Readings	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018	16-Mar-2018
Dissolved Metals by ICP-MS	21-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018	21-Mar-2018
Dissolved Organic/Inorganic Carbon	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
Fluoride	17-Mar-2018	17-Mar-2018	19-Mar-2018	17-Mar-2018	19-Mar-2018
GRO by GC-FID (S)	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
Loss on Ignition in soils	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018
Mercury Dissolved	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018
Mineral Oil	17-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018	17-Mar-2018
PAH by GCMS	15-Mar-2018	20-Mar-2018	15-Mar-2018	20-Mar-2018	20-Mar-2018
PCBs by GCMS	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
pH	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
Phenols by HPLC (W)	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018	20-Mar-2018
Sample description	13-Mar-2018	13-Mar-2018	13-Mar-2018	13-Mar-2018	13-Mar-2018
Total Dissolved Solids	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018	19-Mar-2018
Total Organic Carbon	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018	15-Mar-2018



CERTIFICATE OF ANALYSIS

SDG: 180313-29	Client Reference: D8073-18	Report Number: 448901
Location: ↓ CARE HOME/PRIMARY SCHC	Order Number: AT1060	Superseded Report: 448378

Appendix

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%, they are generally wider for volatiles analysis, 50-150%. 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.

General

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).

Astestost 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.

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.