

Our Ref: DE/211-CA/WASTE

Your Ref:

Contact: David Emanuel

15th July 2024

MERTHYR TYDFIL CBC
Unit 5
Triangle Business Park
Pentrebach
Merthyr Tydfil
CF48 4TQ

For the attention of Ms Hannah Collis

Dear Hannah,

**DRAFT SOIL WASTE CLASSIFICATION OF IN-SITU SOILS: MERTHYR INCLINE,
MERTHYR TYDFIL**

TFW Group Limited has been retained by Merthyr Tydfil County Borough Council (the client) to classify in-situ soil at their site at Merthyr Incline.

On 30th May 2024, 10 No. samples were collected from trial pits and subject to Total Analysis. Full 2 Stage WAC Analysis was performed on 5 No. samples. The exploratory hole logs are presented in **Annex A**, and their locations are presented on **Drawing 01**. Soil chemical test results are provided in **Annex B**.

On the basis of the soil chemical test results, the soil was classified based on the identified Hazards as defined in accordance with waste classification algorithms detailed in Environment Agency publication WM3 (V1.1. 2018).

Representative compounds were selected for the detected elements for waste classification. Where necessary, appropriate factors were employed to account for discrepancies between elemental and molecular concentrations.

No asbestos was detected in any of the samples tested.

TPH was recorded up to 110 mg/kg during TPH Analysis. Free product was not observed and the potential for HP 3 is therefore omitted from the assessment.

A summary of the soil classification is presented in **Table 1**.

Table 1 Summary of Classification

Location	Depth (m)	Soil Type	Waste Classification	EWC Code	Additional Comments
SA01	0.30	Made Ground	Non-Hazardous	17 05 04	-
SA01	1.80	Made Ground	Non-Hazardous	17 05 04	-
SA03	0.40	Made Ground	Non-Hazardous	17 05 04	-
SA04	0.50	Made Ground	Non-Hazardous	17 05 04	-
SA05	0.50	Made Ground	Non-Hazardous	17 05 04	-
TP02	0.50	Natural	Non-Hazardous	17 05 04	-
TP03	0.10	Made Ground	Non-Hazardous	17 05 04	-
TP04	0.30	Made Ground	Non-Hazardous	17 05 04	-
TP05	0.20	Made Ground	Non-Hazardous	17 05 04	-
TP06	1.00	Natural	Non-Hazardous	17 05 04	-

Five samples were submitted for WAC analysis. An appraisal of the WAC results is presented in **Table 2**.

Table 2 Summary of WAC Testing

Location	Sample	Soil Type	Comments
SA01	0.30	Made Ground	Fails Inert Chemical Criteria on account of elevated Total Organic Carbon (26%)
SA04	0.50	Made Ground	Satisfies Inert Chemical Criteria
SA05	0.50	Made Ground	Fails Inert Chemical Criteria on account of elevated Total Organic Carbon (20%)
TP03	0.10	Made Ground	Fails Inert Chemical Criteria on account of elevated Total Organic Carbon (19%)
TP04	0.30	Made Ground	Fails Inert Chemical Criteria on account of elevated Total Organic Carbon (3.1%)

If materials cannot be satisfactorily segregated, the worst-case classification should apply.

The classifications do not include an assessment of invasive plant species.

If anomalous materials are encountered during excavation the classification should be revisited.

We trust that the above is to your satisfaction, however, if you have any queries or require any further information, please do not hesitate to contact us.

Yours sincerely
for: **TFW Group Limited**

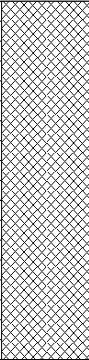


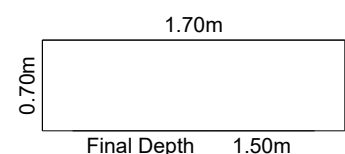
David Emanuel

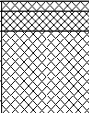
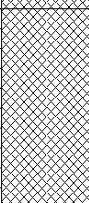
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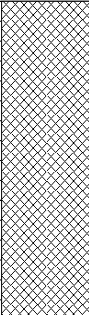
Annex A – Exploratory Hole Logs
Annex B – Soil Chemical Test Results

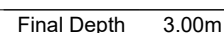
Annex A
Exploratory Hole Logs

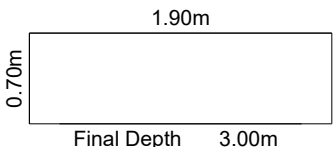
		Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors Phone: 033 022 36380 Email: hello@tfwgroup.co.uk		Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA	Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP	Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA	Borehole No. SA01 Sheet 1 of 1
Project Name Merthyr Incline				Project No. 24-211-CA	Date 30/05/2024 to 30/05/2024		Hole Type TP
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:	Water Strike Details		Logged By TM
Contractor					Depth	Strike	Remarks
Plant Used							Approved By
							Scale 1:50
Samples and Results			Depth, (Thickness)	Level	Stratum Description		Legend
Results	Type	Depth					
	ES	0.30			MADE GROUND. Grass over loose to medium dense dark brown mottled black and orange silty very gravelly fine to coarse SAND with low cobble content. Gravel is angular to subrounded fine to coarse concrete, brick, mudstone, sandstone, fragments of glass, metal, ceramic. Cobbles are subangular sandstone.		
	ES	1.80	1.80 (0.20) 2.00		MADE GROUND. Medium dense grey mottled brown and white silty gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse mudstone, brick, chalk, glass fragment. End of Trial Pit at 2.00m		
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 2.00m depth. 3] Infiltration test performed at 2.00m depth. 4] Trial pit backfilled with arisings on completion of test. Pit Stability: Stable Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.							
1.70m 0.70m Final Depth 2.00m							

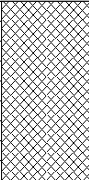
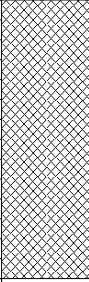


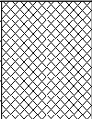
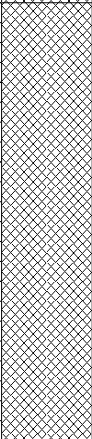
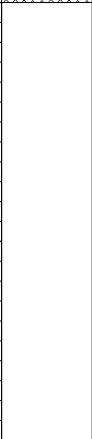
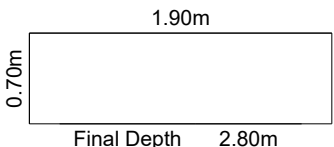
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Project Name Merthyr Incline				Project No. 24-211-CA		Date 30/05/2024 to 30/05/2024				Hole Type TP	
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:		Water Strike Details				Logged By TM	
Contractor						Depth Strike		Remarks		Approved By	
Plant Used										Scale 1:50	
Samples and Results			Depth, (Thickness)	Level	Stratum Description					Legend	
Results	Type	Depth									
	ES	0.40	(0.05)		MADE GROUND. Grass over soft brown silty gravelly CLAY. Gravel is angular to subangular fine to coarse asphalt, concrete, brick. ASPHANT. MADE GROUND. Loose to medium dense reddish brown slightly clayey very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse brick, concrete, asphalt, mudstone. MADE GROUND. Firm to stiff brown sandy gravelly CLAY with low cobble and boulder content. Gravel is angular subrounded fine to coarse concrete, brick, mudstone, sandstone, fragments of metal and glass. Cobbles and boulders are subangular concrete, sandstone.						
			(0.05)		End of Trial Pit at 1.70m						
			(0.10)								
			(0.15)								
			(0.45)								
			0.60								
			1								
			(1.00)								
			1.60								
			2								
			3								
			4								
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 1.70m depth. 3] Infiltration test performed at 1.70m depth. 4] Trial pit backfilled with arisings on completion of test.											
Pit Stability: Stable											
Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.											
						0.70m 1.70m Final Depth 1.70m					

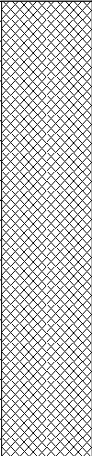
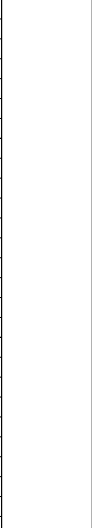
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Project Name Merthyr Incline				Project No. 24-211-CA		Date 30/05/2024 to 30/05/2024				Hole Type TP	
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:		Water Strike Details				Logged By TM	
Contractor						Depth Strike		Remarks		Approved By	
Plant Used										Scale 1:50	
Samples and Results			Depth, (Thickness)	Level	Stratum Description						Legend
Results	Type	Depth									
	ES	0.50	(1.60)		MADE GROUND. Grass over loose reddish brown slightly clayey gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse concrete, clinker, ironstone, brick, sandstone, mudstone, occasional coal.						
			1.60								
					End of Trial Pit at 1.60m						
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 1.60m depth. 3] Infiltration test performed at 1.60m depth. 4] Trial pit backfilled with arisings on completion of test. Pit Stability: Stable Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.											
0.70m 1.80m Final Depth 1.60m											



			Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors Phone: 033 022 36380 Email: hello@tfwgroupp.co.uk			Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA			Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP			Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA			Borehole No. TP02 Sheet 1 of 1		
Project Name Merthyr Incline						Project No. 24-211-CA			Date 30/05/2024 to 30/05/2024						Hole Type TP		
Client Merthyr Tydfil County Borough Council						Co-ords E: N: L:			Water Strike Details						Logged By TM		
Contractor									Depth Strike			Remarks			Approved By		
Plant Used															Scale 1:50		
Samples and Results			Depth, (Thickness)	Level	Stratum Description										Legend		
Results	Type	Depth															
	ES	0.50	(0.40)		MADE GROUND. Grass over firm to stiff greyish brown silty slightly sandy gravelly CLAY with high cobble and boulder content. Gravel is angular to subrounded fine to coarse mudstone, sandstone.												
			0.40		Stiff orangish brown mottled grey gravelly CLAY with medium cobble content. Gravel is angular to subrounded fine to coarse mudstone. Cobbles are subrounded mudstone.												
			(0.80)														
			1														
			1.20		Stiff orangish grey mottled brown gravelly CLAY. Gravel is angular to subrounded fine to coarse mudstone.												
			2														
			(1.80)														
			3		End of Trial Pit at 3.00m												
			4														
Remarks																	
1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 3.00m depth. 3] Trial pit backfilled with arisings on completion of test.																	
Pit Stability: Stable																	
Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.																	

		Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors		Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA		Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP		Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA		Borehole No. TP03 Sheet 1 of 1	
Project Name Merthyr Incline				Project No. 24-211-CA		Date 30/05/2024 to 30/05/2024				Hole Type TP	
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:		Water Strike Details				Logged By TM	
Contractor						Depth Strike		Remarks		Approved By	
Plant Used										Scale 1:50	
Samples and Results			Depth, (Thickness)	Level	Stratum Description						Legend
Results	Type	Depth									
	ES	0.10			MADE GROUND. Grass over loose reddish brown mottled black slightly clayey gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse concrete, clinker, ironstone, brick, sandstone, mudstone, occasional coal.						
			(0.90)								
			0.90	1	MADE GROUND. Firm to stiff grey sandy very gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, concrete, brick.						
			(0.30)								
			1.20		MADE GROUND. Firm dark brown very sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse mudstone, brick, concrete, occasional coal.						
			(0.20)								
			1.40		MADE GROUND. Medium dense to dense yellowish brown gravelly fine to coarse SAND with medium cobble content. Gravel is angular to subangular fine to coarse brick, concrete. Cobbles are angular to subangular concrete, brick.						
				2							
			(1.40)								
			2.80		End of Trial Pit at 2.80m						
				3							
				4							
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 2.80m depth due to collapsing. 3] Trial pit backfilled with arisings on completion of test. Pit Stability: Unstable Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.											
2.00m 0.70m Final Depth 2.80m											

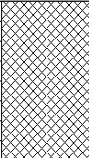
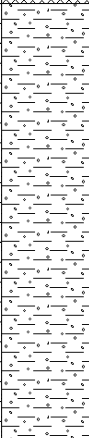
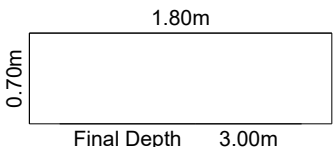
		Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors		Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA		Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP		Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA		Borehole No. TP04 Sheet 1 of 1	
Project Name Merthyr Incline				Project No. 24-211-CA		Date 30/05/2024 to 30/05/2024				Hole Type TP	
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:		Water Strike Details				Logged By TM	
Contractor						Depth Strike		Remarks		Approved By	
Plant Used										Scale 1:50	
Samples and Results			Depth, (Thickness)	Level	Stratum Description						Legend
Results	Type	Depth									
	ES	0.30	(0.60)		MADE GROUND. Grass over firm to stiff sandy gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, concrete, sandstone.						
			0.60		MADE GROUND. Loose reddish brown mottled black slightly clayey gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse concrete, clinker, ironstone, brick, sandstone, mudstone, occasional coal.						
			1		1.00 to 1.40m - From 1.00m to 1.40m: Band black mottled reddish brown rich in coal						
			(2.20)								
			2								
			2.80		End of Trial Pit at 2.80m						
			3								
			4								
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 2.80m depth due to collapsing. 3] Trial pit backfilled with arisings on completion of test.											
Pit Stability: Unstable											
Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.											
											

		Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors		Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA		Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP		Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA		Borehole No. TP05 Sheet 1 of 1	
Project Name Merthyr Incline				Project No. 24-211-CA		Date 30/05/2024 to 30/05/2024				Hole Type TP	
Client Merthyr Tydfil County Borough Council				Co-ords E: N: L:		Water Strike Details				Logged By TM	
Contractor						Depth Strike		Remarks		Approved By	
Plant Used										Scale 1:50	
Samples and Results			Depth, (Thickness)	Level	Stratum Description						Legend
Results	Type	Depth									
	ES	0.20			MADE GROUND. Loose reddish brown gravelly fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse concrete, clinker, ironstone, brick, sandstone, mudstone, occasional coal.						
			1 (2.30)		End of Trial Pit at 2.30m						
			2 2.30								
			3								
			4								
Remarks 1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 2.30m depth due to collapsing. 3] Trial pit backfilled with arisings on completion of test.											
Pit Stability: Unstable											
Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.											

0.70m

1.80m

Final Depth 2.30m

			Consulting Geotechnical, Geo-Environmental Engineers & Site Investigation Contractors Phone: 033 022 36380 Email: hello@tfwgroup.co.uk			Cardiff Office 5 Deryn Court Wharfedale Road Pentwyn Cardiff CF23 7HA			Exeter Office The Slate Barn Lower Lowley Dunsford Exeter EX6 7BP			Portsmouth Office Technopole Kingston Crescent North End Portsmouth PO2 8FA			Borehole No. TP06 Sheet 1 of 1			
Project Name Merthyr Incline						Project No. 24-211-CA			Date 30/05/2024 to 30/05/2024						Hole Type TP			
Client Merthyr Tydfil County Borough Council						Co-ords E: N: L:			Water Strike Details						Logged By TM			
Contractor									Depth Strike			Remarks			Approved By			
Plant Used															Scale 1:50			
Samples and Results			Depth, (Thickness)	Level	Stratum Description										Legend			
Results	Type	Depth																
	ES	1.00	(0.80)		MADE GROUND. Glass over dark brown silty slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse mudstone, concrete, brick, fragments of plastic and glass.													
			0.80	1	Stiff orangish brown/grey gravelly CLAY. Gravel is angular to subrounded fine to coarse mudstone.													
			(2.20)	2														
			3.00	3	End of Trial Pit at 3.00m													
			4															
Remarks																		
1] Consistency, strength and density indicators are based upon field judgement. 2] Trial pit terminated at 3.00m depth. 3] Trial pit backfilled with arisings on completion of test.																		
Pit Stability: Stable																		
Notes: For all symbols and abbreviations please see key sheet. All depths and measurements in metres. Stratum thicknesses given in brackets.																		

Annex B
Soil Chemical Test Results



Final Report

Report No.: 24-18076-1

Initial Date of Issue: 17-Jun-2024

Re-Issue Details:

Client Terra Firma

Client Address: 5 Deryn Court
Wharfedale Road
Pentwyn
Cardiff
CF23 7HA

Contact(s): tomas@terrafirmawales.co.uk

Project Merthyr Incline

Quotation No.: **Date Received:** 07-Jun-2024

Order No.: **Date Instructed:** 07-Jun-2024

No. of Samples: 5

Turnaround (Wkdays): 7 **Results Due:** 17-Jun-2024

Date Approved: 17-Jun-2024

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - 2 Stage WAC

Project: Merthyr Incline

Chemtest Job No: 24-18076							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1818290							Limits			
Sample Ref: SA01							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: SA01										
Sample Location: SA01ES101										
Top Depth(m): 0.30										
Bottom Depth(m):										
Sampling Date: 30-May-2024										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				26	3	5	6
Loss On Ignition	2610	M	%				24	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				17	100	--	--
pH at 20C	2010	M					8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0080	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0005	0.0008	0.0010	0.0078	0.5	2	25	
Barium	1455	U	0.14	0.077	0.27	0.84	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0007	0.0007	0.0013	0.0067	0.5	10	70	
Copper	1455	U	0.0023	0.0018	0.0045	0.0029	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.011	0.0063	0.021	0.068	0.5	10	30	
Nickel	1455	U	0.0028	0.0010	0.0055	0.012	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50	
Antimony	1455	U	0.0032	0.0015	0.0062	0.017	0.06	0.7	5	
Selenium	1455	U	0.0051	0.0006	0.0099	0.012	0.1	0.5	7	
Zinc	1455	U	0.037	0.021	0.072	0.23	4	50	200	
Chloride	1220	U	< 1.0	1.4	< 10	12	800	15000	25000	
Fluoride	1220	U	0.10	0.10	< 1.0	< 1.0	10	150	500	
Sulphate	1220	U	62	16	120	220	1000	20000	50000	
Total Dissolved Solids	1020	N	220	64	420	830	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	6.3	3.3	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	19

Leachate Test Information	
Leachant volume 1st extract/l	0.308
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.220

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: Merthyr Incline

Chemtest Job No: 24-18076							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1818291							Limits			
Sample Ref: SA04							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: SA04										
Sample Location: SA04ES101										
Top Depth(m): 0.50										
Bottom Depth(m):										
Sampling Date: 30-May-2024										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				0.95	3	5	6
Loss On Ignition	2610	M	%				2.2	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				< 2.0	100	--	--
pH at 20C	2010	M					8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.012	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0061	0.0057	0.012	0.058	0.5	2	25	
Barium	1455	U	0.13	0.033	0.26	0.48	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0005	< 0.0005	0.0011	0.0008	0.5	10	70	
Copper	1455	U	0.0011	0.0012	0.0023	0.0017	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.036	0.0069	0.070	0.11	0.5	10	30	
Nickel	1455	U	< 0.0005	0.0006	< 0.0005	0.0049	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50	
Antimony	1455	U	0.0027	0.0005	0.0054	0.0085	0.06	0.7	5	
Selenium	1455	U	0.0007	< 0.0005	0.0013	0.0010	0.1	0.5	7	
Zinc	1455	U	0.004	0.003	0.008	0.031	4	50	200	
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.24	0.17	< 1.0	1.8	10	150	500	
Sulphate	1220	U	23	4.5	45	73	1000	20000	50000	
Total Dissolved Solids	1020	N	140	34	270	490	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	4.0	3.8	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	14

Leachate Test Information	
Leachant volume 1st extract/l	0.322
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.262

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: Merthyr Incline

Project: Mercury Mining							Landfill Waste Acceptance Criteria				
Chemtest Job No: 24-18076 Chemtest Sample ID: 1818292 Sample Ref: SA05 Sample ID: SA05 Sample Location: SA05ES101 Top Depth(m): 0.50 Bottom Depth(m): Sampling Date: 30-May-2024							Limits				
							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill		
Determinand	SOP	Accred.	Units								
Total Organic Carbon	2625	M	%					20	3	5	6
Loss On Ignition	2610	M	%					19	--	--	10
Total BTEX	2760	M	mg/kg					< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg					< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg					180	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg					26	100	--	--
pH at 20C	2010	M						8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg		0.0060	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg				
Arsenic	1455	U	0.0014	0.0023	0.0028	0.022	0.5	2	25		
Barium	1455	U	0.064	0.026	0.13	0.31	20	100	300		
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5		
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70		
Copper	1455	U	0.0032	0.0021	0.0063	0.0037	2	50	100		
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2		
Molybdenum	1455	U	0.014	0.0033	0.027	0.044	0.5	10	30		
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40		
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50		
Antimony	1455	U	0.0028	0.0009	0.0055	0.011	0.06	0.7	5		
Selenium	1455	U	0.0009	< 0.0005	0.0019	0.0011	0.1	0.5	7		
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200		
Chloride	1220	U	6.3	< 1.0	12	< 10	800	15000	25000		
Fluoride	1220	U	0.38	0.28	< 1.0	2.9	10	150	500		
Sulphate	1220	U	11	1.1	22	22	1000	20000	50000		
Total Dissolved Solids	1020	N	160	66	320	770	4000	60000	100000		
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-		
Dissolved Organic Carbon	1610	U	7.1	4.2	< 50	< 50	500	800	1000		

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	17

Leachate Test Information	
Leachant volume 1st extract/l	0.313
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.201

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: Merthyr Incline

Chemtest Job No: 24-18076							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1818293							Limits			
Sample Ref: TP03							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: TP03										
Sample Location: TP03ES101										
Top Depth(m): 0.10										
Bottom Depth(m):										
Sampling Date: 30-May-2024										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				19	3	5	6
Loss On Ignition	2610	M	%				19	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				43	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				24	100	--	--
pH at 20C	2010	M					8.5	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0080	--	To evaluate	To evaluate			
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0017	0.0032	0.0033	0.030	0.5	2	25	
Barium	1455	U	0.059	0.025	0.12	0.29	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	0.0056	0.0012	0.011	0.018	0.5	10	70	
Copper	1455	U	0.0018	0.0014	0.0036	0.0025	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.024	0.0086	0.047	0.11	0.5	10	30	
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50	
Antimony	1455	U	0.0055	0.0020	0.011	0.025	0.06	0.7	5	
Selenium	1455	U	0.0013	< 0.0005	0.0026	0.0019	0.1	0.5	7	
Zinc	1455	U	0.003	0.005	0.007	0.044	4	50	200	
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.33	0.26	< 1.0	2.7	10	150	500	
Sulphate	1220	U	18	4.9	36	67	1000	20000	50000	
Total Dissolved Solids	1020	N	180	76	360	910	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	5.5	4.2	< 50	< 50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	15

Leachate Test Information	
Leachant volume 1st extract/l	0.320
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.247

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: Merthyr Incline

Chemtest Job No: 24-18076							Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 1818294							Limits			
Sample Ref: TP04							Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID: TP04										
Sample Location: TP04ES101										
Top Depth(m): 0.30										
Bottom Depth(m):										
Sampling Date: 30-May-2024										
Determinand	SOP	Accred.	Units							
Total Organic Carbon	2625	M	%				3.1	3	5	6
Loss On Ignition	2610	M	%				4.2	--	--	10
Total BTEX	2760	M	mg/kg				< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg				< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg				99	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg				93	100	--	--
pH at 20C	2010	M					8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg				0.0040	--	To evaluate	To evaluate
Eluate Analysis			2:1 mg/l	8:1 mg/l	2:1 mg/kg	Cumulative mg/kg 10:1	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg			
Arsenic	1455	U	0.0003	0.0003	0.0005	0.0033	0.5	2	25	
Barium	1455	U	0.080	0.13	0.16	1.2	20	100	300	
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5	
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70	
Copper	1455	U	0.0018	< 0.0005	0.0035	0.0020	2	50	100	
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2	
Molybdenum	1455	U	0.0080	0.0028	0.016	0.034	0.5	10	30	
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40	
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50	
Antimony	1455	U	0.0011	< 0.0005	0.0022	0.0013	0.06	0.7	5	
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7	
Zinc	1455	U	0.008	< 0.003	0.015	0.009	4	50	200	
Chloride	1220	U	1.4	< 1.0	< 10	< 10	800	15000	25000	
Fluoride	1220	U	0.27	0.16	< 1.0	1.7	10	150	500	
Sulphate	1220	U	22	6.5	44	83	1000	20000	50000	
Total Dissolved Solids	1020	N	170	63	330	750	4000	60000	100000	
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-	
Dissolved Organic Carbon	1610	U	9.7	4.4	< 50	50	500	800	1000	

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	11

Leachate Test Information	
Leachant volume 1st extract/l	0.328
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.200

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com